PORT OF SHELTON
PROMOTING POSSIBILITIES

SANDERSON FIELD

DRAFT AIRPORT MASTER PLAN

July 2026

2026 AIRPORT MASTER PLAN

Prepared for

Sanderson Field Ariport
Port of Shelton
Shelton, WA

Prepared by

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TABLE OF CONTENTS

CHAPTER 1 – Introduction

Project Need **1-2**
Project Funding **1-3**
Goals of the Airport Master Plan **1-3**
Planning Process **1-4**
Framework of the Airport Master Plan **1-5**
Project Schedule **1-5**
Known Issues & Opportunities **1-6**

CHAPTER 2 – Existing Conditions Analysis

Introduction **2-1**
Airport Overview 2-1
Area Airports Contextual Analysis 2-8
Summary of Aviation Activity 2-11
Socioeconomic Conditions 2-12
Environmental Conditions 2-14
Cultural Resources Analysis 2-15
Environmental Overview (NEPA) 2-15
Airspace 2-18
Controlled & Uncontrolled Airspace 2-22
Instrument Approach Procedures 2-25
Airfield Facilities **2-26**
Airside Elements 2-26
Landside Facilities 2-33
Airport Support Facilities/Services 2-38
Land Use And Zoning 2-41
Airport Administration **2-46**
Airport Ownership & Management 2-46
Airport Finance 2-46
FAA Compliance Overview 2-46

CHAPTER 3 – Airport Facility Requirements

Introduction **3-1**
Summary of Airport Activity **3-2**
Current Activity (2024 Baseline) 3-3
Future Activity 3-4
Demand/Capacity Analysis **3-5**
Critical Aircraft and Airport Design Standards Discussion **3-5**
Critical Aircraft 3-5
FAA Design Standards 3-6
Taxiway Design Group 3-8
Airside Facility Requirements **3-9**
Part 77 Airspace 3-9
Part 77 Airspace Surfaces and Obstructions 3-10

Airfield Pavement Strength . . . 3-11
Airfield Pavement Condition . . . 3-12
Airfield Facilities . . . 3-14
Runway Length . . . 3-16
Airport Design Standards. . . . 3-18
Taxilanes. . . . 3-22
Airfield Instrumentation, Signage, Lighting, and Markings . . . 3-23
Landside Facility Requirements . . . 3-25
Aircraft Parking Apron . . . 3-25
Aircraft Hangars . . . 3-27
Support Facilities Requirements. . . . 3-27
Surface Access and Vehicle Parking . . . 3-27
Fuel Facilities. . . . 3-28
Utilities . . . 3-28
Airport Firefighting . . . 3-28
Perimeter Fencing/Gates. . . . 3-28
Land Use . . . 3-28
Summary . . . 3-29

CHAPTER 4 – Alternatives Analysis

Introduction . . . 4-1
Facility Needs Overview . . . 4-1
Development Alternatives Analysis Process. . . . 4-3
FAA Planning Guidance. . . . 4-3
Preliminary Development Alternatives . . . 4-4
Proposed Airside Improvements . . . 4-5
Preliminary Landside Development Concepts. . . . 4-6
Terminal Apron Development Area . . . 4-7
East Development Area. . . . 4-8
South Development Area . . . 4-9
West Development Area . . . 4-10
Land Use, Transportation, and Environmental Issues. . . . 4-11
Commission and Public Comment . . . 4-11
Preferred Alternative . . . 4-12

CHAPTER 5 – Capital Improvement Plan

Introduction . . . 5-1
Airport Development Schedule and Cost Estimates . . . 5-2
ACIP Projects. . . . 5-2
Capital Funding Sources & Programs . . . 5-5
Federal Funding . . . 5-5
State Funding . . . 5-6
Local Funding . . . 5-7

CHAPTER 6 – Airport Layout Plan

Introduction . . . 6-1

LIST OF TABLES

Table 2-1: 10-Year Grant History (SHN) 2-5
Table 2-2: Public Use Airports within 35 Nautical Miles (NM) of SHN 2-10
Table 2-3: FAA 5010 Data 2-10
Table 2-4: Based Aircraft (SHN) 2-11
Table 2-5: Historical Gross Domestic Product (2012 Dollars) 2-12
Table 2-6: Mason County Demographics 2-13
Table 2-7: Federal ESA-Listed Species 2-16
Table 2-8: Instrument Approaches (SHN) 2-25
Table 2-9: Runway Details (SHN) 2-27
Table 2-10: Pavement Condition Rates - 2018 Inspection (SHN) 2-32
Table 2-11: Existing Aviation Buildings (SHN) 2-35
Table 2-12: Industrial Park Buildings (SHN) 2-40
Table 3-1: Sanderson Field Aircraft Operations (2024 Baseline) 3-4
Table 3-2: Based Aircraft and Fleet Mix (2024) 3-4
Table 3-3: Future Aeronautical Activity Projections 3-4
Table 3-4: Existing and Future Critical Aircraft Summary 3-6
Table 3-5: Runway 5/23 Design Standards Summary (Dimensions in Feet) 3-7
Table 3-6: Taxiway Design Standards (dimensions in feet) 3-8
Table 3-7: Part 77 Airspace Summary (SHN) 3-10
Table 3-8: Allowable Crosswind Component By Runway Design Code 3-14
Table 3-9: Wind Coverage 3-14
Table 3-10: ASOS Visibility Observations 3-15
Table 3-11: Operational Peaks 3-26
Table 3-12: Projected Aircraft Parking Demand 3-26
Table 3-13: Facility Requirements Summary 3-29
Table 4-1: Summary of Demand Factors and Facility Development Needs 4-2
Table 4-2: Potential Development Factors 4-11
Table 4-3: Alternative Features 4-12
Table 5-1: Capital Improvement Projects 5-3

LIST OF FIGURES

Figure 1-1: As-built ALP 1-2
Figure 1-2: Project Schedule 1-6
Figure 1-3: Known Issues & Opportunities 1-7
Figure 2-1: Airport Vicinity Map 2-2
Figure 2-2: Location and Vicinity Map 2-3
Figure 2-3: Development Prior to 2012 2-6
Figure 2-4: Development Since 2012 2-7
Figure 2-5: Area Airports 2-9
Figure 2-6: 2022 Nonfarm Employment by Industry (Mason County) 2-13
Figure 2-7: Annual Temperatures 2-14
Figure 2-8: Annual Cloud Cover 2-14
Figure 2-9: Annual Rainfall 2-14
Figure 2-10: Sanderson Field Vicinity – Existing Wetlands 2-17
Figure 2-11: FAA Airspace Classifications 2-19
Figure 2-12: Area Airspace – Seattle Sectional Chart 2-21
Figure 2-13: Part 77 Airspace (SHN) 2-23
Figure 2-14: Instrument (TERPS) Departure Surface 2-24
Figure 2-15: Airport Traffic Patterns (SHN) 2-28
Figure 2-16: WSDOT IDEA Pavement Condition Index 2-32
Figure 2-17: Existing Conditions Landside (SHN) 2-36
Figure 2-18: Existing Terminal Area Buildings (SHN) 2-37
Figure 2-19: Airport and Vicinity Zoning 2-41
Figure 2-20: Land Use Compatibility Zones 2-44
Figure 2-21: Airspace Protection Areas 2-45
Figure 3-1: Taxiway Design Group Components 3-8
Figure 3-2: Part 77 Airspace (Generic) 3-9
Figure 3-3: 2024 Pavement Condition 3-12
Figure 3-4: 2035 Predicted Pavement Condition 3-13
Figure 3-5: All Weather Wind Rose (SHN) 3-15
Figure 3-6: Runway Length Curves - Existing 3-16
Figure 3-7: BE30 Takeoff Data - Sea Level - Anti-Ice Off - No Flaps/App Flaps 3-17
Figure 3-8: Non standard conditions 3-22
Figure 3-9: Existing and Standard Taxilane OFA Clearances 3-22
Figure 4-1: Proposed Airside Improvements 4-6
Figure 4-2: Terminal Apron Development Area 4-7
Figure 4-3: East Development Area 4-8
Figure 4-4: South Development Area 4-9
Figure 4-5: West Development Area 4-10
Figure 4-6: Preferred Alternative Overview 4-13

AIRPORT LAYOUT PLAN SHEETS

Sheet 1 – Title Sheet
Sheets 2-3 – Airport Data Sheets
Sheet 4 – Airport Layout Plan
Sheet 5 – Terminal Area Plan - North
Sheet 6 – Terminal Area Plan - South
Sheet 7 - Airport Airspace Plan (PART 77)
Sheet 8 – Runway 5 Approach Plan & Profile
Sheet 9 – Runway 23 Approach Plan & Profile
Sheet 10 – Inner Portion Runway 5 Approach Surfaces
Sheet 11 – Inner Portion Runway 23 Approach Surfaces
Sheet 12 – Runway Centerline Profile
Sheet 13 – Runway 5-23 Instrument Departure Surfaces
Sheet 14 – On Airport Land Use
Sheet 15 – Off Airport Land Use
Sheet 16 – Exhibit A – Airport Property Inventory Map
Sheets 17-22 – Airspace Obstruction Data Tables)

APPENDICES

A – Cultural Resources Survey
B – Environmental Review Memo
C – Instrument Procedures
D – Zoning Ordinances
E – Aviation Activity Forecasts
F – Grant Assurances
G – Glossary of Aviation Terms & List of Abbreviations

CHAPTER 1

Introduction

The Port of Shelton, Washington is preparing an Airport Master Plan for Sanderson Field Airport (SHN) in cooperation with the Federal Aviation Administration (FAA) to address the Airport's needs for the next 20 years. This project will replace the 2010 Airport Master Plan Update[1], which provided the most recent FAA-approved (signed) Airport Layout Plan (ALP) drawing for the Airport. The 2024-2044 Airport Master Plan will replace the previous plan and provide specific 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 Airport Master Plan is to define the current, near-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.

1 Sanderson Field – Airport Master Plan Update , Century West Engineering (March 2010)

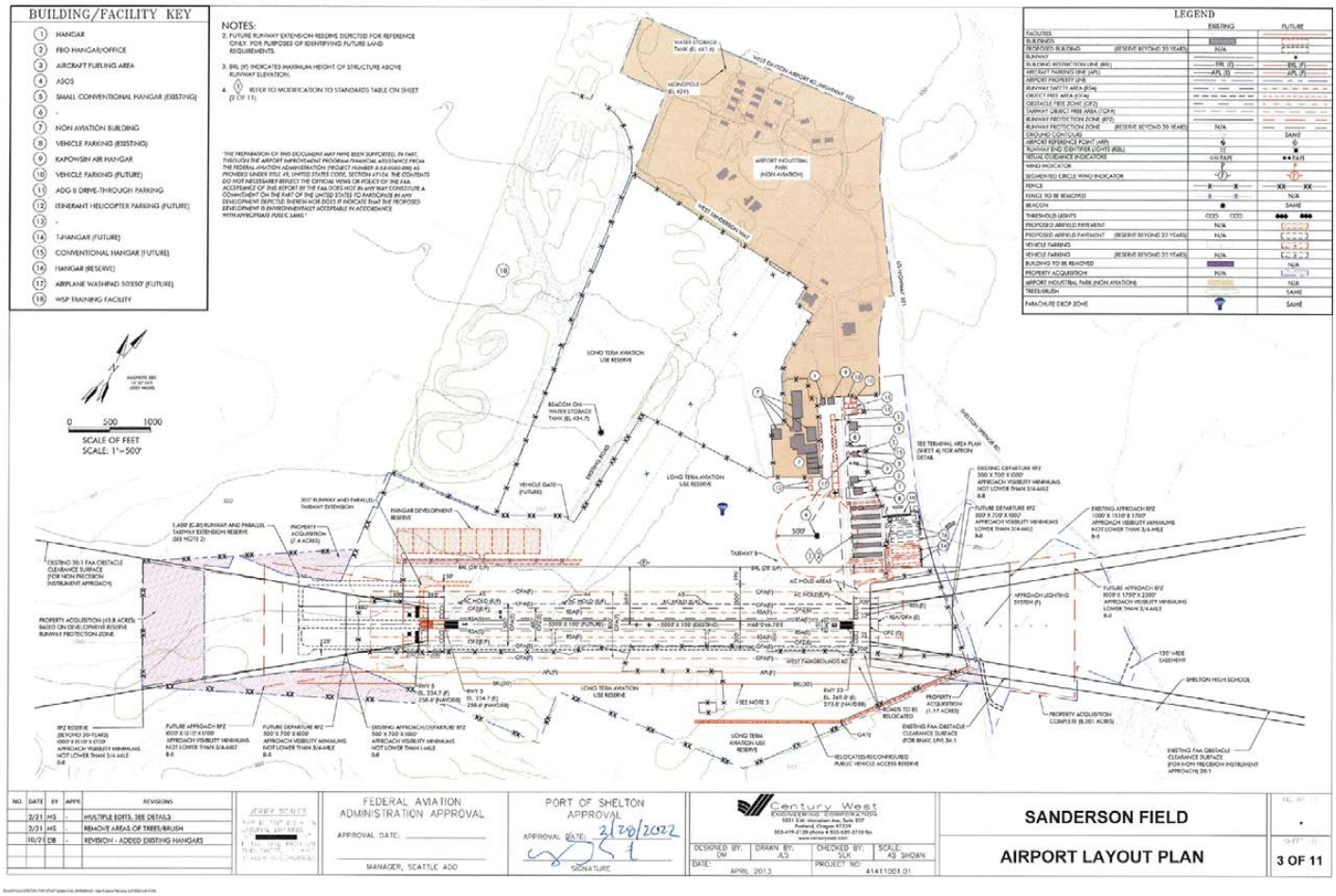
Project Need

The FAA requires airport sponsors (Port of Shelton) to periodically update their ALP drawings as conditions change in order to maintain current planning. As noted earlier, this project replaces the 2010 Airport Master Plan and drawing set. Several projects completed since the last master plan update have been detailed on the updated (as-built) ALP drawings:

- 2019 – Pavement maintenance, electrical improvements, runway main design and construction
- 2020 – Lighting base can acquisition, pavement maintenance, runway main construction
- 2021 – Runway main design and construction

The 2010 Airport Master Plan serves as a primary source for inventory data. Following several revisions, the master plan's ALP was finalized and approved by the Port and FAA in April 2013. The 2013 ALP drawing is the current FAA-approved ALP for the Airport. Several "as-built" updates have been made to the ALP drawing as recently as 2021. These drawings were submitted to the FAA as part of construction project closeouts but were not formally reviewed through all FAA lines of business. Additional information provided by the Port will supplement published FAA data and data obtained from on-site airfield inspections, general data collection, and recent design construction and environmental projects at the Airport. **Figure 1-1** depicts the 2021 As-Built ALP drawing.

Figure 1-1: As-built ALP



1. As-built update (2021) to 2013 ALP

Project Funding

Major project funding (90%) for the Airport Master Plan was provided through the FAA- Airport Improvement Program (AIP). The remaining 10% (local match) was divided equally between the Port of Shelton and the Washington Department of Transportation - Aviation Division (WSDOT). The total project cost is $500,000, which includes $450,000 (FAA), $25,000 (Port), and $25,000 (WSDOT).

The AIP is 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 general aviation and commercial aviation users. The WSDOT funding was provided through the Aviation Division's Community Grant program, which supports local FAA-obligated airports with a 50/50 split of their required 10% match for FAA grants, when available funding allows. Like AIP grants, WSDOT Aviation grants also exclusively support aviation projects with aviation user fees. The project grants include Port staff administration time to support the planning process.

90% FAA AIP Grant ($450,000)
5% WSDOT ($25,000)
5% Sponsor ($25,000)

Goals of the Airport Master Plan

The primary goal of the Airport Master Plan is to provide the framework and vision needed to guide future improvements at Sanderson Field. The FAA sets out goals and objectives each Master Plan should meet to ensure future development will cost-effectively satisfy aviation demand and consider potential environmental and socio-economic impacts.

Goal 1: Define the vision for the Airport to effectively serve the community, airport users, and the region. Assess known issues including runway length, the ability to accommodate development, auto parking, fencing, and land use to develop a realistic 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 to graphically depict proposed improvements consistent with FAA standards as a road map to future development. Prepare a supporting Capital Improvement Plan to summarize costs and priorities.

Goal 9: Provide recommendations to improve land use, zoning, and Port oversight of the Airport to remove barriers to appropriate growth at the Airport.

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

THE FAA ROLE IN THE AIRPORT MASTER PLAN

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

The recommendations contained in an airport master plan represent the views, policies and development plans of the airport sponsor (Port of Shelton) and do not necessarily represent the views of the FAA. Acceptance of the master 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 master plan to ensure that sound planning techniques have been applied. However, the FAA only formally approves the Aviation Activity Forecasts and Airport Layout Plan. The FAA is not directly involved in the local adoption of master plans.

Planning Process

A three-phase planning process is used to provide multiple feedback loops to maintain the flow of information and ideas for the community and project stakeholders, with the goal of maximizing public involvement.

DEVELOP UNDERSTANDING

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

Analysis

- Develop Scope of Work
- Public Involvement Strategy
- AGIS Survey
- Existing Conditions Analysis
- Aviation Activity Forecasts
- Environmental Review Memo
- Cultural Resources Memo

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 community 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 Capital Improvement Program (CIP); and current ALP drawings that graphically depict existing conditions at the airport and proposed development projects.

Analysis

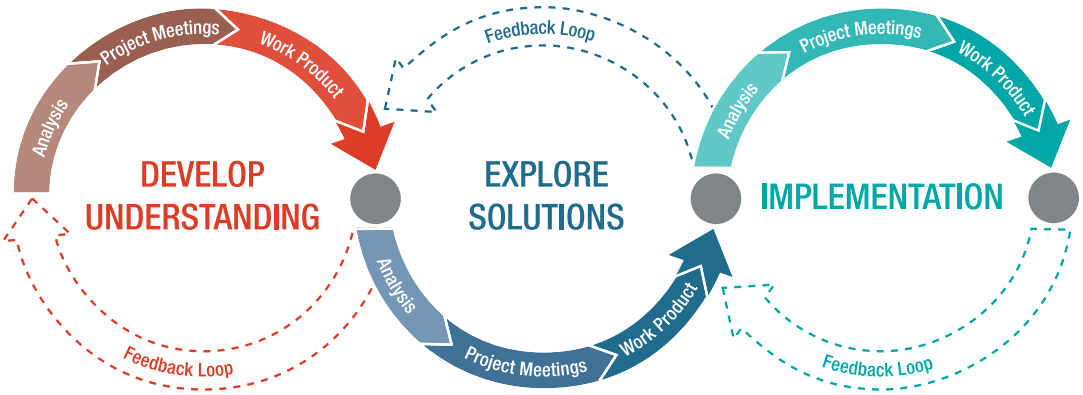
- Develop Strategies & Actions
- Develop CIP/Phasing/Financial Plan
- Develop ALP Drawing Set

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

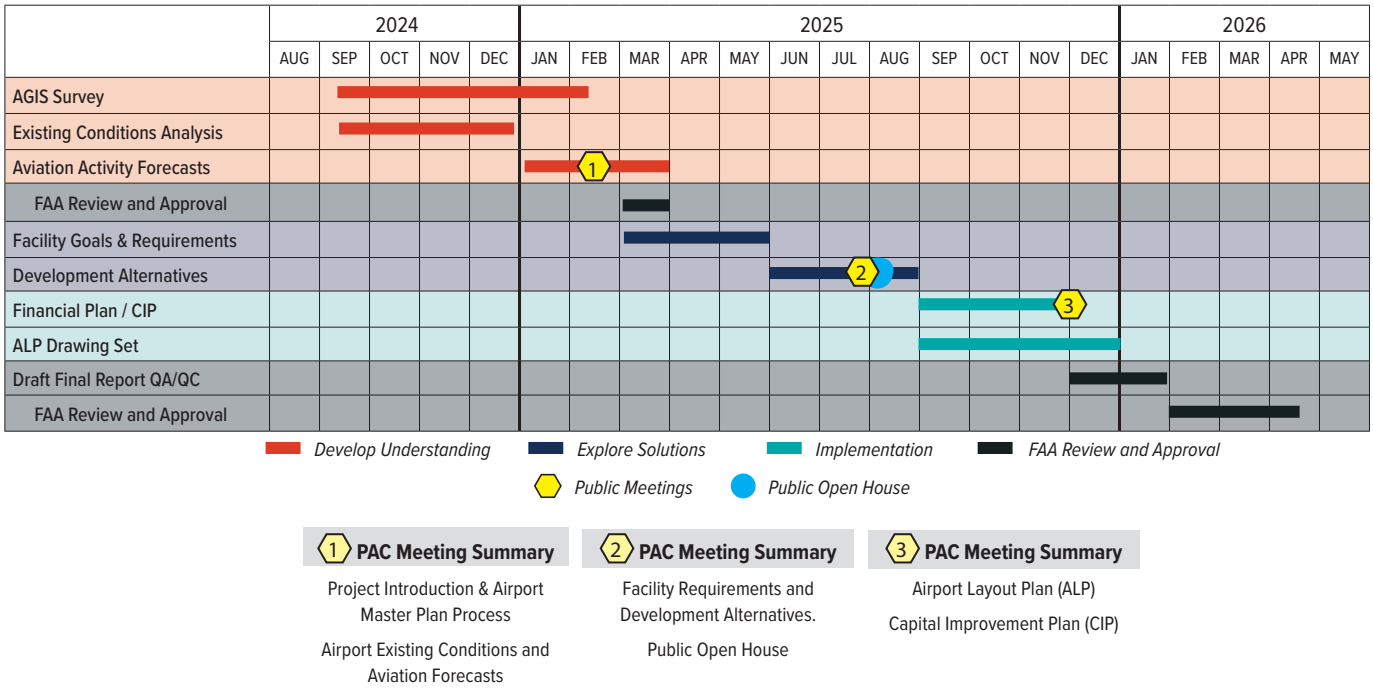
The framework of the Airport Master Plan provides a clear structure to inform and steer future planning decisions. The process allows the plan to take shape through flexibility, iteration, and adaptation. The framework reflects the Airport's regional setting, airside and landside elements, management, and administration functions. The framework provides guidance, while being flexible enough to adapt to changing conditions encountered during plan development. The process is used to develop understanding, explore solutions, and implement the preferred development alternative for the Airport that is complementary to its adjacent urban and rural environments.

	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 Navigational Aids Runway/Helipad Taxiways/Taxilanes Pavement Condition Airside Support Facilities	Aprons/Tiedowns FBO/ Terminal Building Hangars Airport Fencing Airport Surface Roads Vehicle Parking Utilities Aircraft Fueling	Airport Ownership & Management Airport Financials Airport Rates and Charges Local Rules & Regulations Washington Aviation Laws FAA Compliance Overview

Project Schedule

The Airport Master Plan schedule depicted in **Figure 1-2** is expected to occur over the course of approximately 20 months. FAA final review and approvals may take an additional 3-6 months following the completion of the final draft narrative reports and drawings. FAA-funded master planning project grants cannot be amended to account for changes in project scope or level of effort. This contract requirement ensures that only work included in the FAA-approved project scope of work will be required by FAA for project completion.

Figure 1-2: Project Schedule



Note: This is a living project schedule and will be updated as the project progresses.

Known Issues & Opportunities

At the outset of the Airport Master Plan, several known issues and opportunities were identified by airport management, the consultant, the FAA, or users of the Airport. Through discussions with the planning team and the Port, a preliminary list of known issues or opportunities was created for reference during the planning process. Additional items identified during the project will be incorporated into the master plan, as appropriate. Projects that are included in the Airport's current 5-year FAA Airports Capital Improvement Program (ACIP) are resented as near-term items that will be reviewed in the early stages of the master plan. The goal of this examination is to ensure a comprehensive and thorough assessment that addresses and documents proposed solutions, potential constraints, and methods of implementation. Several of these items/areas are summarized below and depicted on **Figure 1-3**:

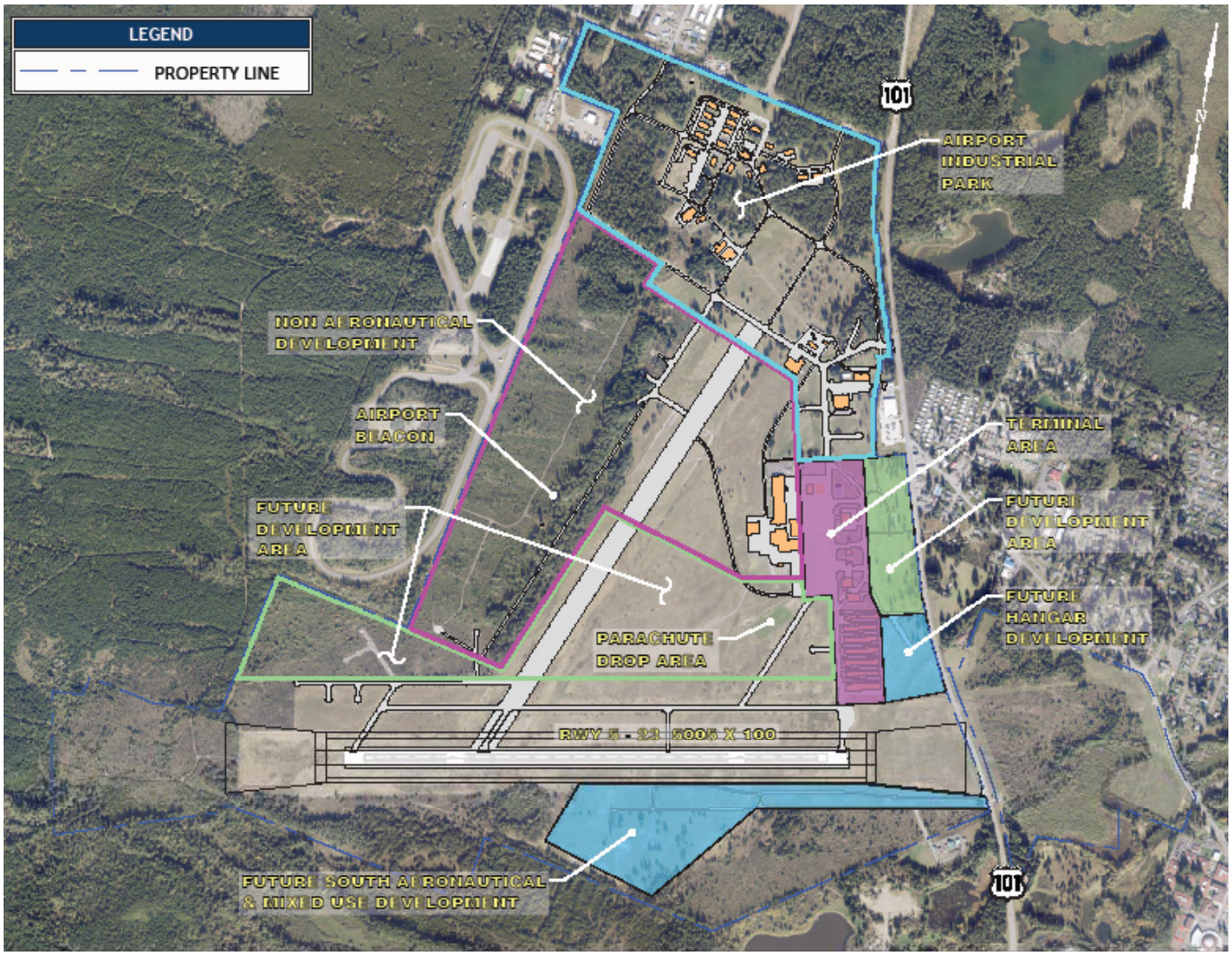
- **Non-Aeronautical Land Use Compatibility**: Sanderson Field contains large areas of land utilized for non-aeronautical activities that supply jobs to the local community and generate revenue to support the aeronautical functions of the Airport. Airport management has identified issues related to ensuring continued compatibility of non-aeronautical land uses with adjacent aeronautical lands. The land use issues will be documented in the master plan and the evaluation of airport development alternatives will incorporate appropriate land use designations/protections designed to preserve the effective balance between aeronautical and non-aeronautical land uses.

- **Land Use Evaluations**: Based on current and historical land use, an updated evaluation of aeronautical land use needs will be performed in the Master Plan. Secondary (non-aeronautical or mixed use) development opportunities will be defined on the Airport Layout Plan (ALP).

- **Maintenance Needs**: Sections of perimeter fencing around the airfield were identified during a site visit to have gaps or need repair or replacement. Regular airfield pavement maintenance is ongoing, periodic rehabilitations or reconstruction at the end of pavement useful life is normal. Airfield lighting, reflectors, signage and wind cones have similar maintenance and life-cycle replacement requirements. Currently, the REILs and PAPIs on Runway 5/23 are experiencing failures and are identified for repair and/or replacement. The segmented wind circle surface mounted concrete panels are worn and in need of painting.

- **Expanded Sky Diving Operations**: Airport management has identified several areas ideal for new aeronautical development to accommodate growing demand. The growth in skydiving activity is driving increased demand for new hangars and facilities to accommodate skydiving operations near the current drop zone.
- **Hangar Development**: The Airport has experienced a significant private hangar construction since the last Master Plan. Evaluating near-term and long-term developments for hangars and other landside facilities will be a primary focus area in this master plan update.
- **Transient Helicopter Parking**: Airport management indicates a need to provide designated parking areas for transient helicopters. Currently, this activity is accommodated within the main apron, but the absence of a designated helicopter parking area creates potential conflicts with other users including skydiving operations and fixed wing aircraft parking.
- **South Landside Development**: The site of the former Mason County fairgrounds has been cleared for redevelopment of aeronautical and mixed-use development. An updated evaluation of hangar, apron, taxiway, and access road improvements will be included in the master plan.

Figure 1-3: Known Issues & Opportunities



CHAPTER 2

Existing Conditions Analysis

Introduction

The purpose of this chapter is to provide a comprehensive summary of the existing conditions at Sanderson Field (SHN), located in Shelton, Washington. This includes an updated review of airport facilities, and an overview of the local economy, demographics, and other key factors within Sanderson Field's service area that influence airport operations. This project updates the 2012 Airport Master Plan Update, which serves as a primary source of data and will be referred to periodically.

Site visits were conducted in late summer 2024 to update the facility inventory and assess the condition of the existing airfield facilities. Operational and facility data were provided by Port staff, while historical data from multiple sources, including tenants, were reviewed and are presented in this report. A review of recent airport improvement projects completed by the Port's airport engineering consultant was also completed. Updated aerial photography was flown in September 2024, in conjunction with the AGIS survey being performed as part of the master plan.

AIRPORT OVERVIEW

The airport overview section is comprised primarily of features that provide the context of the Airport within its local community and region. This section describes the location and vicinity of Sanderson Field and provides a range of information related to the operation and function of the Airport. Socio-economic data, airport history, airport role, area airports context, environmental data, local surface transportation systems land use on and around the Airport, and other relevant data.

Airport Ownership

Sanderson Field is owned and operated by the Port of Shelton, a municipal port district established in 1948 that was created to support economic development for the area. The Port's website states, "The mission of the Port of Shelton is to provide economic benefit to our community." Sanderson Field is one of the Port's main facilities and operates as a public use general aviation (GA) airport that is part of the federal airport system.

Airport Location and Role

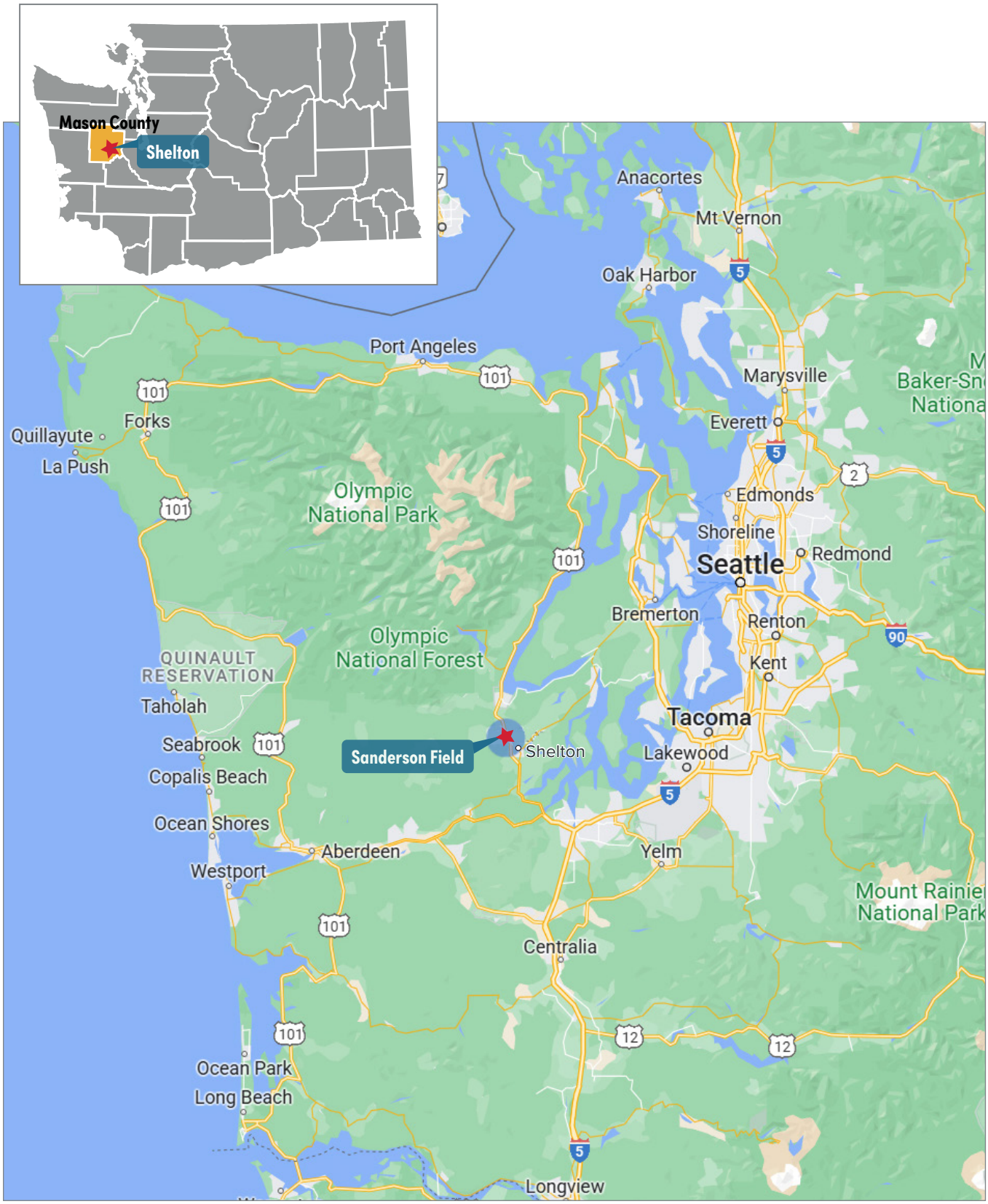
Sanderson Field is located approximately 2.5 miles northwest of the Shelton city center, in Mason County Washington. The Airport is located outside the Shelton city limits, but is inside the city's urban growth area (UGA). Shelton is the county seat and the largest population center in Mason County. Shelton is located 22 miles northwest of Olympia, via U.S. Highway 101, and 37 miles southwest of Bremerton via State Route 3.

Mason County is located in Western Washington at the base of the Olympic Peninsula, bordering the southwest corner of Puget Sound and the southern end of Hood Canal. Mason County encompasses approximately 972 square miles, over half of which is comprised of national, state, and private forest lands.

Sanderson Field is accessible via U.S. Highway 101 and State Highway 102 (West Dayton Airport Road) with several road connections including West Sanderson Way, Extension Road, and West Fairgrounds Road. The majority of the Port's current aeronautical and industrial development area is located on the north side of Runway 5/23. The former Mason County Fairgrounds is located on the south side of the runway. An internal road system provides access for the main development areas located west of Highway 101 (West Business Park Road/Loop, Development Road, Corporate Road, Henry Trusler Way, William White Way, Rose Nye Way, Transport Road, Airview Way). Location and vicinity maps for Sanderson Field are provided in **Figure 2-1 and 2-2**.

Figure 2-1: Airport Vicinity Map

Figure 2-2: Location and Vicinity Map



Source: Google Maps

National Role

Sanderson Field is included in the National Plan of Integrated Airport Systems (NPIAS), among 3,287 existing public-use airports. The purpose of the NPIAS is to develop public-use airports in the United States to ensure a safe, efficient, and integrated air transportation system. Funding for eligible development for airports within the NPIAS is provided through the Airport Improvement Program (AIP) and other related programs, as authorized by Congress. Current AIP funding typically covers 90% of eligible planning and development costs, with the balance provided by individual airport sponsors, state aviation, or tenants. The current 2024 National Plan of Integrated Airport Systems (2025-2029) Report to Congress, identifies Sanderson Field as a Local General Aviation Airport. Local GA airports support regional economies by connecting communities to statewide and interstate markets.

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. Sanderson Field is consistent with the WASP "Community" airport classification. Community airports support GA activities including personal, business and recreational transportation, and pilot training. Community airports are generally located outside of metropolitan areas and regional centers, and have paved runways with 15 or more based aircraft.

Airport History

The following historical summary uses the information contained in the 2012 Airport Master Plan, that cited various local sources.[1,2]

1927 – 1941

In July 1927, Lieutenant Lawson Sanderson led a group of army and navy officials on a flight to inspect a potential site for a new airfield in Shelton. In December 1927, the Mason County Commission formally designated a portion of the county owned property on Scott's Prairie as a site for development of an airfield. The airfield would become known as the "Shelton Airport." In its early years, limited development occurred and Shelton Airport experienced light use. Over the next decade, a hangar and short runway was constructed.

1941 – 1947

In 1941, the U.S. Army purchased the Shelton Airport, then transferred it to the U.S. Navy, where it was designated "Naval Auxiliary Air Station Shelton." The majority of the airfield components currently in use or decommissioned over the last 70 years were part of the Navy's original development of the airfield in 1943. This included two 5,000 feet x 150 feet asphalt runways, hard surfaced taxiways, aprons and revetments. Military barracks were constructed, capable of housing about 1,300. Other support facilities were constructed. The primary use of the Naval Air Station in WWII was to accommodate Naval Utility Squadrons (VJs) providing target towing and services for aircraft. Additionally, the Airport served as an anti-aircraft gunnery school.

1947 - 1957

In 1947, the Navy ceased all operations, and the Airport was designated the Mason County Airport, operated and maintained by the Civil Air Patrol. In 1955, the federal government transferred the airfield to Mason County, and in 1957 the county transferred the Airport to the Port of Shelton.

1 United States Naval Air Stations of World War II, Volume 2- Western States (M.L. Shettle, Jr.)

2 Mason County Commissioners certify the formation of the Port of Shelton. Mason County commissioners certify the formation of the Port of Shelton on September 24, 1948. (n.d.). https://www.historylink.org/File/9709

1957 – Present

Since the transfer of the 1,080-acre airport from Mason County to the Port of Shelton, significant development has occurred, aided by federal and state grants, Port funding, and tenant investment to accommodate a wide range of aeronautical and non-aeronautical activities. In 1966, the Airport was renamed Sanderson Field in honor of Shelton native United States Marine Corps Major General Lawson Sanderson. Several planning studies have taken place throughout the Airport's history as a public use airport, including multiple FAA-funded master planning efforts.

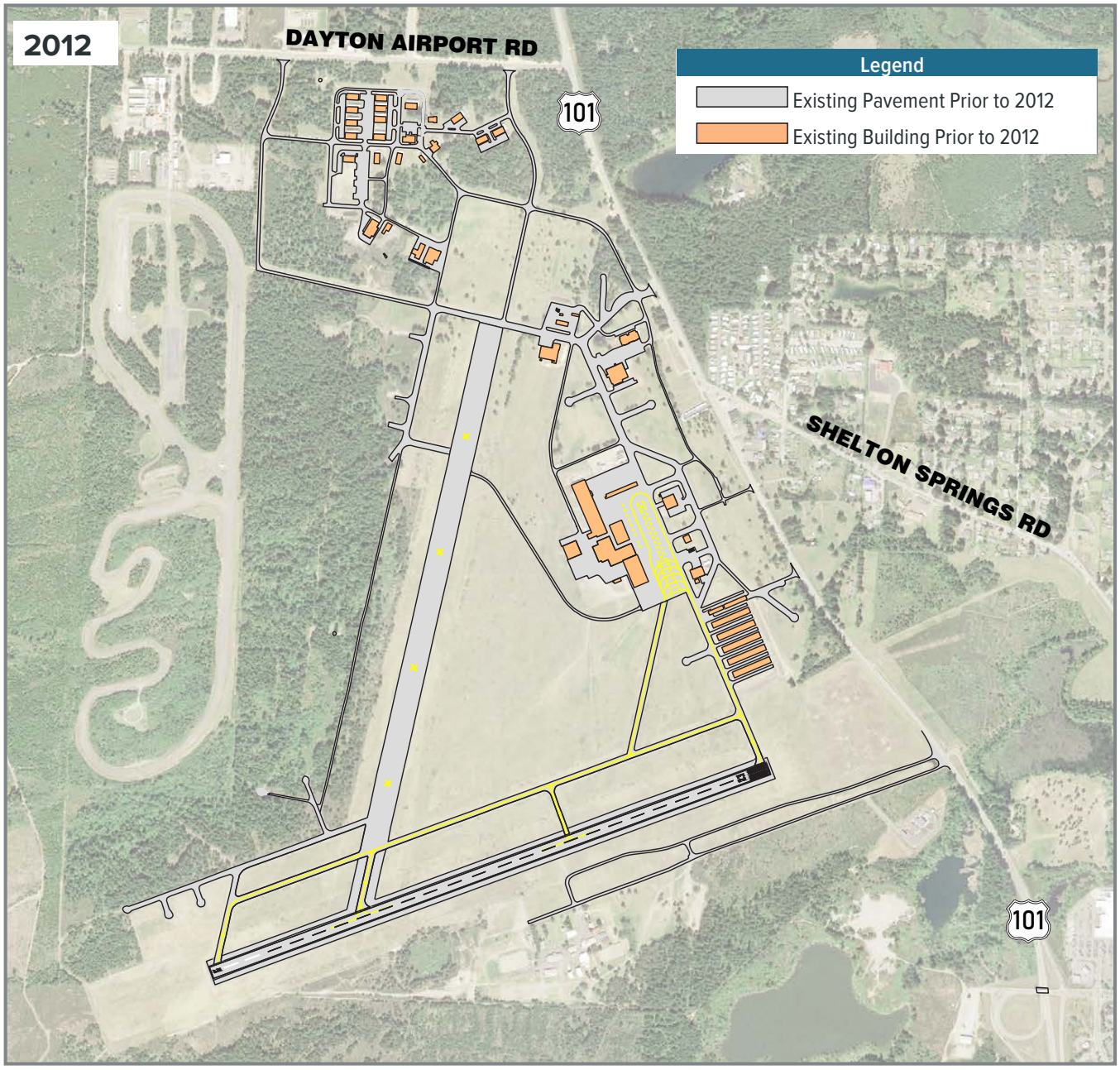
Over time, several of the original WWII non-aeronautical military facilities were removed to accommodate redevelopment. The original Mason County fairgrounds site on the south side of the Airport has been closed and cleared, and is in the process of redevelopment. The north-south runway was closed 35+ years ago, as it was determined to be ineligible for FAA funding. Several new construction and facility rehabilitation projects have been completed at the Airport since the last airport master plan update was completed. Recent FAA funded (with a local match) airfield projects are listed in **Table 2-1**. Projects include the rehabilitation of the runway, taxiways, installation of airfield lighting, signage improvements, and construction of the runup apron for Runway 23. **Figures 2-3 and 2-4** depict new airfield construction since the last master plan (2012) and since.

Table 2-1: 10-Year Grant History (SHN)

Fiscal Year	Project	Entitlement	Discretionary	Other	Total Federal
2013	Rehabilitate Runway – Runway Slurry Seal and Striping	$530,500	$0	$0	$530,500
2013	Rehabilitate Apron – Tie-down Demo	$150,000	$0	$0	$150,000
2016	Construct Apron – Rwy 23 Aircraft Run Up Area	$409,561	$0	$0	$409,561
2018	Conduct Environmental Study - Runway Pavement Overlay Environmental Review	$263,326	$0	$0	$263,326
2019	Rehabilitate Runway – Runway Pavement Overlay	$1,854,325	$1,513,044	$0	$3,367,369
2020	CARES Act Funds	$0	$0	$30,000	$30,000
2022	Install Airfield Guidance Signage - Design	$21,372	$0	$0	$21,372
2022	Install Taxiway Lighting - Design	$100,000	$0	$0	$100,000
2022	Rehabilitate Taxiway – Overlay	$150,000	$0	$0	$150,000
2024	Install Airfield Guidance Signage – Parallel Taxiway	$75,000	$0	$0	$75,000
2024	Rehabilitate Taxiway	$150,000	$3,821,700	$0	$3,971,700
2024	Install Taxiway Lighting – Parallel Taxiway	$253,628	$0	$0	$253,628
2024	Update Airport Master Plan	$0	$0	$488,000	$488,000
Total		$ 3,917,712	$5,334,744	$518,000	$9,770,456

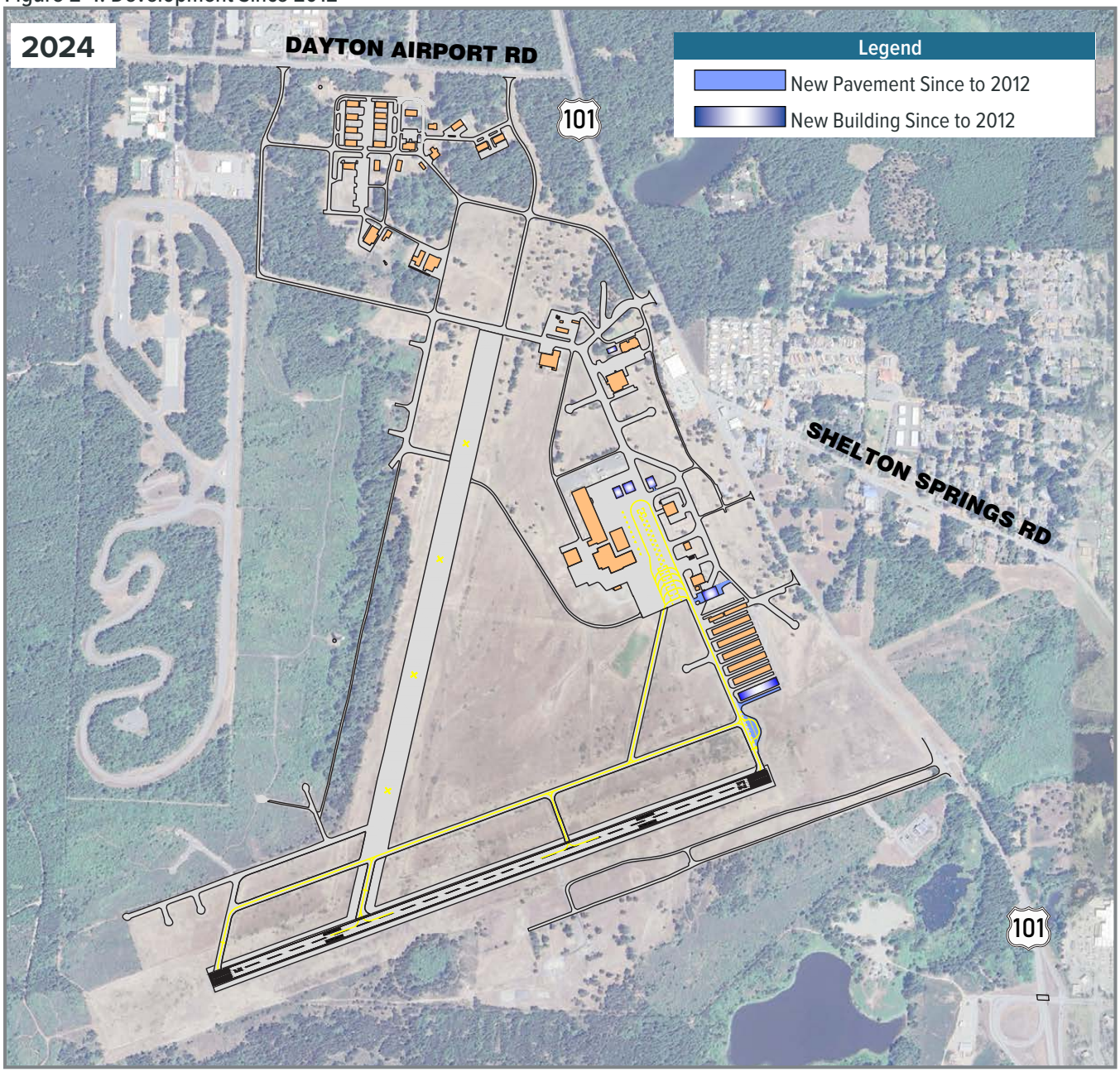
Source: FAA AIP Grant Database; Note: State apportionment totals are not included in "Total Federal $"; "Other" includes BIL, ARPA, CARES, etc.

Figure 2-3: Development Prior to 2012



Source: Century West Engineering

Figure 2-4: Development Since 2012



Source: Century West Engineering

AREA AIRPORTS CONTEXTUAL ANALYSIS

Contextual analysis of an airport's service area examines its impact on its immediate geographic area. The airports within a defined service area that offer similar facilities or services effectively compete with each other. This includes locally based and transient aircraft where operators choose airports based in part on proximity to their place of business or travel destination. The type and availability of facilities and services, and competition among airports, are key factors in the distribution of aviation activity within any particular service area.

For general aviation airports, most aeronautical activity can be directly linked to a service area boundary, which is commonly defined by 30 or 60-minute driving times surrounding the airport. Areas with larger concentrations of population often have a greater number of available airports with shorter travel times between facilities. In contrast, less densely populated areas may have fewer airports and longer travel times between facilities. Longer travel times are also common for commercial service airports, where there are fewer options available and traffic congestion increases in heavily populated metro areas. Sanderson Field is the only public use airport in Mason County and is the closest airport providing service to Shelton.

The public use airports located within the Sanderson Field service area are briefly summarized below and depicted in **Figure 2-5**. These airports include publicly owned and privately-owned facilities that are open to the public without prior permission. FAA Chart Supplement and other FAA data for these airports is summarized in **Table 2-2**.

Olympia Regional (OLM)

Olympia Regional Airport is a publicly owned airport located in Tumwater (Thurston County), about 19 NM southeast of Sanderson Field. OLM has two paved runways: Runway 17/35 (5,500' x 150') is lighted with precision instrument approach capabilities; Runway 8/26 (4,157' x 150') is unlighted with visual approach capabilities. OLM provides fuel, aircraft maintenance, flight instruction, aircraft rental, aircraft storage hangars and aircraft parking.

Bremerton National (PWT)

Bremerton National Airport is a publicly owned airport located south of Bremerton (Kitsap County), about 22 NM northeast of Sanderson Field. PWT has one paved runway: Runway 2/20 (6,000' x 150') is lighted with precision instrument approach capabilities. PWT provides FBO services (fuel, ground handling, etc.), an airport restaurant, flight training, aircraft storage hangars, and aircraft parking.

Tacoma Narrows (TIW)

Tacoma Narrows Airport is a publicly owned airport located 5 miles south of Gig Harbor in Pierce County, about 23 NM east of Sanderson Field. TIW has one paved runway: Runway 17/35 (5,002' x 100') is lighted with precision instrument approach capabilities. PWT provides FBO services (fuel, ground handling, etc.), an airport restaurant, flight training, aircraft storage hangars, and aircraft parking.

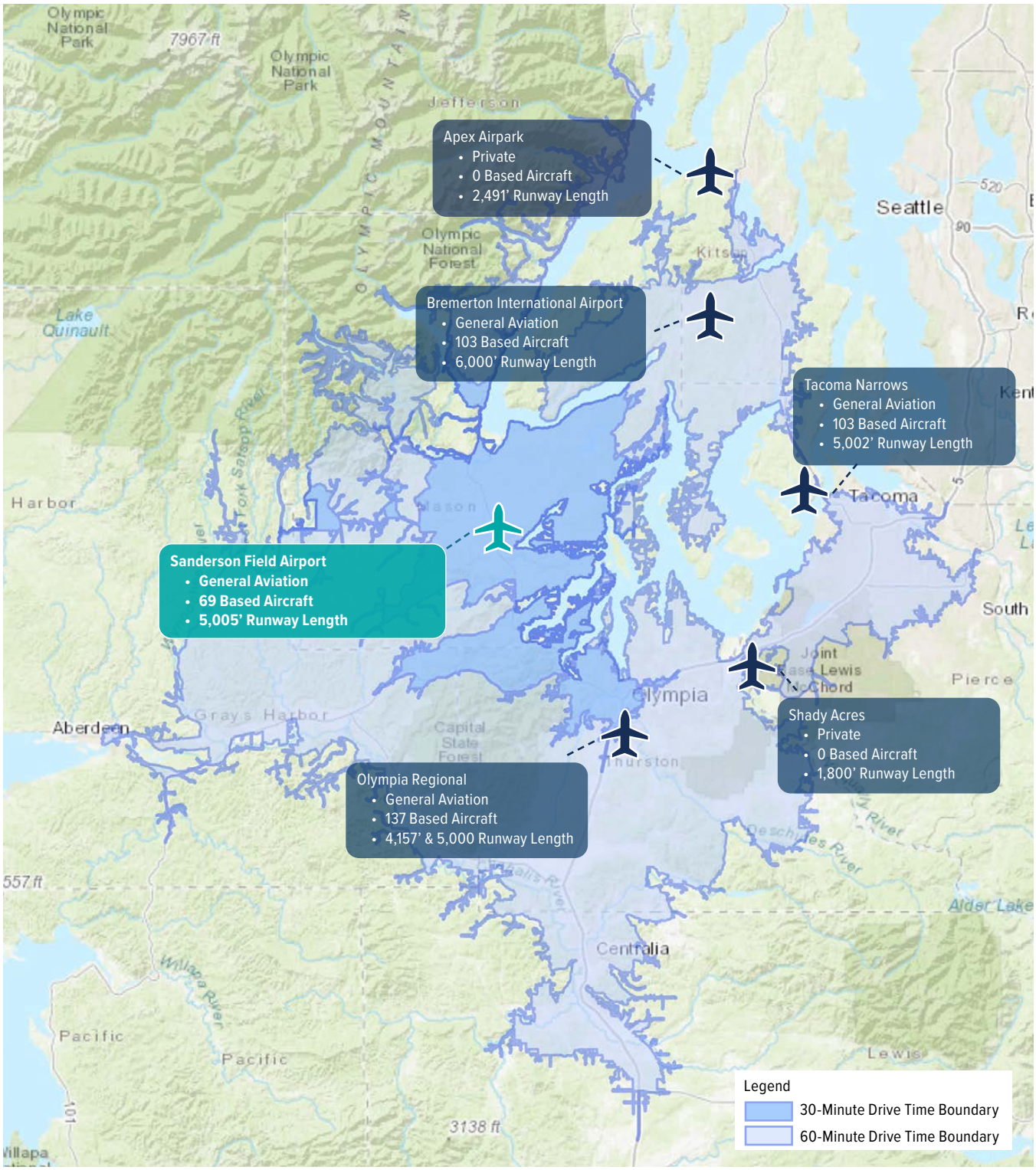
Shady Acres (3B8)

Shady Acres is a privately owned airport located in Spanaway (Pierce County), immediately east of Joint Base Lewis McChord (JBLM), about 33 NM east of Sanderson Field. 3B8 has a single paved and lighted runway (16/34: 1,800' x 20') with visual approaches. 3B8 does not currently offer services and it primarily serves the adjacent airpark.

Apex Airpark (8W5)

Apex Airpark is a privately owned airport located in Silverdale (Kitsap County), north of Bremerton, about 30 NM northeast of Sanderson Field. 8W5 has a single paved and lighted runway (17/35: 2,491' x 28') with visual approaches. 3B8 does not currently offer services and it primarily serves the adjacent airpark.

Figure 2-5: Area Airports



Source: AirportIQ 5010, Esri, USGS, NOAA

Table 2-2: Public Use Airports within 35 Nautical Miles (NM) of SHN

Airport	NPIAS Role	Distance in NM	Runway Dimensions (ft)	Approach Type
Olympia Regional (OLM)	Regional	19 NM	5,500 X 150 4,157 X 150	Precision
Bremerton National (PWT)	Regional	22 NM	6,000 X 150	Precision
Tacoma Narrows (TIW)	Regional	23 NM	5,002 X 100	Precision
Shady Acres (3B8)	N/A	33 NM	1,800 X 20	Visual
Apex (8W5)	N/A	30 NM	2,491 X 28	Visual

Source: FAA Form 5010, FAA NPIAS 2025-2029

Based Aircraft in Sanderson Field Service Area

FAA 5010 Airport Master Record based aircraft data for the airports in the Sanderson Field service area are summarized in **Table 2-3**. It is noted that available 5010 data for individual airports vary significantly in accuracy, are unverified, and are presented for reference only. It should also be noted that the FAA is currently updating and consolidating its airport databases. During the initial phase of transition in 2024, airport based aircraft totals defaulted to "0" and will eventually be re-populated using National Based Aircraft Inventory data.

Table 2-3: FAA 5010 Data

	Sanderson Field[1]	Olympia Regional Airport	Bremerton National Airport	Tacoma Narrows Airport	Shady Acres Airport	Apex Airpark
Total Based Aircraft *	69	137	103	103	0	0
Single Engine	61	110	94	86	0	0
Multi-Engine	4	7	4	9	0	0
Jet	0	2	3	5	0	0
Helicopters	4	18	2	3	0	0
Glider *	0	0	1	0	0	0
Military *	0	0	0	0	0	0
Ultra-Light *	5	0	0	0	0	0

Source: AirportIQ 5010 Airport Master Records and Reports (AirportIQ5010.com, Accessed 12/1/2024)
Notes:
*FAA does not include gliders, ultra-light, or military aircraft in its 5010 based aircraft totals or in an airport's validated count total in the National Based Aircraft Inventory database.
1. FAA Validated Based Aircraft Count (www.basedaircraft.com, Confirmed 12/2024)

SUMMARY OF AVIATION ACTIVITY

Sanderson Field accommodates a wide variety of general aviation activity including business turbine aircraft and a high volume of skydiving activity. General aviation activity is generated by locally-based and transient aircraft. General aviation activity includes single-engine and multi-engine piston fixed wing, turboprops, business jets, and helicopters. The most recent (December 2023) based aircraft summary is provided in **Table 2-4**, with earlier estimates from a recent FAA 5010 airport record form and the 2013 ALP Report provided for comparison. An estimate of current aircraft operations as well as an updated 2024 validated based aircraft count will be provided in Chapter 3 - Aviation Activity Forecasts.

Based Aircraft

As part of the FAA's National Based Aircraft Inventory Program, airport sponsors are required to periodically review and update their based aircraft data. The validated based aircraft refers to an aircraft count conducted by airport management that has been verified and confirmed as being based at an airport through the FAA's program. For comparison, the 5010 Airport Master Record data presented earlier is also reported by airports, but not verified through the FAA's inventory database. As noted earlier, 5010 data provides only rough approximations of airport activity for general reference.

The Port completed the most recent review of Sanderson Field based aircraft in December 2023, with a total of 69 validated aircraft recorded. For accurate comparison of current and historical based aircraft, it is important to note that current FAA based aircraft counting methodology excludes gliders and ultra lights from an airport's validated count total. "Other" (LSA, Ultralight) aircraft were included in the 2012 airport master plan's based aircraft forecast. These aircraft are currently noted on the FAA 5010 airport record form, but are not included in the total based aircraft count.

Table 2-4: Based Aircraft (SHN)

	2012 Airport Master Plan	FAA 5010-1 (06/10/2024)	FAA Validated Based Aircraft Count (December 2023)
Single Engine	85	66	61
Multi Engine	3	4	4
Jet	0	0	0
Helicopter	5	0	4
Glider*	0	0	0
Ultra-Light*	2	5	4
Total Based Aircraft	**95**	**70**	**69**

Source: Updated count provided by airport management (12/2023). 2012 ALP Report (2007 base year).
*Glider and ultralight aircraft are not included in the FAA National Based Aircraft Inventory "Validated Inventory" or the FAA 5010 "Based Aircraft" totals.

Aircraft Operations

Aircraft operations (takeoffs and landings) at non-towered airports are not routinely recorded. Data from various available sources will be evaluated and combined to create an estimate of activity for Sanderson Field. The 2012 ALP Report estimated 34,600 annual aircraft operations in the forecast base year (2007), with 65,980 operations forecast for 2027. An updated estimate of current airport flight activity will be prepared in Chapter 3 - Aviation Activity Forecasts for use as baseline for the 20-year forecasts.

SOCIOECONOMIC CONDITIONS

This section focuses on local and regional socio-economic data, compiled for use in various elements of the Airport Master Plan, including the updated aviation activity forecasts presented in Chapter 3. FAA Advisory Circular 150/5070-6B, Airport Master Plans, states *"the economic characteristics of a community will affect the demand for air traffic…in addition to national and regional economic activity, these include specific, identifiable, local activities that distinguish the geographic area served by the airport."*

Population

Population in the vicinity of an airport helps define the socio-economic characteristics that may influence airport activity. Historical data from the Washington Office of Financial Management (OFM) were reviewed to gauge recent population trends relevant to Shelton, Mason County, and Sanderson Field. See **Table 2-5** for historical OFM population data and growth trends.

OFM data indicate that Mason County population increased at an average annual growth rate of 0.85% between 2015 and 2024 (+4,930). The majority of this growth (+4,626) occurred in unincorporated areas of the county, which grew at an average annual rate of 0.94%. The City of Shelton experienced moderate growth (+304) during the same time period (0.33% AAGR). For comparison, the State of Washington population grew at an average annual rate of 1.24% during this period. A review of OFM and locally adopted population forecasts will be included in Chapter 3.

Shelton is the only incorporated city in Mason County, accounting for about 15% of the county's population. The majority of county residents live in unincorporated areas, including Allyn, Belfair, the area surrounding Shelton, and two Native American Tribal Nations (Skokomish and Squaxin Island Tribes).

Table 2-5: Historical Gross Domestic Product (2012 Dollars)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	AAGR (2015-2024)
Shelton (incorporated area)	10,046	10,064	10,124	10,143	10,211	10,371	10,410	10,430	10,420	10,350	**0.33%**
Unincorporated Mason County	52,499	53,061	53,765	54,515	54,871	55,355	55,340	55,770	56,580	57,125	**0.94%**
Mason County Total	62,545	63,125	63,889	64,658	65,082	65,726	65,750	66,200	67,000	67,475	**0.85%**
State (thousands)	7,106.6	7,237.2	7,344.1	7,463.5	7,581.8	7,706.3	7,767.0	7,864.4	7,951.2	8,035.7	**1.38%**

1. Washington Office of Financial Management (OFM) annual "April 1" estimates 2015-2024
2. OFM intercensal estimates 2010-2020

Economy

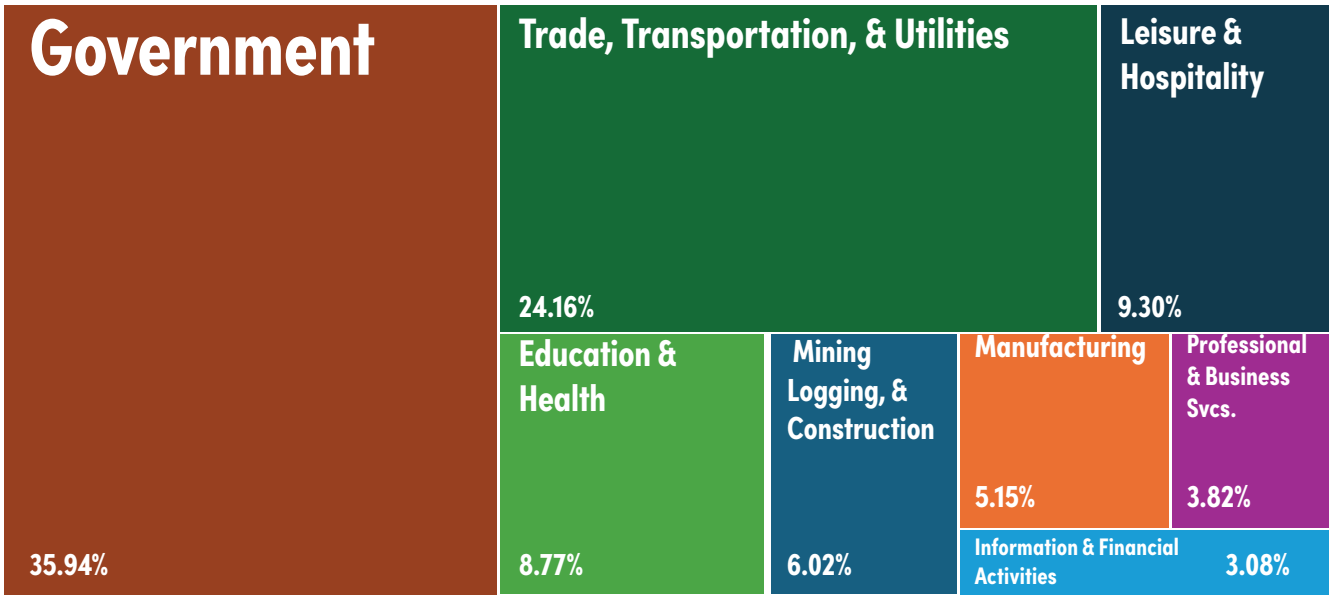
Mason County's economy was originally heavily timber-based with extensive logging and wood milling production. The county economy began to diversify in the 1980s as timber production declined significantly and the local wood products industry shrank. County economic data indicate that Mason County has diversified its industries *"to include fishing, trading, manufacturing, tourism, and services"* and the Squaxin Tribe is currently the county's largest employer.

Oyster harvesting is a prominent industry in Mason County's economy and culture. The celebration of Oyster Fest annually draws substantial amounts of tourism and businesses every year with the Airport at the center of it acting as host.

"Entering its 42nd year, this two-day event attracts over 12,000 seafood enthusiasts and their families each year with activities, entertainment and delicious foods provided by local non-profits and volunteers."
– Shelton Skookum Rotary Club

The predominant employment sectors in Mason County include government and trade, transportation, and utilities, which combine to account for more than 60% of the work force. See **Figure 2-6** for (2022) Nonfarm Employment distributions in Mason County.

Figure 2-6: 2022 Nonfarm Employment by Industry (Mason County)



Income & Employment

Data from the Washington Regional Economic Analysis Project (REAP) reports that the per capita personal income (in 2022 dollars) in Mason County was $51,375 in 2022, trailing the state per capita personal income of $75,332. The August 2024 unemployment rate in Mason County was 6%, slightly higher than the state unemployment rate of 4.9%. **Table 2-6** summarizes the most recent data on income and employment for Mason County and Washington State. Additional socio-economic data and analysis is presented in Chapter 3: Aviation Activity Forecasts to supplement the projections of future aviation activity.

Table 2-6: Mason County Demographics

Demographic	Mason County	Washington State
Population (2021)[1]	67,615	7,738,692
Ethnicity (2021)[1]	White (87.5%), Black (1.5%), American Indian/Alaskan Native (4.8%), Asian, Native Hawaiian, other Pacific Islander (1.7%), Hispanic or Latina, any race (10.6%).	White (78.5%), Black (4.4%), American Indian/Alaskan Native (1.9%), Asian, Native Hawaiian, other Pacific Islander (10.4%), Hispanic or Latina, any race (13.0%).
Median Household Income (2022)	$51,375	$75,332
Persons in Poverty (2016-2020)[1]	12.6%	9.5%
Persons Under 18 (2021)[1]	19.5%	21.8%
Persons 65 and Over (2021)[1]	23.3%	15.9%
Total Workforce (August 2024)[1]	24,904	4,000,536
Unemployment Rate (August 2024)[2]	6.0%	4.9%

Notes:
1. State of Washington Employment Security Department Mason County Profile
2. Bureau of Labor Statistics August 2024 Unemployment rates (https://www.bls.gov/eag/eag.wa.htm)

ENVIRONMENTAL CONDITIONS

Physical Geography

Sanderson Field is located approximately 3 miles northwest of the Shelton city center, in an area known as Scott's Prairie, a grassy plateau that sits above Oakland Bay. The topography and soils in the Shelton area consist of moderately deep soils that formed in glacier till. The glacial plain consists of moderately rolling hills and prairies which rise to about 400 feet above sea level, cut by numerous stream channels that feed into the Puget Sound. Native vegetation consists of dense stands of coniferous trees (primarily Douglas Fir, Western Hemlock and Western Red Cedar) with an understory of salal, vine maple, huckleberry, blackberry, and bracken fern. Sanderson Field sits on the Goldsborough Sub-Basin which is a critical aquifer.

Local Climate

Shelton has a temperate climate with mild seasons, heavily influenced by marine conditions and characterized by moderately high precipitation levels. The data for Sanderson Field indicates that July and August are typically the warmest months, with average maximum temperatures reaching 79°F. December and January are the coldest months, with average minimum temperatures around 34°F. The highest temperatures recorded at Sanderson Field rarely exceed 91°F, while the lowest rarely exceed 24°F. The area averages significant annual precipitation, particularly from November through January, contributing nearly 50% of the yearly total. Snowy periods at Sanderson Field range from December to February with the highest average snowfall of 3.6 inches occurring in December and a low 0.6 inches occurring in February.

Figure 2-7: Annual Temperatures

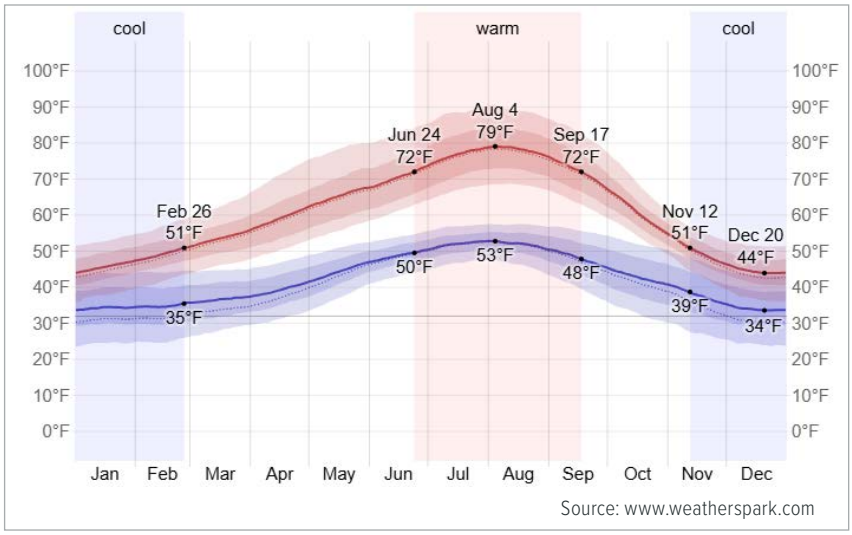


Figure 2-8: Annual Cloud Cover

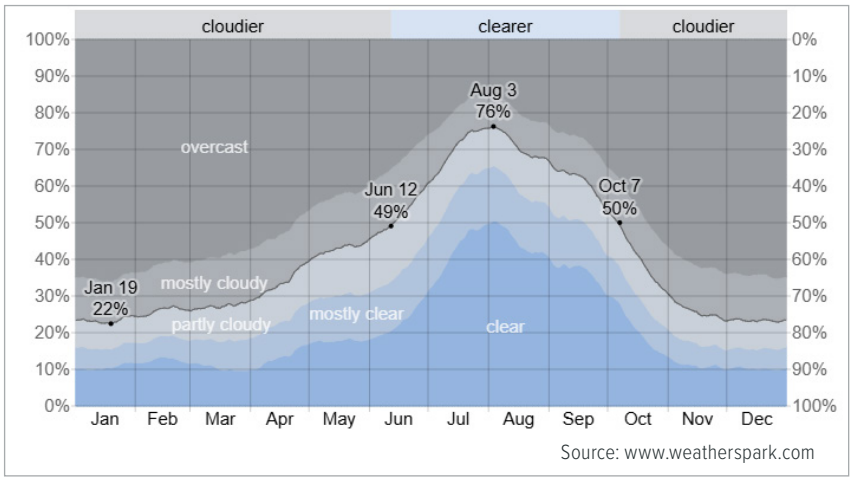
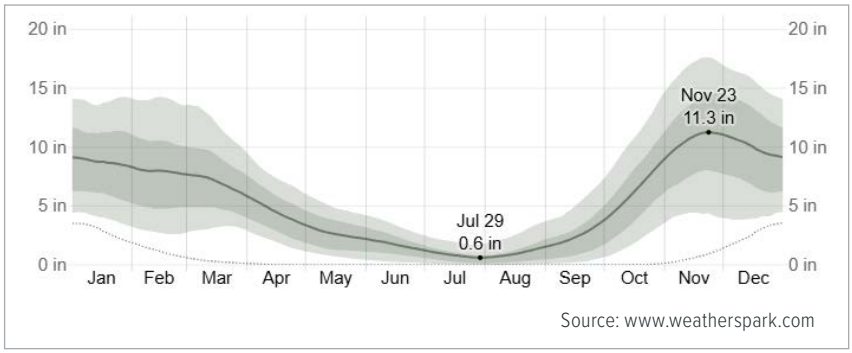


Figure 2-9: Annual Rainfall



Detailed climatic data from the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration's Modern-Era Retrospective analysis for Research Applications, Version 2 (MERRA-2) dataset, and other global and meteorological databases were reviewed and are summarized below. The graphs used in this section were accessed through www.weatherspark.com.

The seasonal variation in temperatures, cloud cover and precipitation are depicted in **Figures 2-7, 2-8, and 2-9**.

Wind Analysis

Wind speed and direction plays a significant role in runway use. While large aircraft can operate with higher levels of crosswinds during takeoff and landing, smaller aircraft have more operational limits during strong crosswind conditions. The ability of an aircraft to effectively manage crosswinds depends on aircraft type, crosswind speed and angle (relative to direction of flight), and pilot skill. The FAA standard for wind coverage is that a primary runway should be capable of accommodating at least 95% of wind conditions, within the prescribed crosswind component. This metric is used primarily to justify the development of crosswind runways and to determine FAA funding eligibility. A preliminary review of data provided by an onsite Automated Surface Observation System (ASOS) indicates that Runway 5/23 appears to meet the FAA threshold of 95% wind coverage for large and small aircraft, under both visual and instrument operations. A detailed description of these definitions and an updated wind analysis based on the most recent 10 years of on-site wind data will be provided in Chapter 4 – Airport Facility Requirements.

CULTURAL RESOURCES ANALYSIS

A Cultural Resources Review was completed for the airport site (study area) as an element of the master plan. The full document is provided in **Appendix A** and the key findings are briefly summarized below. The review noted that four cultural resource studies have been conducted within, or partially overlap with, the study area and no archaeological isolates were identified on airport property. No existing facilities or buildings are included in the National Register of Historic Places. However, multiple facilities in current use and abandoned, were constructed as a part of the NAAS in 1943 during WWII. These included the existing and abandoned runway, taxiways, main apron, buildings, hardstands, and revetments. The report recommended that individual projects proposed in association with the Master Plan should include a compliance-level cultural resource investigation. This includes documenting historic resources within the study area on one or more Section 106 Documentation Forms and determining their eligibility for listing in the NRHP in consultation with the Federal Aviation Administration.

ENVIRONMENTAL OVERVIEW (NEPA)

An environmental review was completed as part of the Airport Master Plan. The full memo is provided in **Appendix B**, with a synopsis of key findings presented in this section. The screening highlights the existing or potential conditions that may be affected by the future use or proposed development of the Airport. Each project that involves federal funding will require a project-specific environmental evaluation, with differing levels of detailing determined by the degree of potential impacts to be addressed or the overall complexity of the project. A brief summary of the NEPA-defined specific impact categories most relevant for the site are summarized below:

- Air Quality
- Biological Resources
- Climate
- Department of Transportation Act, Section 4(f)
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Water Resources

Additional climate information such as wind and temperature data were analyzed and summarized in this section. Both wind and temperature are important factors to be considered in the orientation and length of runways.

Air Quality

Sanderson Field is located in an area that attains National Ambient Air Quality Standards (NAAQS) for two criteria pollutants: ozone (O3) and particulate matter (PM110 and PM2.5). WDOE operates an air quality monitoring station for O3 and PM2.5/PM10 pollutants in Shelton. The Shelton area meets the clean air standards for PM2.5 and O3 and only experiences an average of 9 days a year with poor air quality conditions.

Biological Resources

Biological resources include sensitive plants, fish, wildlife, and their respective habitats. **Table 2-7** lists federal or state-listed protected species with the potential to be found within the immediate vicinity of Sanderson Field. The Airport is a well-documented breeding site for the streaked horned lark (SHLA) and the Oregon vesper (OVS). However, it is important to note that SHLA and OVS populations on the Airport have been monitored since 2018 by USFWS and WDFW in coordination with the Center for Natural Lands Management.

Multiple migratory bird species covered by the Migratory Bird Treaty Act (MBTA) are known to occur in the vicinity of the Airport. Potential nesting sites are present in trees, shrubs, and on airport structures. The MBTA prohibits the removal of nests containing eggs and dependent young. The report recommends affected areas during construction projects be surveyed for active nests by a qualified biologist prior to any clearing or grading.

It is unlikely that any federally or state-protected fish species will occur on airport property. However, steelhead trout, chinook salmon, and southern resident killer whale occur in habitats downstream from the Airport. It is important to note that there are no direct connections between the Airport stormwater drainage system and offsite water bodies with protected species. The report recommends confirming the stormwater impact of any new pollution generating impervious surfaces (PGIS).

Table 2-7: Federal ESA-Listed Species

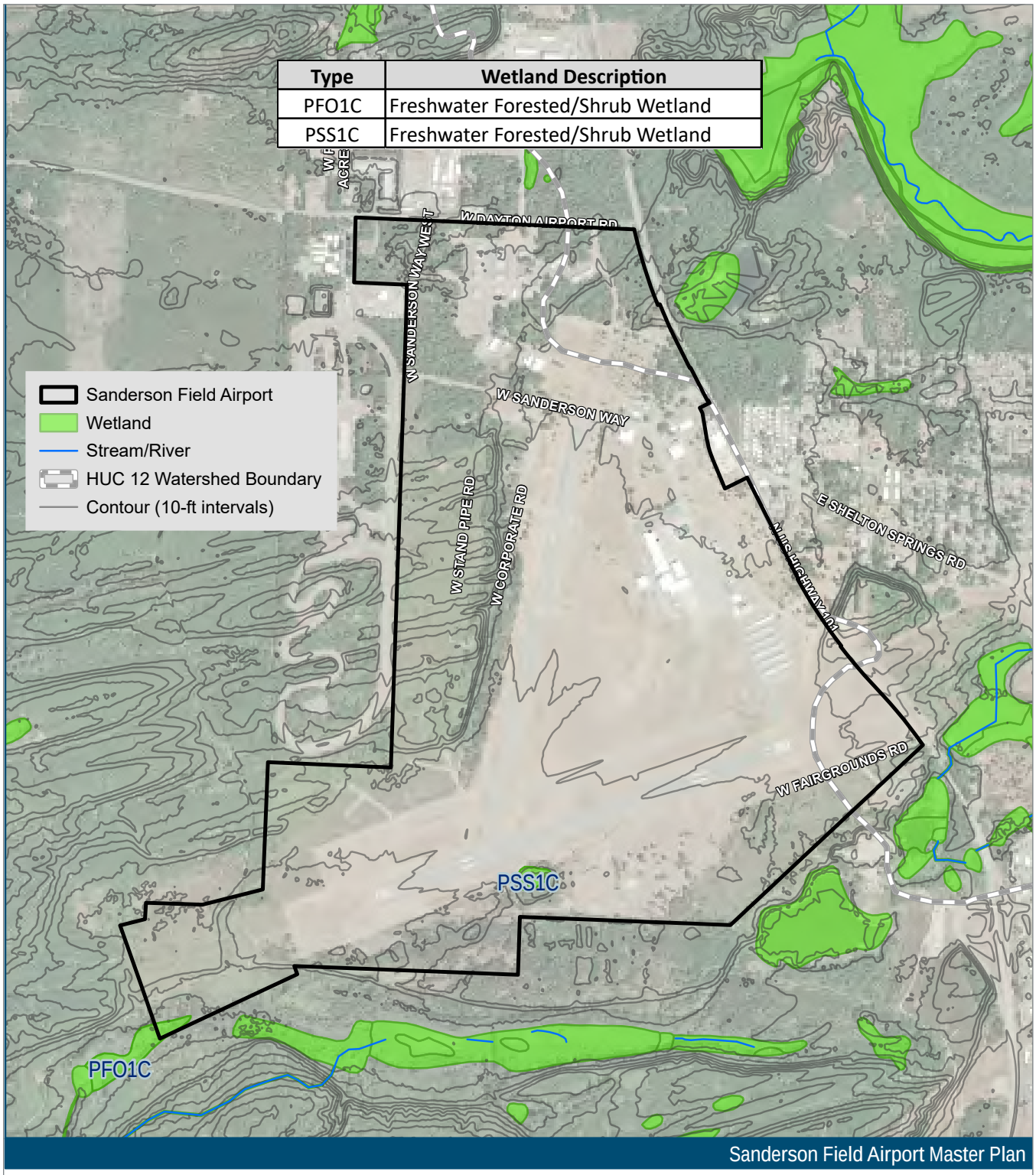
Species Common Name (Scientific Name)	Federal ESA Listing and Critical Habitat Status	State ESA Listing Status
USFWS		
Streaked Horned Lark (Eremophila alpestris strigata)	**Threatened**. The Airport is a known breeding site. The project area is not within designated critical habitat.	**Endangered**
Oregon vesper sparrow (Pooecetes gramineus ssp. affinis)	**Proposed** - Under Review as of October 2024. The Airport is a known breeding site. Critical habitat has not been designated for this species.	**Endangered**
NMFS		
Chinook Salmon (Oncorhynchus tshawytscha), Puget Sound ESU	**Threatened**. Present downstream in Goldsborough Creek. Goldsborough Creek is excluded from the Critical Habitat designation.	—
Steelhead Trout (Oncorhynchus mykiss), Puget Sound DPS	**Threatened**. Present downstream in Goldsborough Creek. Goldsborough Creek includes designated critical habitat.	—
Southern Resident Killer Whale (Orcinus orca)	**Endangered**. Present in downstream waters of Puget Sound. Critical Habitat has been designated for southern resident killer whale in Puget Sound.	**Endangered**

Source:David Evans & Associates - Sanderson Field - Airport Master Plan Environmental Review

Wetlands and Waters of the U.S.

Two small wetland areas have been identified on Airport property as shown in **Figure 2-10**. Both areas, located on the south side of Runway 5/23, are listed as Freshwater Forested/Shrub wetlands. Freshwater forested wetlands, also known as swamps, are dominated by trees such as hemlock, western red ceder, Sitka spruce, black cottonwood, or red alder. Freshwater shrub wetlands are swamps dominated by short shrubs such as buttonbush and alders. It is important to note that Mason County Code 8.52.110 and Shelton Municipal Code 21.64.100 require a protective buffer around each wetland based on the wetland category using the Washington State Department of Ecology (WDOE) rating system for Western Washington.

Figure 2-10: Sanderson Field Vicinity – Existing Wetlands



Data Sources: Mason County, USFWS, USGS

Source: David Evans & Associates; Sanderson Field - Airport Master Plan Environmental Review

Stormwater and Water Quality

Sanderson Field relies on primarily subsurface infiltration of stormwater and a series of drainage swales that are adjacent to the runways and taxiways for the collection and treatment of stormwater. The Airport is primarily located in the Goldsborough Creek Subbasin with a small portion of the eastern corner of the Airport in the Cranberry Creek Subbasin. Both subbasins have been listed in the Washington State Water Quality Assessment as exceeding standards for temperature, bacteria, and instream flow. As previously mentioned, no direct connection between the Airport stormwater drainage system and offsite water bodies were found.

Section 4(F) of the US Department of Transportation Act

Under section 4(F) of the U.S. Department of Transportation Act publicly owned and accessible parks, recreation areas, and wildlife and waterfowl refuges and historic sites are protected. The Mason County Fair Grounds are no longer located on Airport property and there are currently no parks or recreational lands located near the Airport entitled to the protections defined in section 4(F) of the US Department of Transportation Act.

Hazardous Materials, Solid Waste, and Pollution Prevention

The report identified 3 previous toxic cleanup sites on or near the Airport. The Port of Shelton All Star Aero site located on the northwest corner of the Airport was reported to have soil and groundwater contamination from petroleum products, halogenated organics, and metals as well as surface water and air contamination were suspected. The Port of Shelton All Star Aero site has since started cleanup activities. The second site (Don Small & Sons Oil Distribution) is just off the northern edge of the Airport. Soil and groundwater contamination by petroleum from a leaking underground storage tank was found at the second site but has since been cleaned up. The third site (Airport Grocery Store) is located off the Airport at 11900 Highway 101. The Site reported to have petroleum contaminated soil from a leaking underground storage tank but has since been cleaned up and requires no further action.

AIRSPACE

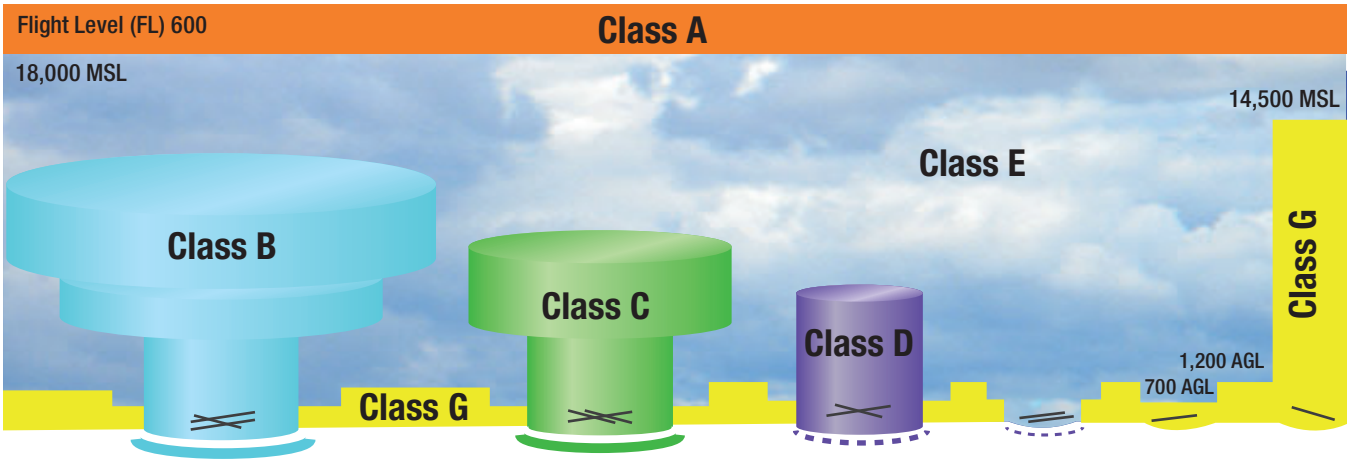
This section describes the elements of airspace that affect aircraft flight activity.

U.S. Airspace Classes

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 mean sea level (MSL). Controlled airspace classifications include Class A, B, C, D, and E. Class G airspace is uncontrolled. **Figure 2-11** depicts these airspace classes.

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.

Figure 2-11: FAA Airspace Classifications



COMMUNICATION REQUIREMENTS AND WEATHER MINIMUMS

	Class A	Class B	Class C	Class D	Class E	Glass G
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) & Century West Engineering

Local Area Airspace Structure

The FAA Seattle Sectional aeronautical chart depicts airports, notable obstructions, special airspace designations, and instrument airways in the vicinity of Sanderson Field. **Figure 2-12** depicts the local airspace structure.

Sanderson Field is non-towered airport located in an area of Class G airspace from the surface to 700 feet AGL, with Class E airspace beginning at 700 feet AGL, and extending to 18,000 feet above MSL. Class G airspace is uncontrolled. Radio communication is not required for visual flight rules (VFR) operations in Class E or G airspace, although pilots are encouraged to use the Airport's Unicom/Common Traffic Advisory Frequency (CTAF) – 122.8 MHz - for communications on the ground and in the vicinity of the Airport. Aircraft operating in Class E airspace are required to obtain an air traffic control (ATC) clearance during instrument flight rules (IFR) conditions, since the airspace is intended to protect inbound and outbound aircraft operating in non-visual weather conditions.

Several areas of controlled airspace are located within 25 NM of Sanderson Field. These areas have specific communication and clearance requirements. Activity within these areas does not directly affect Sanderson Field, although pilots operating in the vicinity are required to observe all FAA rules.

- **Mode C & ADS-B OUT (SEATAC Int'l.)** – A 30 nm radius from SEATAC International Airport requires aircraft to be equipped with Mode C and ADS-B (out) transponders for ATC contact. The airspace is located approximately 7 nm northeast of Sanderson Field at its nearest point, and extends from the surface to 10,000 feet MSL.

- **Class B (SEATAC Int'l.)** – An area of Class B airspace west of SEATAC International Airport, with a 6,000 feet/10,000 feet MSL floor/ceiling is located 19 nm northeast of Sanderson Field at its nearest point.

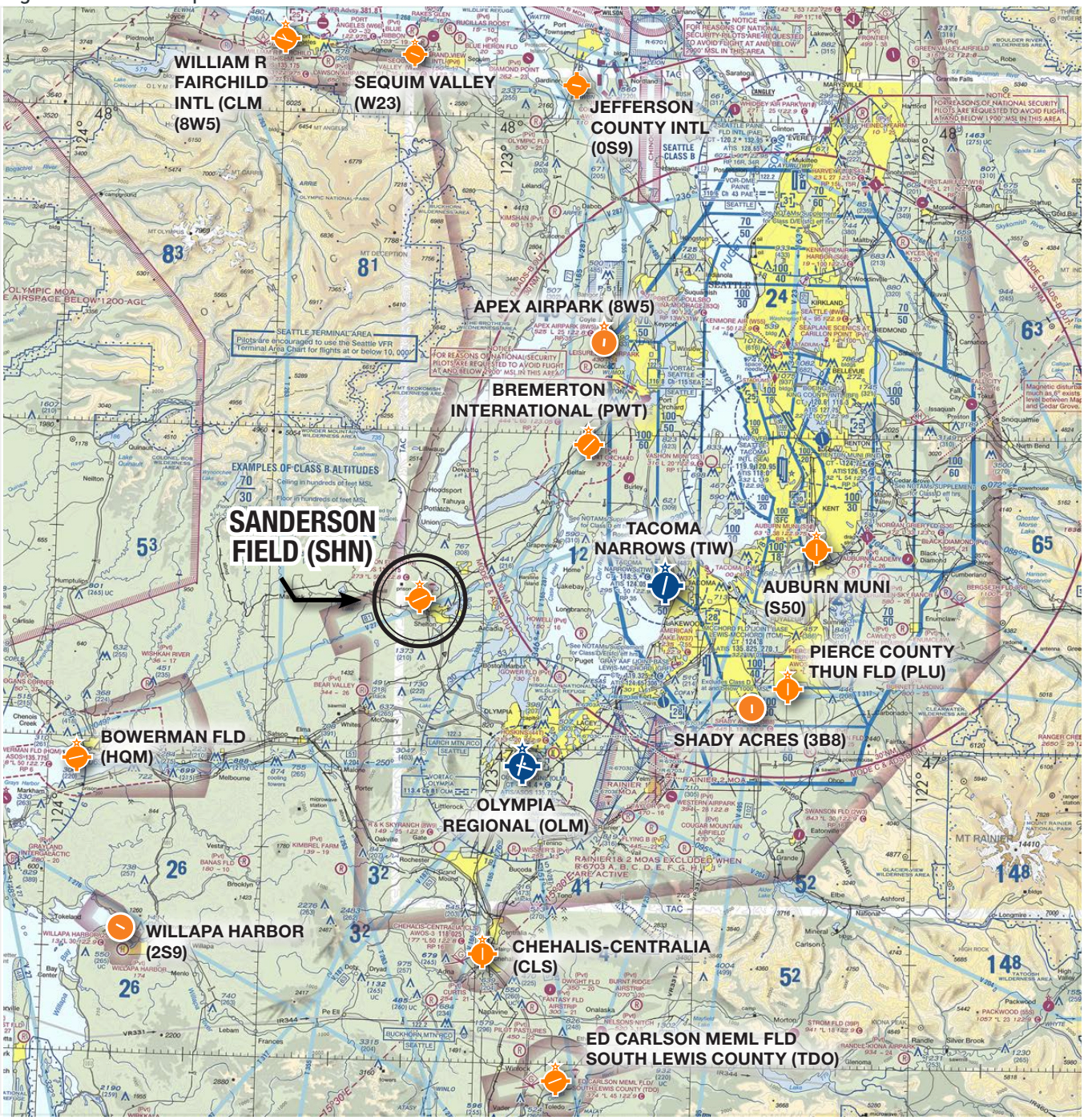
- **Agency Area - Mt. Skokomish Wilderness Area** – Aircraft are required to maintain an altitude of at least 2,000 feet above the surface. The area is located 21 NM north of Sanderson Field at its nearest point.

- **Class D (Olympia Regional Airport)** – Controlled airspace active when air traffic control tower (ATCT) is operating. The airspace is located 15 NM southeast of Sanderson Field at its nearest point.

- **Class D (Tacoma Narrows Airport)** – Controlled airspace active when ATCT is operating. The airspace is located 19 NM east of Sanderson Field at its nearest point.

- **Class E (Bremerton National Airport)** – An area of Class E extends from the surface upward. The airspace is 16 NM northeast of Sanderson Field at its nearest point.

Figure 2-12: Area Airspace – Seattle Sectional Chart



LEGEND			
	Airports with other than hard-surface runways		Compass Rose (VOR/DME or VORTAC)
	Airports with hard-surfaced runways 1,500 ft. to 8,069 ft.		Enroute Airways
	Airports with hard-surfaced runways greater than 8,069 ft. or some multiple runways less than 8069 ft.		Class D Airspace (surface)
			Class E Airspace with floor 700' above surface
	VOR/ VORTAC		National Wilderness Area

Source: SkyVector.com

Special Use Airspace

Special use airspace (SUA) refers to airspace depicted on a sectional chart where activities must be confined or limited because of their nature. The nearest area of SUA is the Olympic Military Operations Area (MOA) – a military operating area located 21 NM west of Sanderson Field at its nearest point. The Olympic MOA has a floor of 6,000 feet MSL and extends to, but does not include 18,000 feet MSL (Flight Level 180). The Olympic MOA excludes airspace below 1,200 feet AGL.

The MOAs are defined areas of intense military flight training, that includes high-speed air maneuvers and operations. While MOAs do not restrict civilian aircraft from entering pilots are advised to avoid active MOAs. The Olympic MOA use is intermittent, and is activated by Notice to Airmen/Notice to Air Misson (NOTAM) indicating use.

CONTROLLED & UNCONTROLLED AIRSPACE

Airspace – Part 77, Terminal Instrument Procedures (TERPS), and Runway End 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 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. Airport Cooperative Research Program (ACRP) Report 38 - Understanding Airspace, Objects, and Their Effects on Airports provides a comprehensive description of the regulations, standards, evaluation criteria, and processes designed to protect the airspace surrounding airports. The most commonly used technical guidance sources are summarized below.

Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace

14 CFR, Part 77 is the central federal regulation governing airspace protection, with cross- references to many other criteria documents. It sets forth the requirements for notifying the FAA of proposed construction; defines obstruction criteria; and describes aeronautical studies required to assess hazard status. Part 77 airspace surfaces, also known as “imaginary surfaces,” are defined for designated runways or helicopter landing pads, in accordance with FAA requirements. These surfaces are commonly used in local land use planning to define airport overlay zoning.

The Part 77 airspace surfaces for Runway 5/23 depicted on the most recent (2013) Airspace Plan for Sanderson Field defines ultimate precision instrument approach capabilities for Runway 23, and non-precision instrument approach capabilities for Runway 5. **Figure 2-13** depicts the airspace planning defined for Runway 5/23 in the previous airport master plan. Both runway ends currently accommodate non-precision instrument approach capabilities.

FAA Order 8260.3G – United States Standard for TERPS

This Order, along with several derivative orders in the 8260 series and other related orders, define criteria that FAA airspace designers utilize when designing instrument flight procedures at airports. Airspace protection requirements (obstacle clearance) for inbound and outbound instrument flight procedures are one of the items analyzed for hazard status in aeronautical studies. Other TERPS surfaces are associated with aircraft approaches and maneuvering in the vicinity of a runway or airfield. While Part 77 airspace surfaces are broadly defined by runway category, aircraft type, and the type of approach, the dimensions and features of TERPS surfaces correspond to a particular procedure design and the transition between enroute and terminal airspace. This common surface has also been incorporated in the FAA’s primary airport design advisory circular (AC), described below. **Figure 2-14** depicts the TERPS departure surface, which is required for any runway end that supports departures in instrument conditions. Sanderson Field has published obstacle departure procedures for Runway 5 and Runway 23; TERPS departure surfaces extend beyond both ends of Runway 5/23.

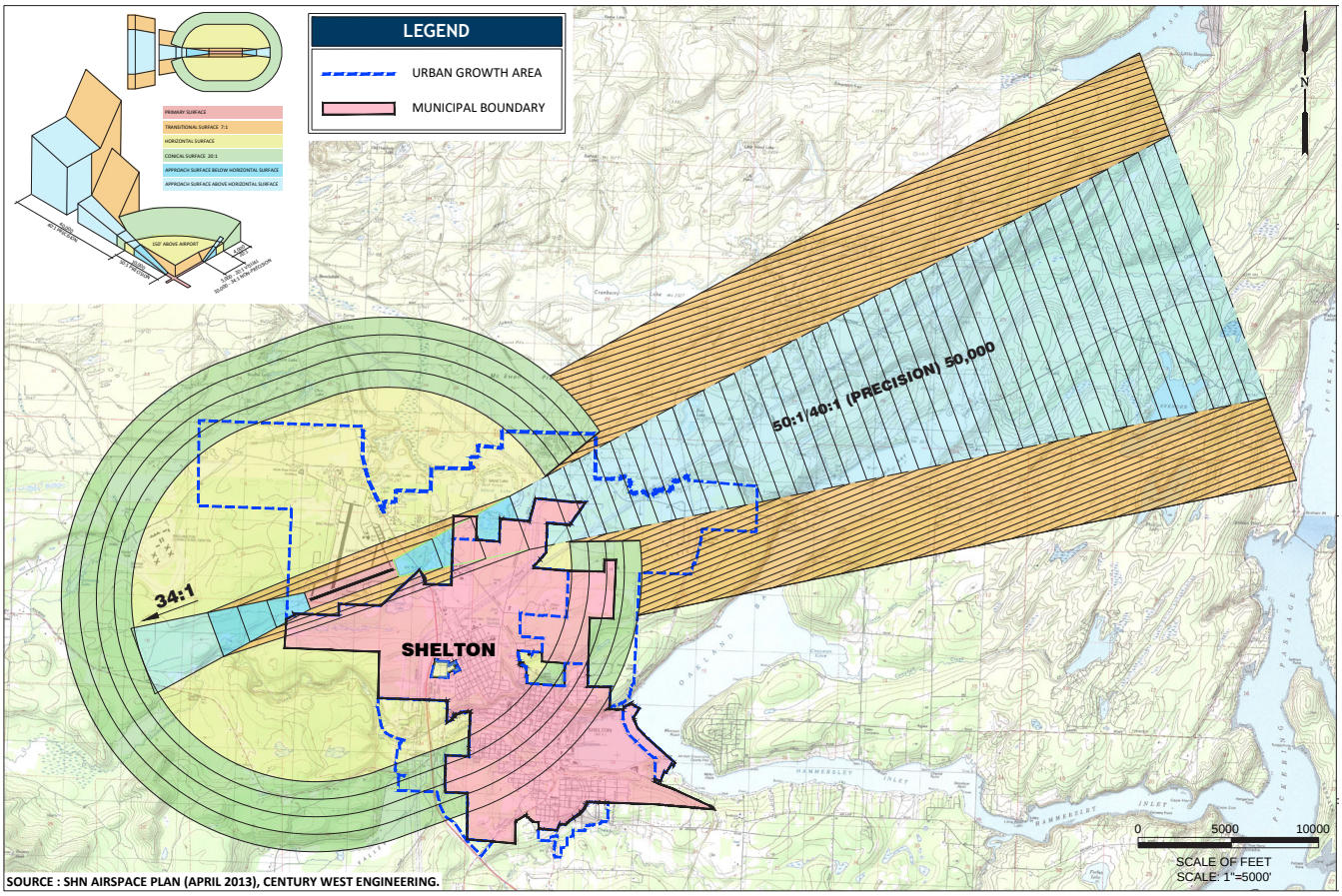
The procedures establish an initial minimum climb rate per nautical mile (to 4,000 feet MSL) to clear close-in obstacles while directing aircraft to an intersection with Seattle VORTAC radial.

FAA AC 150/5300-13B, Change 1 – 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 existing airports. Airspace clearances for key runway end features are defined in the AC's discussion of runway end siting surfaces.

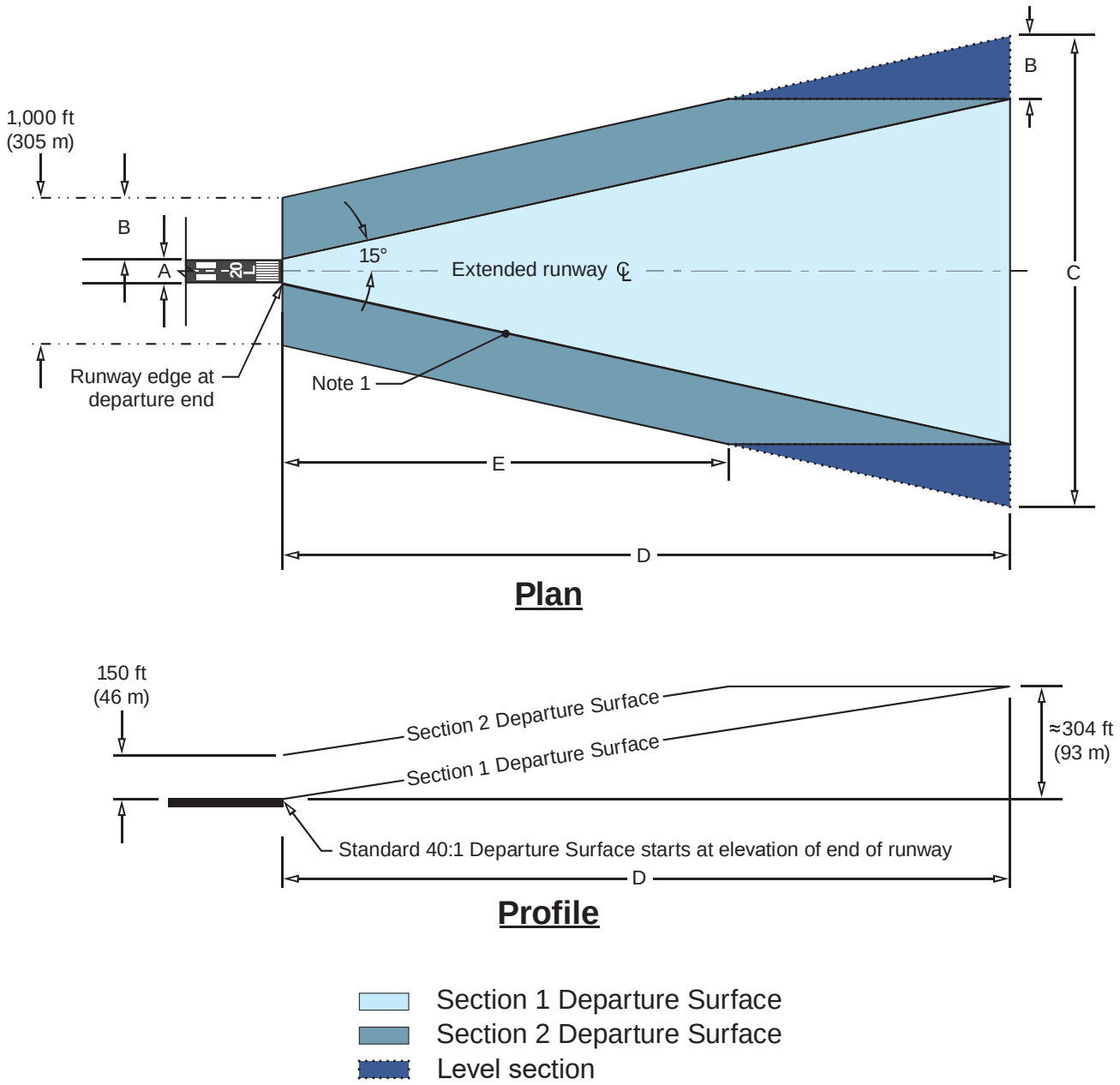
This AC is periodically updated and has undergone extensive revision since the previous master plan was completed in 2012-13. A comprehensive review of current FAA design standards will be provided in the Facility Requirements Analysis (Chapter 4) to define applicable FAA standards.

Figure 2-13: Part 77 Airspace (SHN)



Source: Century West Engineering

Figure 2-14: Instrument (TERPS) Departure Surface



Note 1: The half-width of Section 1 is calculated by the formula:
Section $1_{\text{Half Width}}$ = (1/2 RWY Width) + (Tan 15° × X), where X = distance from the departure end of the runway.

Note 2: See Table 3-5 for dimensional values.

Source: FAA AC 150-5300/13B - Airport Design

INSTRUMENT APPROACH PROCEDURES

Instrument approach and departure procedures are developed by the FAA, using electronic guidance from ground based navigational aids and satellite navigation systems, to guide aircraft through a series of prescribed maneuvers in and out of an airport's terminal airspace. The procedures are designed to enable continued airport operation during instrument meteorological conditions (IMC), but are also used during visual conditions, particularly in conjunction with flight training or the completion of an instrument flight plan (in visual conditions). The capabilities of each instrument approach are defined by the technical requirements of the procedure, including the vertical and lateral airspace clearances required for nearby obstacles for each segment of a procedure. These factors combined with aircraft performance limitations, affect the minimum cloud ceiling and visibility required for the approach, the permitted descent altitude for the approach, and the routing for both the approach and missed approach procedure segments.

Sanderson Field has two published non-precision instrument approach procedures (IAPs) that use global positioning system (GPS) satellite-based navigation. Each approach offers multiple options, some of which are specifically equipment dependent. The Runway 23 approach offers procedures that provide both vertical and lateral guidance. The Runway 5 approach procedures provide only lateral guidance. Both approaches offer "circling" procedures which allow aircraft to land on any runway, upon establishing and maintaining visual contact with the airport environment. A summary of instrument approach procedures is provided in **Table 2-8**. See **Appendix C** for current instrument procedures for Sanderson Field.

Table 2-8: Instrument Approaches (SHN)

Approach	Category A		Category B		Category C		Category D	
	Ceiling*	Visibility	Ceiling*	Visibility	Ceiling*	Visibility	Ceiling*	Visibility
RNAV (GPS) RWY 23								
LPV DA #	250	**0.75**	**250**	**0.75**	**250**	**0.75**	**250**	**0.75**
LPV DA	394	**1.25**	**394**	**1.25**	**394**	**1.25**	**394**	**1.25**
LNAV/VNAV DA	447	**1.5**	**447**	**1.5**	**447**	**1.5**	**447**	**1.5**
LNAV MDA	607	**1**	**607**	**1**	**607**	**1.75**	**607**	**1.75**
Circling	607	**1**	**607**	**1**	**607**	**1.75**	**927**	**3**
RNAV (GPS) RWY 5								
LP MDA	470	1	470	1	470	1.375	470	1.375
LNAV MDA	530	1	530	1	530	1.625	530	1.625
Circling	567	**1**	**567**	**1**	**567**	**1.5**	**927**	**3**

Source: U.S. Terminal Procedures Publication, Northwest (NW) Vol 1 of 1., 26 December 2924 - 20 February 2025. * Aircraft minimum descent altitude (MDA) values, expressed in feet above ground level, or equivalent. Visibility represented in statute miles. SHN Published Elevation 272' MSL. # LPV missed approach procedure requires minimum climb rate per NM.

Takeoff Minimums and (Obstacle) Departure Procedures

Both runways have FAA specified standard takeoff minimums requiring aircraft to maintain a minimum climb to 4,000 feet (312 feet per nm for Runway 5 and 414 feet per nm for Runway 23) during instrument weather conditions. For climbs in visual conditions, the takeoff minimums are listed as 1,500 feet (MSL) and 2 ½-miles visibility for both runways. The procedure notes that numerous trees are in close proximity to both runway ends and on both sides of the runway. As noted earlier, these procedures require protection of a 40:1 TERPS departure surface for both ends of Runway 5/23.

Other Airspace Considerations

Sanderson Field has a designated parachute jumping area located on the north side of the runway-taxiway system. The parachute area is depicted on the Seattle Sectional Aeronautical Chart, and the parachute landing zone is described and depicted in the FAA Chart Supplement:

> *"...Parachute Jumping. Parachute operations on the field avoid crossing midfield to enter traffic pattern..."*

As noted earlier, the traffic patterns for both runways are located on the south side of the runway to avoid conflicts with parachuting activity. The heaviest periods of skydiving operations at Sanderson Field occur during the summer months. Federal Air Regulations (FAR) Part 105, subpart B, describes the operating rules for parachute operations. As outlined in Part 105, aircraft transporting parachuters must be equipped with 2-way radio communication systems and must establish and maintain radio communication between air traffic in the vicinity before releasing jumpers to ensure safe operating conditions.

Airfield Facilities

Existing airfield facilities (airside and landside) are described in the following sections.

AIRSIDE ELEMENTS

An airport's airside elements are facilities focused on the movement and operation of aircraft on the ground and in the air. This section describes existing airfield facilities including the runway, taxiways, airfield lighting, pavement condition, visual and electronic navigational aids. The evaluation of FAA design standards, including required protected surfaces/setbacks and their dimensions, will be included in the facility requirements section of the airport master plan (Chapter 4). Available pavement records indicate that most of Sanderson Field's current airside components (runway, main taxiways, and main apron) were constructed in 1943, during the development of Naval Auxiliary Air Station Shelton. The existing airside facilities at Sanderson Field are depicted in **Figure 2-13**.

Runway

Sanderson Field has a single lighted asphalt runway (5/23) that is oriented in a northeast-southwest direction (050/230 degrees magnetic). Runway 5/23 is 5,005 feet long and 100 feet wide. The runway is lighted and is served by a full length parallel taxiway.

Runway 5/23 is categorized as a non-precision instrument (NPI) runway, based on its current approach capabilities. The runway has NPI markings at both ends that are consistent with FAA standards for configuration, color (white paint), and approach type. During recent site visits, the runway markings were observed to be in good or fair condition.

The published weight bearing capacity (aircraft operating weights) for Runway 5/23 is 55,000 pounds for aircraft equipped with a single-wheel landing gear, 72,000 pounds dual wheel landing gear, and 130,000 pounds tandem dual wheel landing gear. The runway's pavement strength ratings are consistent with its original military design and construction. Additional airfield pavement condition information is provided later in the chapter.

A summary of existing runway conditions is provided in **Table 2-9** and additional detail is provided in the following sections.

Table 2-9: Runway Details (SHN)

Runway 5/23	
Dimensions	5,005' x 100'
Bearing	N 68° 12' E (2024 - 0°6' W annual rate of change)
Effective Gradient	0.29% (14.3 – foot elevation difference between runway ends)
Surface/Condition	Asphalt
Weight Bearing Capacity	55,000 pounds – Single Wheel Gear 72,000 pounds – Dual Wheel Gear 130,000 pounds – Tandem Dual Wheel Gear
Markings	Non-Precision (RWY 5 & 23) – Runway Designation Numbers, Centerline Striping, Runway Edge Markings, Touch Down Bars, Aim Point Markings
Lighting	Medium Intensity Runway Edge Lighting (MIRL) Runway End Identifier Lights (REIL) (RWY 23) Precision Approach Slope Indicator (PAPI) 4-Light (RWY 23)
Signage	Distance Remaining Signs, Runway Exit Signs

Source: FAA 5010 Airport Master Record (Accessed 12/4/2024); FAA Chart Supplement

Taxiways and Taxilanes

The Airport's taxiway system provides full access to Runway 5/23 and all landside areas (see **Figure 2-13**). The taxiways on the airfield are 50 feet wide, with the exception of Taxiway A3, which is 35 feet wide. All taxiways have painted centerline stripes and stake-mounted reflectors. All taxiway connections to the runway are marked with aircraft hold lines, located 250 feet from the runway centerline. A summary of the Airport's taxiway system is provided below.

- **Taxiway A** is the full-length north parallel taxiway for Runway 5/23. Taxiway A is 50 feet wide with a runway-to-taxiway centerline separation of 500 feet. Taxiway A has four taxiway connections to the runway, designated: **A1, A3, A4, and A5** (east to west). Taxiways A1 and A3 have 90-degree connections to the runway; Taxiways A4 and A5 have acute angle connections to the runway.

The airfield has two primary access taxiways connecting the main apron and landside area to the runway-taxiway systems.

- **Taxiway A1** is the main taxiway providing access to the main apron and hangar area, from the east end of the runway-taxiway system. The main section of Taxiway A1 extends approximately 1,100 feet from the southeast corner of the main apron to the connection with Taxiway A. The southern 425 feet of Taxiway A1 connects Taxiway A and the Runway 23 threshold. An aircraft hold area located on the east side of the taxiway, extending north of the aircraft hold line to near the connection with Taxiway A. Taxiway A1 transitions to a taxilane (approximately 1,100 feet) that runs the full length of main apron along its east edge.

- **Taxiway B** provides a second connection to the main apron to the Taxiway A. Taxiway B extends approximately 1,322 feet from the south end of the main apron to Taxiway A, connecting between A1 and A3. Taxiway B is located immediately adjacent to (east) the designated parachute landing area, and is used extensively to support the skydiving aircraft ground movements including loading of skydivers.

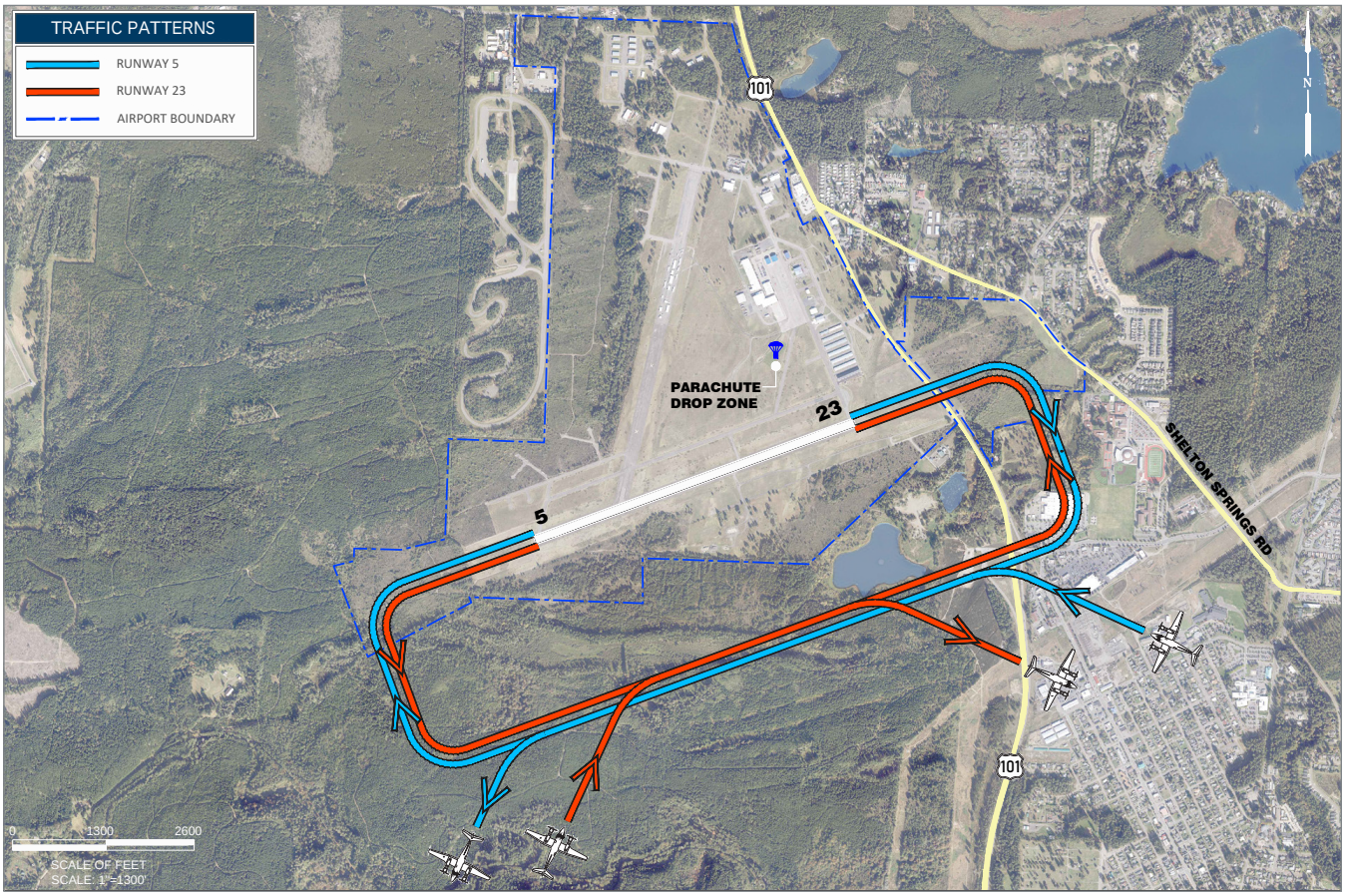
The existing landside area at Sanderson Field includes the main apron and hangar areas located along the north and east sides of the apron. Eleven stub taxilanes extend east of the main apron taxilane (A1). The taxilanes provide access to T-hangars, other multi-unit hangars, and conventional hangars. Nonaeronautical industrial development is located along the west side of the main apron (no aircraft access). This area has historically accommodated nonaeronautical development.

Aircraft Traffic Patterns

The traffic patterns for Runway 5/23 are located on the south side of the runway to avoid the designated parachute drop zone located on the north side of the runway (as published in the December 26, 2024, FAA Chart Supplement Northwest). Runway 23 has a standard left traffic pattern and Runway 5 has right traffic pattern. The left or right traffic designations indicate the direction of turns made by aircraft when operating in the pattern. As noted earlier, the FAA Chart Supplement advises pilots "avoid crossing midfield to enter traffic pattern..." due to parachute operations on the field.

A common traffic pattern altitude (TPA) of 1,000 feet AGL is used. **Figure 2-15** depicts the existing traffic patterns at Sanderson Field. The Airport does not currently have a separate traffic pattern established for helicopters.

Figure 2-15: Airport Traffic Patterns (SHN)



Source: FAA Chart Supplement (NW US)

Airfield Lighting

Sanderson Field accommodates day and night operations in both visual and instrument flight rules (VFR/IFR) conditions. The existing runway edge lights, visual guidance indicators, and runway end lights are pilot-activated on the Common Traffic Advisory Frequency (CTAF). The following lighting systems are currently in place at the Airport:

- **Runway Lighting**: Runway 5/23 is equipped with a **Medium Intensity Runway Lighting (MIRL)** system, which is a standard for general aviation runways. The MIRL system was upgraded to LED in 2019 as part of a runway rehabilitation project. The MIRL system consists of white edge lights (with amber lights located near the runway ends to indicate runway remaining) and threshold lights indicating the beginning and end of the runway. The threshold lights consist of four green/red split lens fixtures at each corner of the runway end.

- **Visual Guidance Indicator**: Runway 23 is equipped with a **4-light Precision Approach Path Indicator (PAPI)**. PAPIs project a light along a glide path to a runway end, with red and white colored lights indicating the aircraft's vertical position (above, below, or on glide path) relative to the glide path.

- **Runway End Identifier Lighting (REIL)**: Runway 23 is equipped with **REIL**, which consist of two high-intensity sequenced strobe fixtures located near the corners of the runway end. For runways without an approach lighting system, REILS assists pilots in establishing visual contact with the runway environment during periods of darkness or reduced visibility. The REIL system was upgraded to LED in 2019 as part of a runway rehabilitation project.

- **Taxiway Lighting**: None. All taxiways are equipped with stake-mounted edge reflectors. A project to install LED medium intensity taxiway lighting on Taxiway A and its four exit taxiways, is planned for completion during the master plan.

- **Airport Beacon**: The Airport has a rotating beacon mounted on top of the Port-owned water tower west of the closed runway, and north of Runway 5/23. The rotating beacon operates on a dusk-dawn photocell switch and is reported to function normally. Rotating beacons are used to indicate the location of an airport to pilots at night during reduced visibility. The beacon provides sequenced white and green flashing lights (representing a lighted land airport) that rotate 360 degrees to allow pilots to identify the airport from all directions for several miles.

- **Other Lighting**: Limited overhead lighting is available in the terminal area. Some hangars also have exterior wall-mounted flood lights.

Taxiway Reflectors
Source: Century West Engineering

Runway Lighting
Source: Century West Engineering

Airfield Signage

Airfield signage supports surface movement and guidance control necessary for the safe and efficient operation of an airport. The Airport runway-taxiway signage system includes mandatory instruction signs, location signs, direction signs, destination signs, information signs, and runway distance remaining signs. Sanderson Field has a full range of internally illuminated (LED) and non-lighted (reflective) signs throughout the airfield. A summary of existing airfield signage is provided below:

- Mandatory Instruction Signs: These signs have white inscriptions with black backgrounds denoting the entrance to a runway, critical area, or prohibited areas on an airport. The Airport has mandatory instruction signs at each taxiway connection between Taxiway A and Runway 5/23.

- Location Signs: These signs have yellow inscription with a black background identifying the runway or taxiway in which the aircraft is located.

- Destination/Direction Signs: These signs have black inscription with a yellow background and an arrow indicating the direction of the taxiing route to a location. Sanderson Field has direction signs with white and yellow backgrounds.

- Information Signs: These signs have black inscriptions with yellow backgrounds and are used to inform pilots of necessary information including radio frequencies and noise abatement procedures.

- Runway Distance Remaining Signs: These dual facing signs have white numbers on a black background. The signs are placed at 1,000-foot intervals in descending order, to indicate the distance (length) of landing runway remaining in the direction facing the sign. Runway 5/23 has four lighted Runway Distance Remaining Signs located on its south side.

Airfield Lighting
Source: Century West Engineering

Weather Reporting

Sanderson Field has an automated surface observation system (ASOS), providing pilots with weather reports essential for safe operations in the vicinity of the Airport. The ASOS records weather observations including temperature, dew point, wind speed and direction, visibility, cloud coverage, and ceiling. The ASOS is also able to report precipitation, the presence of thunderstorms, and altimeter settings. The ASOS updates observations each minute, 24 hours a day, and transmits this information to pilots in the vicinity via a frequency of 119.275 or by calling (360) 358-3006.

Runway Lighting
Source: Century West Engineering

Airfield Pavement Condition

The WSDOT Aviation Division Airport Pavement Management System (APMS) monitors the age and condition of pavements at 95 airports in Washington. The program's Interactive Data Exchange Application (IDEA) database includes evaluations of current conditions and predicts future conditions in terms of pavement condition indices (PCI) on a scale of 0-100. The PCI scale 0-100 represents conditions ranging from "failed" to "excellent." The pavement surveys are 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 PCI ratings reflect both the overall design characteristics of the pavement, visual assessments, and site specific factors such as climate, existing pavement condition, and age. As noted in the Washington Statewide Airport Pavement Management Report:

"In general terms, pavements above a critical PCI (varying between 50 and 70 and depending on branch use, surface type, and load classification) that are not exhibiting significant load-related distress will benefit from preventive maintenance actions, such as crack sealing and surface treatments. Pavements with a PCI of 40 to critical PCI (varying between 50 to 70) may require major rehabilitation, such as an overlay. Often, when the PCI is less than 40, reconstruction is the only viable alternative due to the substantial damage to the pavement structure."

The PCI data presented in **Table 2-10** and **Figure 2-16** are based on the most recent IDEA database analysis from the 2018 airfield inspection cycle. The pavement ratings are consistent with pavement age and use. The overall area-weighted PCI for Sanderson Field in 2018 was 70, predicted to decline to 62 by 2025 assuming no intervening maintenance or rehabilitation is performed. It is noted that an overlay was completed for Runway 5/23 in 2019. The runway accounts for 31% of the total airfield pavement evaluated in the APMS, which indicates that the current weighted PCI is likely higher than previously predicted.

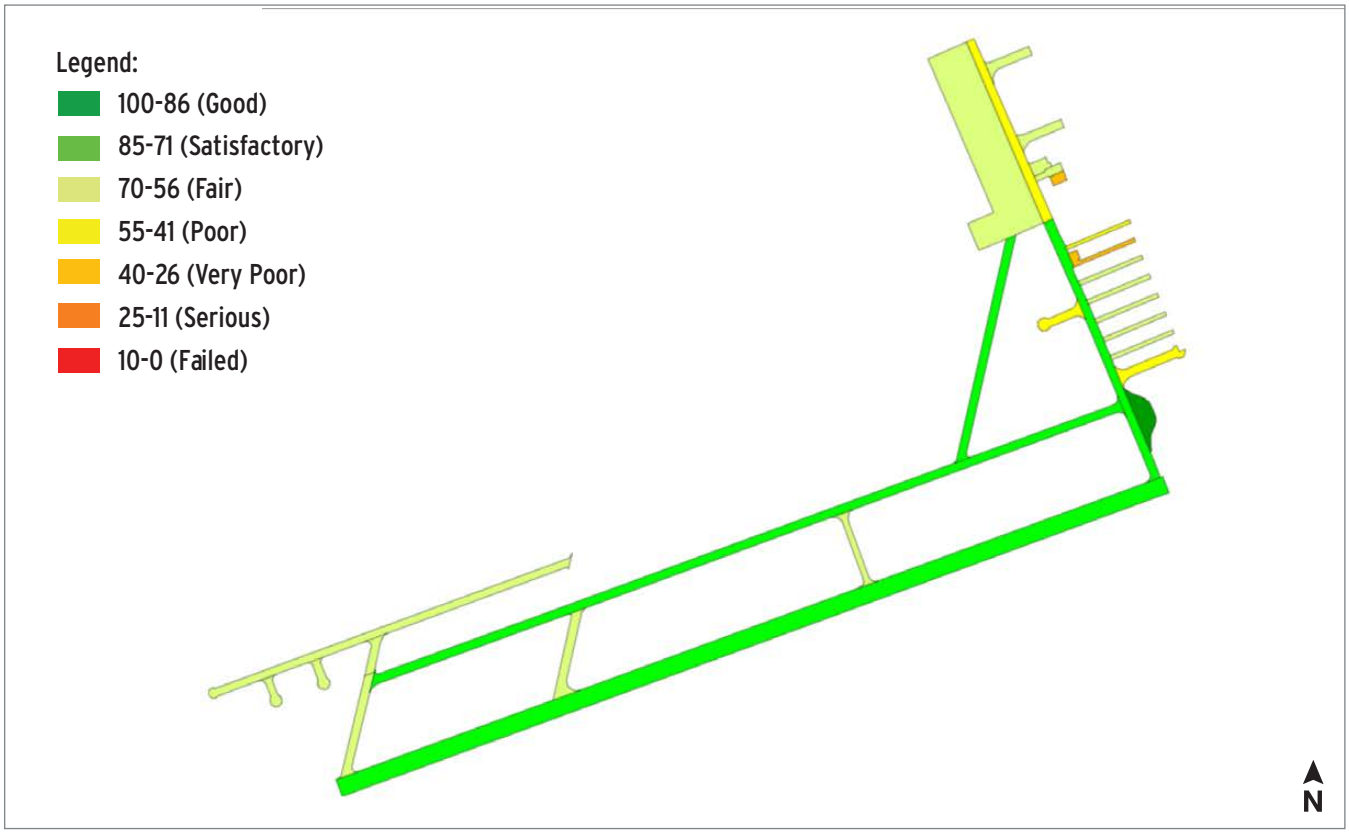
Updated statewide airfield inspections were conducted in late 2024 and the new program release is scheduled for mid-2025. The updated APMS will provide general recommendations for maintenance and rehabilitation for the 7-year period ending in 2031. This information will be added to the master plan's facility requirements evaluation when it becomes available. For NPIAS airports that receive federal money, this work supports their requirement to meet FAA airfield pavement maintenance grant assurances.

Table 2-10: Pavement Condition Rates - 2018 Inspection (SHN)

Pavement Section	2018 PCI (Area Weighted Average)
Runway 5/23	77*
Taxiway A	71
Taxiway/Taxilane A1	71
Taxiway A3	68
Taxiway A4	64
Taxiway A5	69
Taxiway B	73
North Hangar Stub Taxilanes (3)	67-70
South Hangar Stub Taxilanes (8)	38-65*
Main Apron (PCC)	67
AC Hold Area (Rwy 23)	100
AC Parking/Turnaround (adjacent to ASOS)	54
Fueling Apron and Hangar Frontage (3 sections)	58, 68, 35
Taxilanes (west of closed runway, north of Taxiway A)	59-65

*Southern-most hangar taxilane modified (2024) in conjunction with new hangar construction. Runway 5/23 overlay completed in 2019.

Figure 2-16: WSDOT IDEA Pavement Condition Index



Source: Washington 2018 IDEA: https://idea.appliedpavement.com/hosting/washington/airport-details/airport-details.html

LANDSIDE FACILITIES

Landside facilities support airport operations, including aircraft parking aprons, fueling aprons and fuel storage, hangars, and taxilanes. Other facilities including utilities, fencing, surface access roads, vehicle parking, and fixed base operator (FBO)/terminal facilities are also described. **Figure 2-17 and 2-18** depict existing landside facilities at Sanderson Field. **Table 2-10** summarizes the existing aeronautical use buildings at the Airport.

Main Apron

Sanderson Field has one large apron that anchors the Airport's existing landside facilities. The main apron is located north of the runway-taxiway system, near the east end of Runway 5/23. Two access taxiways (A1 and B) connect the apron to the runway-taxiway system. The main apron was constructed in 1943 of Portland Concrete Cement (PCC), with a total pavement area of 292,120 square feet (6.7 acres).

As noted earlier, most aircraft hangars and the fueling area are located along the eastern perimeter of the main apron. Two conventional hangars are located near the north end of the main apron. Taxilane A1 extends the full length of the main apron on its east edge. The apron has a loop taxilane that provides access to the aircraft parking rows.

The apron is configured with two parallel (north-south) aircraft tiedown rows served by apron taxilanes. Over time, the configuration of aircraft tiedowns on the expansive concrete apron has changed to accommodate aircraft needs. The west row of tiedowns currently has 9 designated tail-in small airplane tiedowns located along the edge of the apron. The east tiedown row is dual-sided with east and west facing tiedowns. The row is currently configured to accommodate 20 aircraft, including 19 nested tail-in small airplane tiedowns and 1 large aircraft parking space (painted 70' x 55' parking area). The south end of the main apron has 5 parking spaces marked with lead-in taxilanes connecting the Taxiway A1 and B. These parking spaces are available to accommodate transient business aircraft or helicopters.

A fall 2024 site visit observed pavement conditions to be consistent with the most recent AMPS inspections. The PCC sections are in fair condition with areas of Longitudinal, Transverse, and Diagonal (LTD) cracks, which commonly occur in PCC over long periods of time. The main apron taxilane centerline striping has faded in most sections. As noted earlier, the PCC main apron pavement is 82 years old in 2025.

Main Apron
Source: Century West Engineering

Main Apron
Source: Century West Engineering

Fueling Apron

The fueling apron is located opposite the aircraft parking area, on the east side of Taxilane A1. The asphalt apron was constructed in 1990. A fall of 2024 site visit observed the pavement to be in fair condition. Two above-ground 12,000-gallon fuel storage tanks, dispensing equipment, and an overhead protective structure are located immediately east of the apron.

FBO Apron/Building

The existing FBO building and hangar is located adjacent to the fueling area, adjacent to the main apron. The asphalt apron was constructed in 1980. A fall of 2024 site visit observed the pavement to be in poor condition with significant alligator cracking.

Hangars and Airport Buildings

Sanderson Field has a mix of aeronautical and non-aeronautical buildings including aircraft storage hangars, commercial hangars, support facilities and commercial/industrial buildings. A standard numbering system provided by the Port is used for mapping the existing buildings.

The Airport currently has 15 hangars, including 7 conventional hangars and 8 T-hangar/multi-unit hangars.

Several of the conventional hangars accommodate commercial use. The commercial hangars include the main Kapowsin Skydiving hangar, the fixed base operator (FBO) hangar, formerly owned and operated by Olympic Air, and other tenants. The FBO hangar and the adjacent FBO building are located adjacent to the aircraft fueling area.

The T-hangar area extends over the south end of the terminal area. The area currently has seven hangar rows served by eight stub taxilanes that are perpendicular to Taxiway A1. Current development includes five 16-unit T-hangars; one 6-unit T-hangar; and one 4-unit T-hangar. A new 14-unit T-hangar was constructed in 2024 at the south end of the landside area. There are a total of 104 individual aircraft storage units provided in the eight T-hangars.

Table 2-11 summarizes existing aviation use buildings. Non-aeronautical buildings located in the Airport's industrial park are described later in this chapter.

Fueling Apron
Source: Century West Engineering

Hangars & Airport Buildings
Source: Century West Engineering

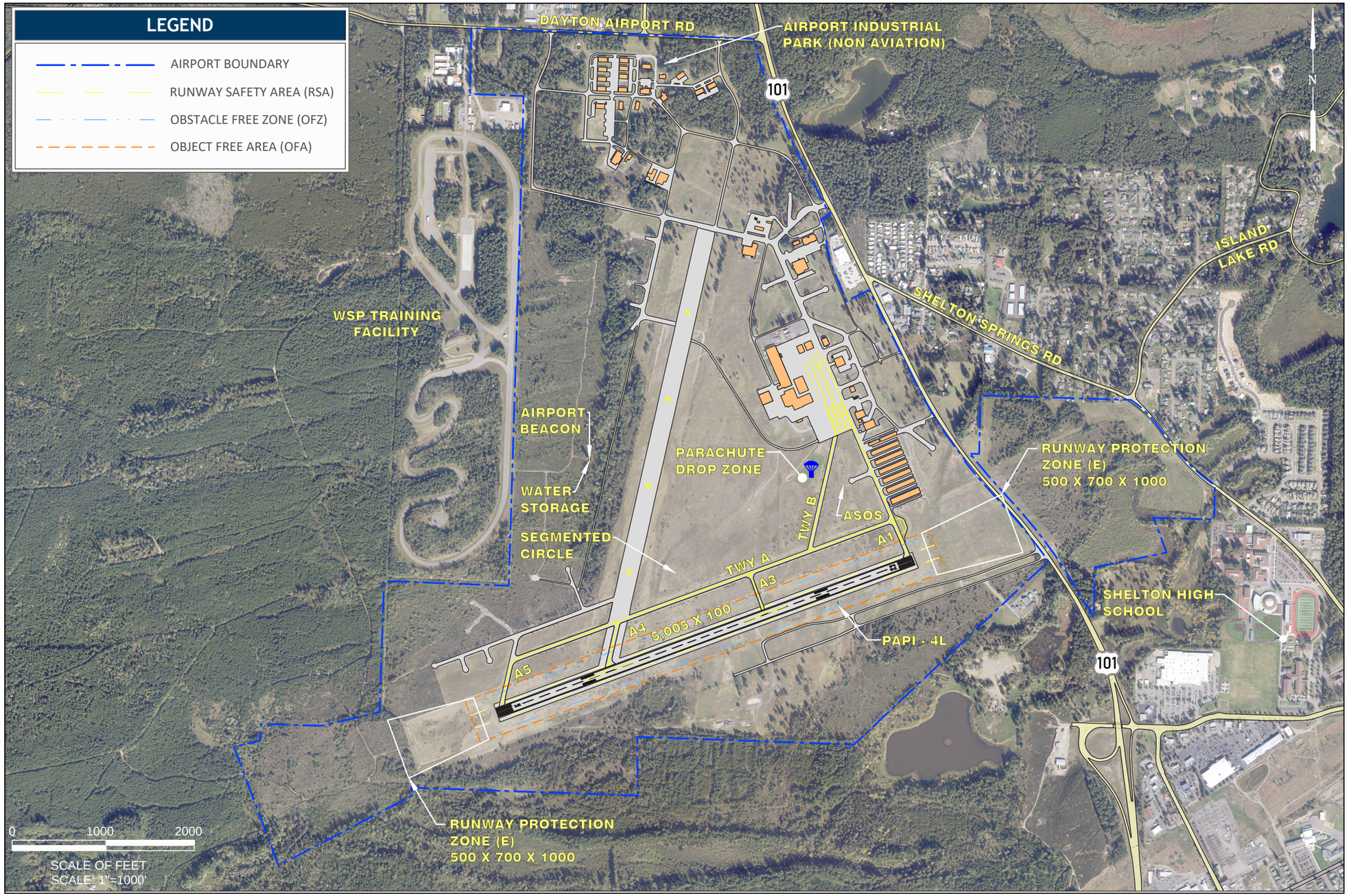
Table 2-11: Existing Aviation Buildings (SHN)

Figure 2-16 Building No.	Building	Existing Use
32	Tenant Hangar	Aircraft Storage
33	Kapowsin Air Sports	Commercial Use
34	Kapowsin Air Sports	Commercial Use
35	Pacific Aero	Commercial Use
36	Cedar Helicopters	Commercial Use
38	Squirrel LLC	Commercial Use
39	Airplane Storage Hangars – 8 Multi-Unit Hangars (104 total storage units)	Aircraft Storage
40	Port of Shelton (Administration)	Airfield Operations
41	Manke Hangar	Aircraft Storage

Source: Airport Management

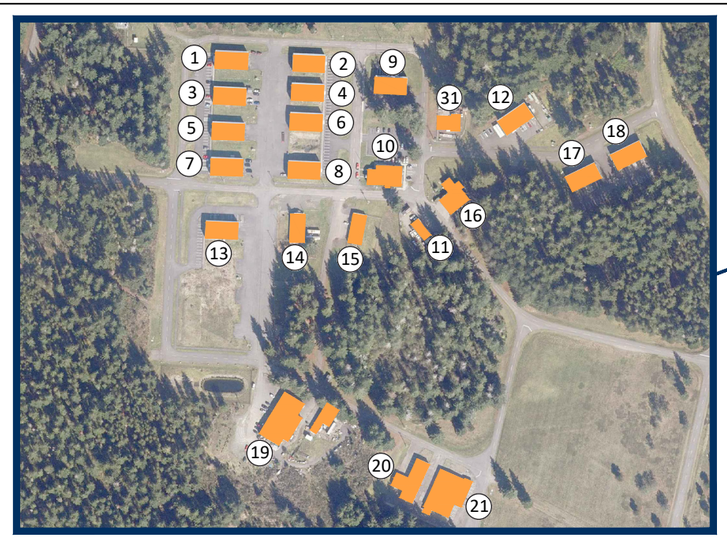
Hangars & Airport Buildings
Source: Century West Engineering

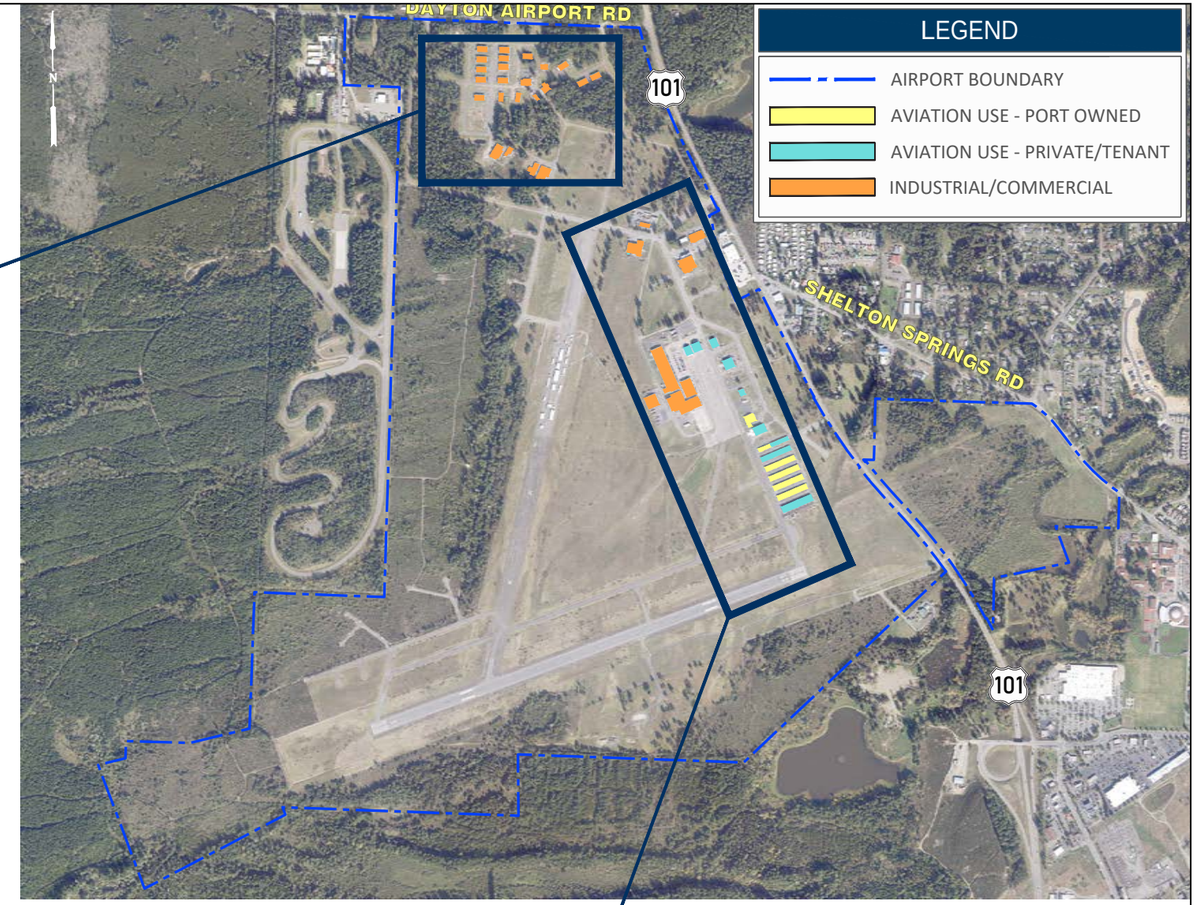
Figure 2-17: Existing Conditions Landside (SHN)

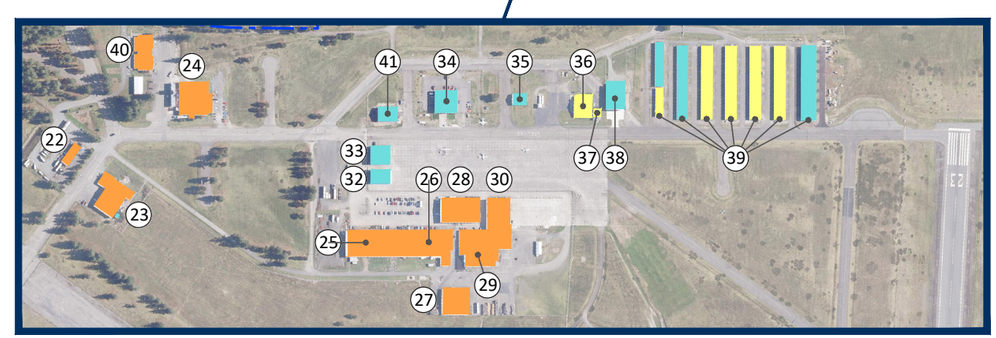


Source: Century West Engineering

Figure 2-18: Existing Terminal Area Buildings (SHN)







BUILDING / FACILITY KEY

1. DYNAMIC SYSTEMS TECHNOLOGIES
2. AVAILABLE
3. ALPHA TEST CORP
4. AVAILABLE
5. AVAILABLE
6. AVAILABLE
7. LIMBSAVER (R&D)
8. LIMBSAVER (BOW SHOP)
9. MASON GENERAL HOSPITAL
10. MASON CONSERVATION DIST. DEPT NATURAL RESOURCES
11. MASON CONS. DIST. (STORAGE)
12. THERMEDIA
13. MACECOM
14. M.C. SPORTSMANS ASSOC.
15. WA DRIVER EDUCATION
16. K&L SUPPLY
17. AVAILABLE
18. DOMI ENTERPRISES
19. LIMBSAVER (RUBBER SHOP)
20. AVAILABLE
21. PENDING
22. SMALL & SONS OIL DIST. CO.
23. TECHWOOD LLC
24. TECHWOOD LLC
25. TRUFAB LLC
26. BROTHERS UNITED
27. BROTHERS UNITED
28. BROTHERS UNITED
29. GARCIA EVERGREENS/TECHWOOD
30. DIAMOND ACE LLC
31. OPEN CONTAINER LLC
32. JDN PLANE LLC
33. KAPOWSIN AIR SPORTS
34. KAPOWSIN AIR SPORTS
35. PACIFIC AERO
36. CEDAR HELICOPTERS
37. EVERGREEN TACTICAL SOLUTIONS
38. SQUIRREL LLC
39. AIRPLANE HANGARS
40. PORT OF SHELTON (ADMIN.)
41. MANKE HANGAR

Source: Century West Engineering

AIRPORT SUPPORT FACILITIES/SERVICES

Aircraft Fuel

Sanderson Field offers both 100LL aviation gasoline (AVGAS) and jet fuel (Jet A) for sale. The Airport has two 12,000-gallon above ground fuel storage tanks (one for each fuel grade). The fuel storage and dispensing system is owned and operated by Kapowsin Airsports and Pacific Aero LLC, with a 24-hour credit card payment system for self-fueling. Kapowsin maintains a private use aboveground 3,000-gallon fuel storage tank (Jet A) and two fuel trucks (650 gallons each) adjacent to their main hangar to support their skydiving operations.

Fencing

The Airport is fenced with a 6-foot chain link around the perimeter of the airfield and additional sections of fencing located within the landside development areas. Non-aeronautical areas adjacent to the main apron are also fenced for security. Automated gates (with electronic keypad) are located adjacent to the T-hangar area and at the north end of the main apron (West Enterprise Road entrance). Conventional hangars and other buildings located on the east side of Taxilane A1 have fencing to control public access from West Enterprise Road. Multiple vehicle and pedestrian swing gates are located adjacent to hangars and other developed areas of the airfield. The swing gates are mostly code locked and remain locked unless in regular use.

Fencing
Source: Century West Engineering

Utilities

Sanderson Field is served by common utilities including water, sewer, communications, power, and gas. A satellite treatment plant was constructed adjacent to the Airport in 2009 and provides water treatment to the Airport through a reclaimed waterline extension in the vicinity of the Runway 23 end. Natural gas service is located in the airport industrial park.

The Airport has a Class A water system, designed to serve less than 1,000 people. The system includes two on site water wells, two storage reservoirs, and a system of underground transmission lines owned by the Port of Shelton. The 550,000-gallon water storage tank was constructed in 1993 and is located on the elevated terrain just west of the airfield. The larger reservoir supplements a 125,000-gallon storage tank located near the northwest corner of the Airport, adjacent to Sanderson Way and Highway 102. A 16-inch diameter water main extends east from the reservoir across the airfield, before connecting to a system of 10-inch diameter water lines serving the east and north sections of the airport. Shorter 0sections of smaller diameter lines (6- and 8-inch) also serve adjacent development areas. This system allows for adequate fire flow for most typical industrial uses. The Port manages and treats stormwater on site.

Aviation Businesses

Sanderson Field supports a variety of aviation and non-aviation businesses. Aviation businesses include a full-service fixed base operator (FBO), skydiving operator, skydiving equipment sales and manufacturing, and private hangar rental. Non-aeronautical businesses are located on the Airport and within the designated Sanderson Field Industrial Park.

Squirrel

Squirrel is an industry leader in wingsuit and parachute design that develops, manufactures, and offers a variety of skydiving equipment. All testing of Squirrel equipment is tested at the Airport's drop zone. Squirrel also provides training in wingsuit use, advanced skills such as formation flying and freestyle, and BASE jumping.

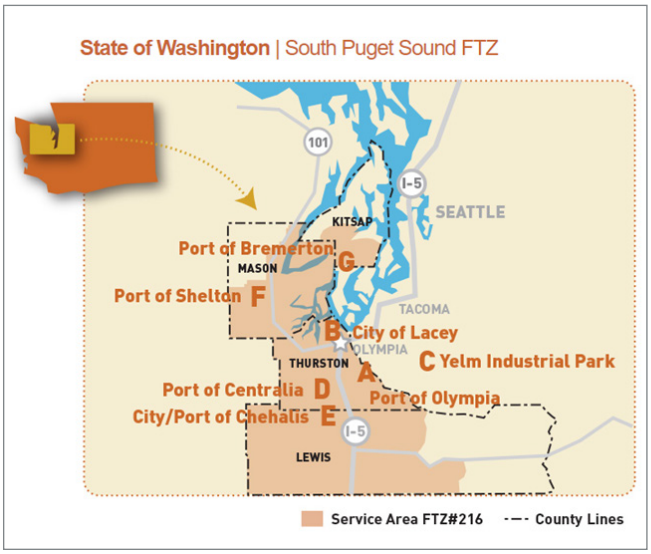
Kapowsin Airsports

Kapowsin Airsports is a skydiving operator which began operations at Sanderson Field in 2006. Kapowsin reports more than 300,000 skydives completed from the Airport. Kapowsin has significantly expanded their Sanderson Field facilities to include multiple hangars and the Airport's aviation fuel system. Kapowsin' s fleet currently includes Super Twin Otter (DHC-6), a Cessna Grand Caravan (C-208), a Pilatus Porter (PC-6), and a Cessna 182 (CE-182). Kapowsin also offers gear rentals, rigging services, skydive instruction, and jumps from various altitudes.

Skydive Operations
Source: Century West Engineering

Airport Industrial Park

Sanderson Field supports a thriving industrial park and employment center totaling approximately 195 acres. The Airport industrial park accommodates several non-aeronautical businesses engaging in light industrial manufacturing, distribution, and retail. The industrial park offers multiple 5,000 sq ft warehouses available for lease serviced by a full range of utilities including individual septic systems, natural gas, fiber optics, water service, parking, and 3 phase power. The Airport Industrial Park currently has 31 commercial buildings and an administration building for the Port of Shelton. See **Table 2-12** for a full list of buildings in the industrial park.



Sanderson Field is included in the South Puget Sound Foreign-Trade Zone (FTZ) #216. Foreign Trade Zones were created by Congress to provide opportunities for businesses seeking a competitive edge in the world marketplace. The FTZ program reduces or eliminates customs duties on products admitted to the zone.

Table 2-12: Industrial Park Buildings (SHN)

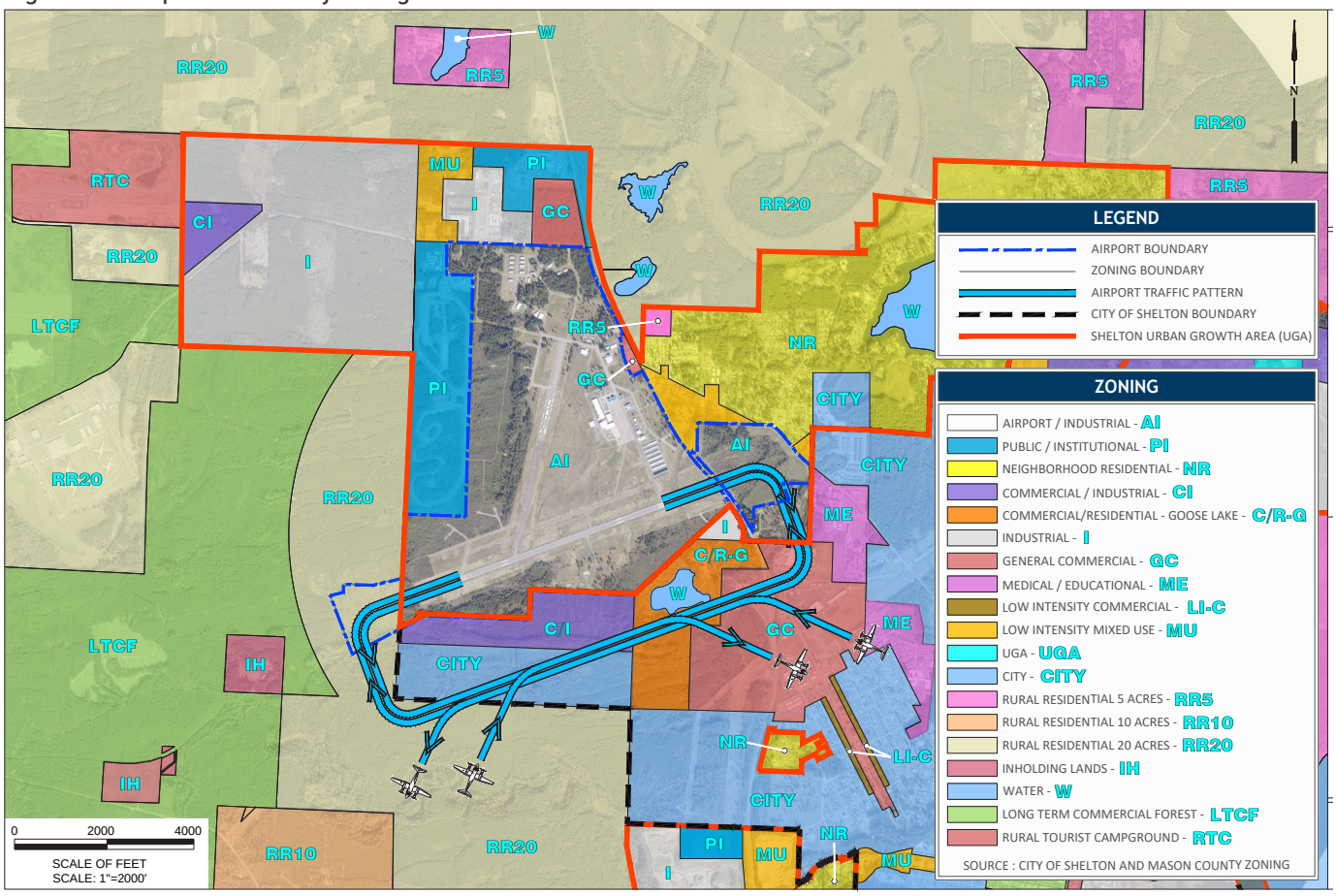
Figure 2-16 Building No.	Building	Existing Use
1	Dynamic Systems Technologies	Commercial Use
2	Available	Vacant
3	AlphaTest Corp	Commercial Use
4	Available	Vacant
5	Available	Vacant
6	Available	Vacant
7	Limbsaver (R&D)	Commercial Use
8	Limbsaver (bow shop)	Commercial Use
9	Mason General Hospital	Commercial Use
10	Mason Conservation Dist Dept Natural Resources	Commercial Use
11	Mason Cons. Dist. (storage)	Commercial Use
12	Thermedia	Commercial Use
13	MACECOM	Commercial Use
14	M.C. Sportsmans Assoc	Commercial Use
15	WA Driver Education	Commercial Use
16	K&L Supply	Commercial Use
17	Available	Vacant
18	DOMI Enterprises	Commercial Use
19	Limbsaver (Rubber Shop)	Commercial Use
20	Available	Vacant
21	Pending	Vacant
22	Small & Sons Oil Dist Co	Commercial Use
23	Techwood LLC	Commercial Use
24	Techwood LLC	Commercial Use
25	TruFab LLC	Commercial Use
26	Brothers United	Commercial Use
27	Brothers United	Commercial Use
28	Brothers United	Commercial Use
29	Garcia Evergreens/Techwood	Commercial Use
30	Diamond Ace LLC	Commercial Use
31	Open Container LLC	Commercial Use
32	JDN Plane LLC	Commercial Use
37	Evergreen Tactical Solutions	Commercial Use

Source: Airport Management

LAND USE AND ZONING

This section summarizes the land use and zoning in the vicinity of Sanderson Field. Land use in the vicinity of an airport can impact safe and efficient airport operations. FAA grant assurances require Airport Sponsors to the extent of their influence work with local municipalities to restrict use of land in the vicinity of an airport to activities that are compatible with airport operations. **Figure 2-19** depicts the current Mason County and City of Shelton zoning in the immediate vicinity of Sanderson Field.

Figure 2-19: Airport and Vicinity Zoning



Source: Century West Engineering, Tillamook County Zoning Ordinance/Mapping

Airport Zoning

All zoning for Sanderson Field currently falls under the authority of Mason County. The majority of the Airport is located within the City of Shelton Urban Growth Area (UGA), outside the Shelton city limits, in unincorporated Mason County. A small portion of the Runway (5) Protection Zone (RPZ) extends west of the Shelton UGA boundary into unincorporated Mason County.

Mason County land use and zoning regulations will apply to Sanderson Field until or unless it is annexed into the City of Shelton. In anticipation of long term land use within the UGA, Mason County has defined zoning consistent with the area's transition from rural to urban land use densities. This also encourages long-term compatible land uses in the vicinity of Sanderson Field.

Mason County Code (Title 17) defines zoning regulations for all areas of the county. Chapter 17.07 - Shelton Urban Growth Area Development Regulations defines zoning regulations for the Shelton UGA. Chapter 17.07 contains seven Articles that define specific zoning standards within the Shelton UGA. **Article 5 – Airport Industrial (AI) is defined specifically for Sanderson Field (17.07.510)**:

"The airport industrial designation is intended to provide a land use classification that accommodates the industrial, commercial, and aviation-oriented uses that exist and are envisioned for Sanderson Field. This land use promotes flexibility while addressing changes in market demands, and ensures sensitive design practices are utilized within the City of Shelton gateway corridor. Development along U.S. 101 should strive to be consistent with guidance provided in "The Washington Coastal Corridor: U.S. 101 Corridor Master Plan.""

The intended uses defined for the AI zone accommodates all common aviation and aviation-related development, in addition to compatible commercial and industrial uses. The majority of Sanderson Field is zoned Airport Industrial (AI). The portion of the Runway 5 RPZ noted earlier is located in Rural Residential (RR-20) zoning.

Any proposed development in **Chapter 5** (Development Alternatives Analysis) will be consistent with the development requirements outlined in Mason County Code Title 17, Chapter 17.07, Article 5 (17.07.510-598). The maximum building height allowed in the AI zone is 45 feet, but may be reduced to comply with airport overlay zoning. The development requirements associated with the Mason County AI zoning are expected to be maintained in any future City of Shelton zoning, if the Airport is annexed into the City of Shelton. The small area of RR-20 zoning located in the Runway 5 RPZ is outside the Shelton UGA. Options for rezoning the area to a non-residential (rural) use is suggested to address land use compatibility.

Airport Vicinity Zoning

Mason County

The land areas in the vicinity of Sanderson Field outside of the Shelton UGA consist primarily of rural residential and commercial forest zoning. These zones are summarized below, with full ordinances provided **Appendix D**.

Rural Residential (RR-20): RR-20 borders airport property to the southwest and to the northwest. The intent of RR-20 is to provide for new residential development on parcels of 20 acres or more. The maximum building height allowed is 35 feet and are restricted to mainly residential and agricultural uses. Low density of permitted residential use reduces noise impact generated by airport operations.

Long-term commercial forest (LTCF): LTCF areas exist approximately 1 mile to the west of airport property. The intent of LTCF is to protect unique resources that are sensitive to abutting land uses. The majority of **LTCF** property must remain forested and limited development is permitted. No residential uses are permitted in this zone that may be impacted by noise generated by airport operations.

City of Shelton

The City of Shelton boundary (city limits) borders the south side of Sanderson Field. City zoning in the vicinity of the Airport includes areas of commercial, industrial, and residential zoning. These are summarized below, with full zoning ordinances (City of Shelton Title 20) provided **Appendix D**.

Commercial/residential (C/R-G): C/R-G zoning borders the Airport property to the south. The purpose of **C/R-G** is to provide for higher-density residential development with a mix of pedestrian-oriented commercial development. The maximum building height is 35 feet and restricted to residential or primarily retail storefront businesses. Areas with residential use in this zone may be affected by noise generated by airport operations.

Commercial/Industrial (C/I): C/I zoning exists along the south border of airport property. The purpose of **C/I** zoning is to provide space for light manufacturing, research and development, and limited retail. The maximum building height is 35 feet and is restricted to mainly industrial uses. No residential or similar uses are permitted within this zone that may be affected by noise generated by airport operations.

Industrial (I): I exists bordering the Airport to the southeast. The intent of **I** zoning is to provide for moderate to heavy industrial development including manufacturing, storage, and food processing facilities. The maximum building height is 35 feet and is restricted to mainly industrial uses. No residential or similar uses are permitted within this zone that may be affected by noise generated by airport operations.

General Commercial (GC): GC exists within a mile to the south of the Runway 5 end, under the airport traffic pattern. The purpose of GC is to provide high-intensity general commercial and professional services easily accessible along arterials. The max building height allowed is 35 feet and are restricted to primarily commercial uses. Residential or similar uses are only permitted on the 2nd or 3rd floors with the ground floor being reserved for commercial uses only. Areas with residential uses within this zone may be affected by noise generated by airport operations.

Airport Overlay Zoning

Both Mason County and the City of Shelton zoning ordinances include airport overlay zoning that apply to Sanderson Field. The Mason County Airport Overlay Zone Ordinance (Chapter 17.60) and City of Shelton Airport Overlay Zones and Regulations (Chapter 20.70) code are nearly identical with small, permitted use deviations within each jurisdiction. A copy of the Mason County and City of Shelton airport overlay zoning ordinances is included in A**ppendix D** for reference.

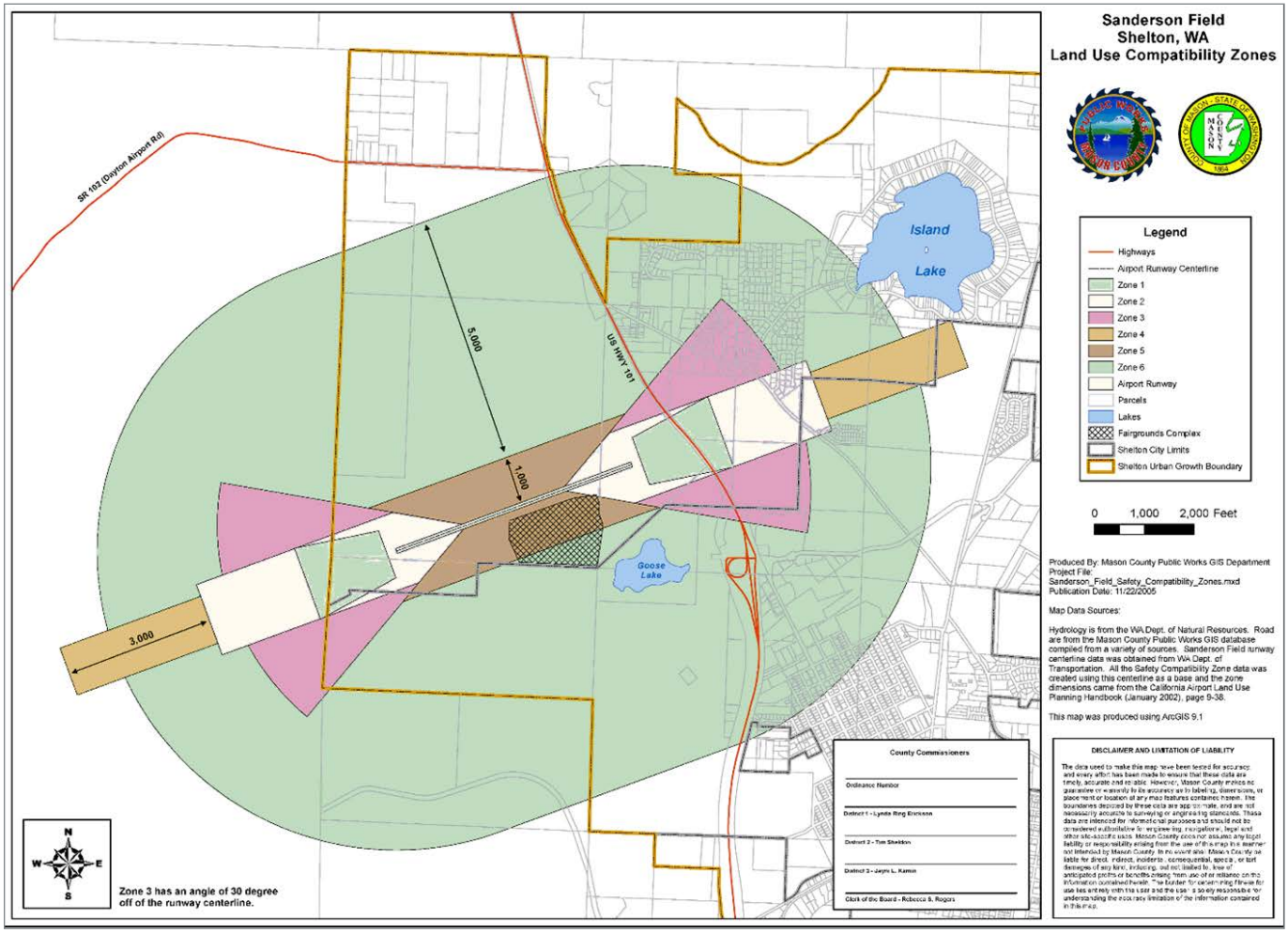
The purpose of the overlay zoning as described in the city/county code is to:

1. Minimize the public's exposure to excessive noise and safety hazards that would result from incompatible land use development around Sanderson Field; and
2. Protect Sanderson Field from potential encroachment by land uses that are incompatible with airport activities and that may impair the planned development and use of the Airport.

Mason County Overlay Zoning

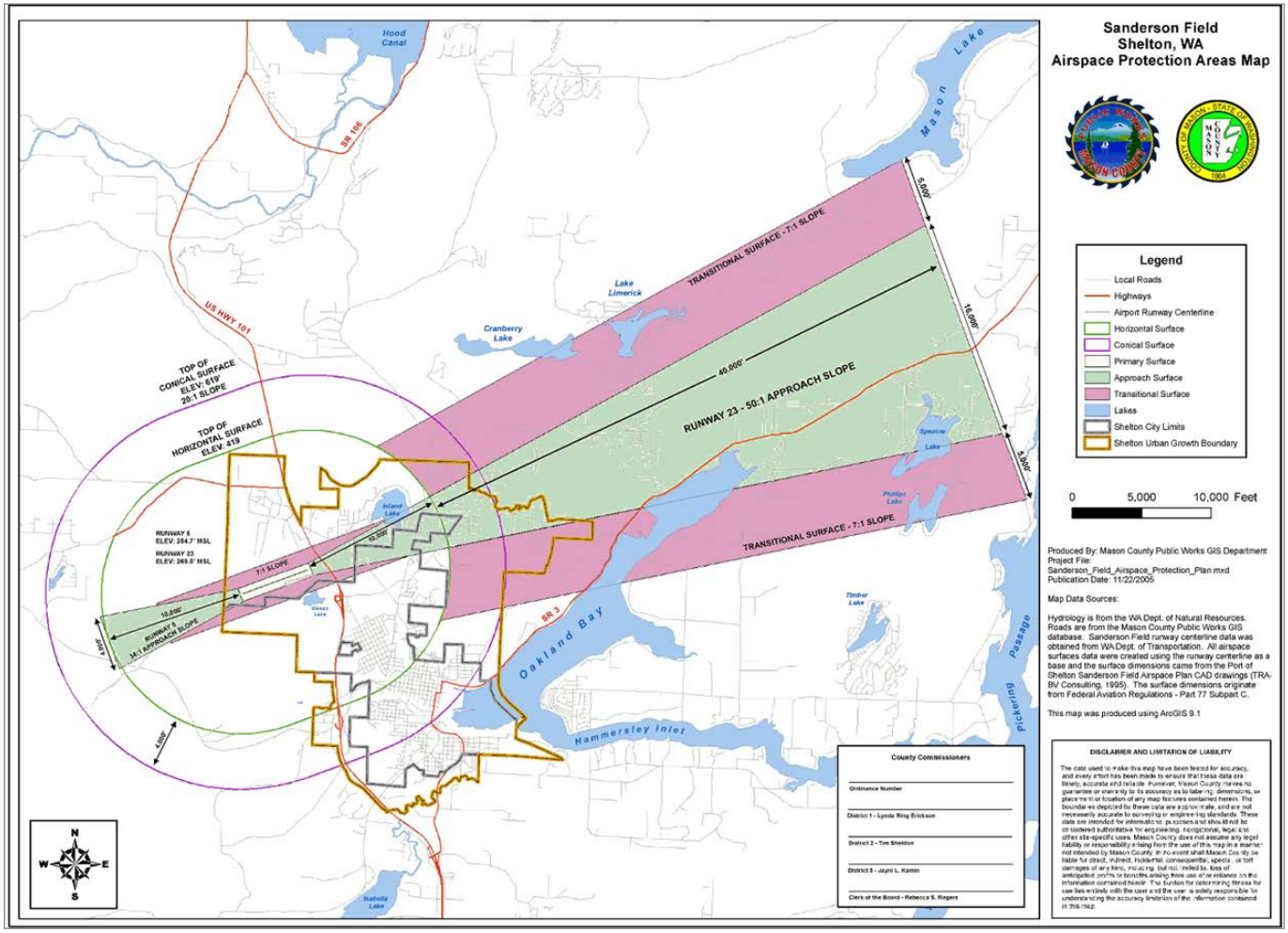
Figure 2-20 depicts a total of 6 zones designed to represent the Airport's influence zone based on typical aircraft operations and flight patterns. Applicable residential density limits are imposed within the areas of each described zone to promote compatibility with airport operations. **Figure 2-21** depicts Airspace Protection Areas representing Part 77 surfaces. See **Appendix D** for more details.

Figure 2-20: Land Use Compatibility Zones



Source: Mason County

Figure 2-21: Airspace Protection Areas



Source: Mason County

Airport Administration

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

AIRPORT OWNERSHIP & MANAGEMENT

Sanderson Field is owned and operated by the Port of Shelton. Current staffing for managing and maintaining the Airport's facilities are provided by the Port of Shelton. The Port of Shelton staff provides finance, legal, human resources, information technology, and administrative services for the Airport. The Airport lessees are responsible for managing their facilities and leased areas to meet the requirements defined in their leases and the Airport Minimum Standards document.

AIRPORT FINANCE

The Port manages the Airport's finances to include the collection of revenues such as airport fees, fueling fees, hangar and ground leases, tiedown fees, and the handling of any other miscellaneous revenue source. The Airport's capital improvement projects are typically funded through FAA grants with a local match that may be supplemented by WSDOT grants and airport funds.

Airport Minimum Standards

The airport minimum standards document defines the minimum standards and criteria that apply to the general aviation operations that take place at Sanderson Field. Any potential or existing activities and businesses that take place on airport grounds should be conducted in conformity with the Sanderson Field Airport Minimum Standards. According to AC 150/5190-8, the purpose of a minimum standards document is "to promote safety in all airport activities, protect airport users from unlicensed and unauthorized products and services, maintain and enhance the availability of adequate services for all airport users, promote the orderly development of airport land, and ensure efficiency of operations. Therefore, airport sponsors should strive to develop minimum standards that are fair and reasonable to all on-airport aeronautical service providers and relevant to the aeronautical activity to which it is applied."

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 Port of Shelton 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. The current FAA grant program, the Airport Improvement Program (AIP), is pursuant to the Airport and Airway Development Act of 1982, as amended. 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 instruments of transfer;
- 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 Port of Shelton is contractually bound to various sponsor obligations referred to as "Grant Assurances," developed by the FAA and the Washington DOT Aviation Division 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 Port 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 (Section 1.5) 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 ensure compliance with Federal obligations." Section 1.7 notes "The airport system should have the following attributes to meet the demand for air transportation:

- *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 accommodate 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 concert 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.*
- *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 Port of Shelton (airport sponsor), the Port commits to providing the funding to cover their portion of the total project cost. Currently this amount is ten percent 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 Port of Shelton (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 costs, how monies were 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 Port of Shelton (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)

The Port of Shelton 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. The Washinton Department of Transportation Pavement Management System prepares and updates pavement reports for Sanderson Field. 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 inside the City of Shelton Urban Growth Area. Portions of the protected Part 77 airspace for the Airport extend into unincorporated Mason County, and the City of Shelton. The Port of Shelton, as airport sponsor, should work with county and city to ensure zoning laws are in place that protect the Airport from incompatible land uses.

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 to 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 GA airports include fuel flowage fees, tie-down 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 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

CHAPTER 3

Airport Facility Requirements

The evaluation of airport facility requirements is intended to determine the facility needs for the Sanderson Field for the current 20-year planning period based on conformance to established airport design criteria.

Introduction

The evaluation of airport facility goals and requirements combines the results of the inventory with needs of the existing and future critical aircraft, and application of established planning criteria to determine the future facility needs for the Airport during the 20-year planning period. All airfield facility requirements definitions are based on Federal Aviation Administration (FAA) airport design and airspace planning standards, and locally defined goals for the Airport. The facility requirements evaluation identifies the adequacy of existing facilities and identifies what new facilities may be needed based on anticipated demand or conformance to FAA standards. Potential options for accommodating current and future facility needs will be evaluated in Chapter 4 – Airport Development Alternatives.

The evaluation of airport activity confirmed that annual aircraft operations at Sanderson Field are currently well below the FAA-defined threshold of 90,000 used to determine forecast requirements for the airport master plan (see Summary of Airport Activity on the following page). The evaluation was also used to identify the current and future critical aircraft for each runway and the corresponding design standards. The evaluation of demand-driven elements will quantify facility needs such as runway length, hangar space, and aircraft parking requirements based on future demand and the type of aircraft being accommodated. Items such as lighting, navigational aids, and approach capabilities are evaluated based on overall airport activity and facility classification.

Airside facilities focus on the movement of aircraft associated with operations, which includes runways, taxiways, navigational aids and lighting systems. Landside facilities provide aircraft storage and support, which includes hangars, aircraft parking apron(s), terminal and fixed base operator (FBO) facilities. Support facility needs include aviation fuel storage and dispensing, security/perimeter fencing, surface access, automobile parking, and utilities.

Summary of Airport Activity

Recently, the Federal Aviation Administration (FAA) changed its forecasting guidance for airports with less than 90,000 annual operations through release of its August 2024 Memorandum – Forecast Review and Approval Instructions (8/12/2024).

The FAA guidance for "smaller general aviation (GA) airports with less than 90,000 annual operations" is that planning forecasts can be streamlined to focus on the existing and likely future critical aircraft for each runway. The guidance also indicates that the normal forecast consistency checks with the FAA Terminal Area Forecast (TAF) are not required.

Where applicable, the FAA indicates that airport sponsors may attest that their current and anticipated aircraft operations will not exceed 90,000 in the foreseeable future (defined by FAA as "through the mid-term period).

Based on this guidance and a review of recent activity at Sanderson Field, it is determined that annual aircraft operations at the Airport for the foreseeable future will be less than 90,000. As a result, preparation of a full aviation activity forecast in the current Airport Master Plan is not required.

The following section in the noted FAA memorandum provides guidance relevant for Sanderson Field:

Section 5. Forecasts at Non-towered, Low-activity Airports (defined as having less than 90,000 annual operations) recommend streamlining the analysis to focus on the existing critical aircraft by runway, and the likely future critical aircraft by runway.

The memorandum further recommends the following:

> *"The airport sponsor may attest that 'Current operations at the airport are less than 90,000 operations annually and are not expected to exceed 90,000 operations in the foreseeable future. Therefore, preparation of a detailed forecast is not warranted."*

A review of recent historical aircraft operations counting data and the updated 2024 (baseline) aircraft operations estimate confirms that annual aircraft operations levels at Sanderson Field are less than 90,000 operations and are not expected to reach 90,000 operations by the mid-term period in the current 20-year planning period (2024-2044).

June 2025

Port of Shelton, Washington

Sanderson Field (SHN)

The sponsor provides the following statement attesting activity at Sanderson Field, consistent with FAA guidance:

"Current operations at the airport are less than 90,000 operations annually, and not expected to exceed 90,000 operations in the foreseeable future. Therefore, preparation of a detailed forecast is not warranted."

CURRENT ACTIVITY (2024 BASELINE)

A review of available data was conducted by the Century West airport master planning team for use in developing an updated baseline aircraft operations count for 2024. The baseline operations estimate is intended to document current activity levels for comparison with the FAA's 90,000 operations threshold noted earlier.

The largest individual generator of flight activity at Sanderson Field is Kapowsin Air Sports/Skydive Kapowsin. Kapowsin is based at the Airport and currently operates a fleet of four fixed wing aircraft in its commercial skydiving business. To evaluate this activity segment, one year (3/1/24 to 3/1/25) of FAA Automatic Dependent Surveillance – Broadcast (ADS-B) data was downloaded for each of Kapowsin's four jump aircraft. The four Kapowsin aircraft that were queried included:

- N200KS – Cessna 208 Caravan (Single-Engine Turboprop - ADG II)
- N593EX – Cessna 208 Caravan (Single-Engine Turboprop - ADG II)
- N3914D – Cessna 182 Skylane (Single-Engine Piston - ADG I)
- N669JW – DeHavilland Twin Otter (Multi-Engine Turboprop - ADG II)

The data confirm information provided by the operator that their skydiving activity varies by season. An evaluation of the ADS-B flight tracks, altitude data, and time stamps showed that the jump aircraft followed regular pattern for skydiving flights where they ascend to jump altitude (typically 13,000 ft MSL) above the Sanderson Field jump zone as quickly as possible, and return directly to the Airport after the skydivers have jumped from the aircraft. On average, the process of loading, climbing to the designated jump altitude, completing the jump sequence, and returning to the Airport takes 30 minutes or less for each load of skydivers. This 30-minute threshold was used to estimate the number of flights by comparing to the time stamps in each ADS-B record (assuming two operations per load).

A total of 4,554 aircraft operations were documented in the ADS-B data over this 12-month period for the four Kapowsin aircraft. 4,246 (93%) of these operations were conducted by ADG II aircraft.

Instrument flight plan data (FAA TFMSC) for Sanderson Field was also reviewed to help define current aircraft operations levels. A review of eleven years (2014-2024) of TFMSC data indicates that the Airport's instrument activity has steadily increased during this period. The 2024 activity is consistent with the four previous "post-COVID" years, all of which were above the average for the 11-year period.

For 2024, the instrument flight plan filings for Sanderson Field represented a total of 844 aircraft operations. Based on the relatively low volume involved, the TFMSC activity is effectively captured in the operations per based aircraft (OPBA) ratio described below, in the calculation of the overall aircraft operations total for 2024.

The majority of flight activity at Sanderson Field is generated by locally-based and transient GA fixed wing aircraft and rotorcraft. Fixed wing activity includes single-engine and multi-engine piston and turbine aircraft (turboprop and jet). For non-towered airports without traffic counts, a common method for estimating air traffic is to apply an operations to based aircraft (OPBA) ratio to an airport's fleet of based aircraft (see based aircraft discussion below). This metric is intended to capture the activity generated by locally-based and transient aircraft operating at the airport. Activity generated by defined users is not duplicated in the OPBA (the four Kapowsin skydiving aircraft noted earlier, were excluded from the OPBA calculation since the activity was captured in ADS-B data and is accounted for separately). Based on the 2024 validated based aircraft count (65) and an OPBA of 350, this segment of activity is estimated at 22,750 annual operations.

Current military activity at Sanderson Field is estimated at 500 annual operations, which are predominantly helicopter training flights from nearby Joint Base Lewis-McChord (JBLM). Updated contact with military officials at JBLM confirmed typical flight activity at Sanderson Field.

The 2024 aircraft operations for Sanderson Field are summarized in **Table 3-1**.

Table 3-1: Sanderson Field Aircraft Operations (2024 Baseline)

	Activity Segment	Base Metric (Aircraft Fleet)	Multiplier	ADS-B Data (Operations)	Total Operations
A	Kapowsin			4,554[3]	4,554
B	OPBA	65[1]	350[2]		22,750
C	Military				500
Total Aircraft Operations					27,804

1. Validated Based Aircraft Count (less Kapowsin Aircraft)
2. OPBA typical multiplier of 350 to include TMFSC ops
3. Recorded ADS-B operations for 12 months for 4 Kapowsin Aircraft

An updated count of 69 based aircraft at Sanderson Field was verified by airport management and FAA in December of 2024 following a review of the FAA's National Based Aircraft Inventory (www.basedaircraft.com). This update provides the "validated count" based aircraft, using FAA criteria, to represent the baseline activity level for the master plan evaluations. The 2024 based aircraft total for the Airport is summarized in **Table 3-2**.

Table 3-2: Based Aircraft and Fleet Mix (2024)

Aircraft Type	
Single-Engine	61
Multi-Engine	4
Jet	0
Helicopter	4
Total	69

Source: FAA National Based Aircraft Inventory Report – 2024 (Validated Count Sanderson Field Airport)

FUTURE ACTIVITY

To provide a reasonable estimate of future aeronautic activity at the Airport, the FAA National Aerospace Forecast 2024-2044 growth rates for Active GA and Air Taxi Aircraft, and GA and Air Taxi Hours Flown were applied to the 2024 baseline activity numbers discussed above to develop forward-looking projections of base aircraft and operations respectively. The 2024 baseline numbers and projected estimates for based aircraft, and operations are presented in **Table 3-3**. These projections assume that aeronautical activity at Sanderson Field will follow national trends over the 20-year planning period.

Table 3-3: Future Aeronautical Activity Projections

Aeronautical Activity Projections						
	AAG[2,3]	2024[1]	2029	2034	2039	2044
Based Aircraft	0.4%	69	70	72	73	75
Operations	0.8%	27,804	28,934	30,110	31,334	32,608

1. 2024 AMP Baseline Numbers
2. Based Aircraft: FAA National Aerospace Forecast 2024 - 2044 Active General Aviation and Air Taxi Aircraft Growth Rate
3. Operations: FAA National Aerospace Forecast 2024-2044 Active General Aviation and Air Taxi Hours Flown Growth Rate

Demand/Capacity Analysis

The evaluation of runway capacity is used to identify existing or future operational constraints that may require specific facility improvements such as taxiways, aircraft hold areas, etc. As noted earlier, Runway 5/23 has a full-length parallel taxiway and four exit taxiways.

Annual service volume (ASV) is a broad measure of airport capacity and delay used for long-term planning as defined in *FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay.* Although the generic ASV calculation assumes optimal conditions (air traffic control, terminal radar, etc.) that do not exist at Sanderson Field, it provides a reasonable basis for approximating existing and future capacity for master planning purposes.

The FAA estimates the ASV for a single runway with no air carrier traffic is approximately 230,000 annual operations. Hourly capacity is estimated to be 98 operations during visual flight rules (VFR) conditions and 59 operations during instrument flight rules (IFR) conditions.

The existing and future demand-capacity ratios for Runway 5/23 were calculated based on the 2024 base operations estimate and the projected activity estimate for 2044 discussed previously. The results are presented below:

- *Existing Capacity: 27,804 Annual Operations / 230,000 ASV = 12% (demand/capacity ratio)*
- Future Capacity: 32,608 Annual Operations / 230,000 ASV = 14% (demand/capacity ratio)

Hourly capacity is also expected to be adequate to accommodate normal demand and the average delay per aircraft is expected to remain below one minute throughout the planning period.

Critical Aircraft and Airport Design Standards Discussion

CRITICAL AIRCRAFT

Critical aircraft (also referred to as “design aircraft”) are determined for individual runways based on the current and projected level of flight activity defined in the airport master plan. The applicable design standards of the runway and their associated facilities correspond to applicable codes assigned to the aircraft, consistent with FAA criteria.

A critical aircraft represents the most demanding aircraft using the runway on a regular basis (defined by FAA as at least 500 annual operations). Each aircraft has an Aircraft Approach Category (AAC) and Airplane Design Group (ADG) defined by FAA based on its physical and performance characteristics. These two components are combined to create the Runway Design Code (RDC). This definition was formerly referred to as the Airport Reference Code (ARC), which was also applied independently to a runway. RDCs also include a visibility component, whereas ARCs previously added secondary visibility minimum definitions within the applicable runway design tables. RDC is discussed in more detail in the next section.

A review of documented (TFMSC and ADSB) and estimated (OPBA) activity indicated that the existing critical aircraft for Sanderson Field Airport is best characterized by AAC B and ADG II (RDC B-II). An appropriate representative B-II aircraft is the Beechcraft King Air 300, a multi-engine turboprop. The B-II classification and Beechcraft King Air 300 representative aircraft match the existing critical aircraft identified on the current signed ALP and align with the current configuration of the runway and taxiway system at Sanderson Field.

Considering the low levels of activity by aircraft with AAC greater than B or ADG greater than II, it is unlikely that the future critical aircraft AAC or ADG will increase during the planning period. Furthermore, based on a review of historic TFMSC jet operations, a change in representative aircraft from a multi-engine turboprop to a jet is also unlikely, as jet operations have shown modest growth over the past decade. As such, an appropriate future critical aircraft is also B-II, represented by the Beechcraft King Air 300. The existing and future critical aircraft are summarized in **Table 3-4**. The critical aircraft evaluation process is described in more detail in **Appendix E**.

Table 3-4: Existing and Future Critical Aircraft Summary

EXISTING CRITICAL AIRCRAFT				
Representative Aircraft	RDC	ARC	TDG	Annual Operations
Beechcraft King Air 300	B-II-4000	B-II	2A	>500[1]
FUTURE CRITICAL AIRCRAFT				
Representative Aircraft	RDC	ARC	TDG	Annual Operations
Beechcraft King Air 300	B-II-2400[2]	B-II	2A	>500[1]

1. Justification is based on a combination of documented and estimated activity by AAC and ADG assessed independently. Operations totals for a single aircraft are not available. 2. A future ½ mile approach procedure was identified on the previous ALP and is anticipated to be carried forward.

RUNWAY DESIGN CODE

The RDC defines the design standards used for runway construction. For airports with more than one runway, each runway will have its own RDC. The RDC is comprised of the two inputs related to the critical aircraft, combined with approach visibility minimums for the runway:

- **Aircraft Approach Category (AAC)** – based on the approach speed of the aircraft
- **Airplane Design Group (ADG)** – based on the wingspan and tail height of the aircraft
- The lowest **Approach Visibility Minimums** established for the runway:
  - » Approach visibility minimums are determined by FAA for each runway based on the category of approach (visual, non-precision instrument, or precision instrument) and the most capable existing or future approach procedure. Lower visibility minimums generally correspond to instrument approaches that allow aircraft to descend to lower altitudes before requiring visual contact to be established with the runway environment prior to landing.
  - » RDC visibility minimums for each runway end are expressed in Runway Visual Range (RVR). Ground-based RVR transmitters project horizontal beams of light near the runway to measure forward visibility levels. The RVR values (measured in feet) correspond to visibility measurements commonly expressed in fractions of statute miles (e.g., 1-mile, 3/4-mile, etc.). The RVR for a runway reflects the most capable approach type or procedure for either runway end.

DESIGN STANDARDS

Specific design standards and conditions applicable to Sanderson Field facilities are presented in the following sections of this chapter and the "FAA Design Standards" text boxes. For additional information reference appropriate sections in AC 150/5300-13B.

As discussed in the Critical Aircraft section above the existing and future AAC and ADG are B and II respectively. The instrument approach procedure with the lowest approach visibility minimums published for Runway 5/23 is an RNAV LPV approach to Runway 23 with an approach visibility minimum of 3/4-mile, resulting in an existing RDC of B-II-4000. The 2013 ALP lists a future approach visibility minimum of less than 3/4-mile for Runway 23, resulting in a future RDC of B-II-2400. The future RDC from the 2013 ALP is presented for reference only. The future RDC may be updated to reflect changes in planned instrument approach procedures identified in the preferred development alternative.

RUNWAY DESIGN CODES (RDC)

Runway 5/23

- The **existing RDC is B-II-4000**
- The **future RDC is B-II-2400***

* Future instrument approach visibility minimums will be determined through the development alternatives process

FAA DESIGN STANDARDS

FAA AC 150/5300-13B Change 1, Airport Design, serves as the primary reference in establishing the geometry of airfield facilities. The existing condition dimensions and design standards for each runway are summarized in **Table 3-5**. Standards that reflect the future conditions depicted on the 2013 ALP are also listed for reference. The future standards may be updated through the development alternatives process to reflect anticipated changes to approach procedures.

Table 3-5: Runway 5/23 Design Standards Summary (Dimensions in Feet)

FAA Standard	Runway 5/23 Existing Conditions	Runway 5/23 RDC B-II-4000 (Existing Standard)	Runway 5/23 RDC B-II-2400 (2013 ALP Future Standard)
Runway Length	5,005	See Runway Length Analysis Discussion	
Runway Width	100	75	100
Shoulder Width	10	10	10
Blast Pad Width Blast Pad Length	None None	95 150	120 150
Runway Shoulder Width	10	10	10
Runway Safety Area • Width • Beyond RWY End • Prior to Landing Threshold	 150 300 300	 150 300 300	 300 600 600
Runway Obstacle Free Area • Width • Beyond RWY End • Prior to Landing Threshold	 500 300 300	 500 300 300	 500 300 300
Runway Obstacle Free Zone • Width • Beyond RWY End • Prior to Landing Threshold	 250 200 200	 400 200 200	 400 200 200
Precision Obstacle Free Zone • Width • Beyond RWY End • Prior to Landing Threshold	 N/A N/A N/A	 N/A N/A N/A	RWY 23: 300 200 200
Inner-approach OFZ	N/A	N/A	Rwy 23: Begins 200 feet beyond runway end, extending 200 feet past last ALS unit at a slope of 50:1
Inner-transitional OFZ	N/A	N/A	Rwy 23: Begins at the edges of the ROFZ and inner-approach OFZ then rises laterally at a slope of 6:1 to a height of 150 feet above the airport elevation.
Approach Runway Protection Zone-Length	RWY 5: 1,000 RWY 23: 1,700	RWY 5: 1,000 RWY 23: 1,700	RWY 5: 1,700 RWY 23: 2,500
Approach Runway Protection Zone-Inner Width	RWY 5: 500 RWY 23: 1,000	RWY 5: 500 RWY 23: 1,000	RWY 5: 500 RWY 23: 1,000
Approach Runway Protection Zone - Outer Width	RWY 5: 700 RWY 23: 1,510	RWY 5: 700 RWY 23: 1,510	RWY 5: 1,510 RWY 23: 1,750
Departure Runway Protection Zone - Length	RWY 5: 1,000 RWY 23: 1,000	RWY 5: 1,000 RWY 23: 1,000	RWY 5: 1,000 RWY 23: 1,000
Departure Runway Protection Zone - Inner Width	RWY 5: 500 RWY 23: 500	RWY 5: 500 RWY 23: 500	RWY 5: 500 RWY 23: 500
Departure Runway Protection Zone-Outer Width	RWY 5: 700 RWY 23: 700	RWY 5: 700 RWY 23: 700	RWY 5: 700 RWY 23: 700
Runway Centerline to: Parallel Taxiway/ Taxilane CL Aircraft Hold Position	 500 200	 240 200	 300 250

Source: FAA AC 150/5300-13B, Change 1

TAXIWAY DESIGN GROUP

Taxiway Design Group (TDG), see **Figure 3-1**, is based on the dimensions of the aircraft landing gear, including distance from the cockpit to the main gear (CMG) and main gear width (MGW). These dimensions affect an aircraft's ability to safely maneuver around the airport taxiways and dictate pavement fillet design. Taxiways and taxilanes can be constructed to different TDGs based on the expected use of that taxiway/taxilane by aircraft type. See **Table 3-6** for applicable TDG dimensions.

Based on the existing and future critical aircraft designation (Beechcraft King Air 300) discussed previously, the corresponding TDG standard for the associated taxiways are:

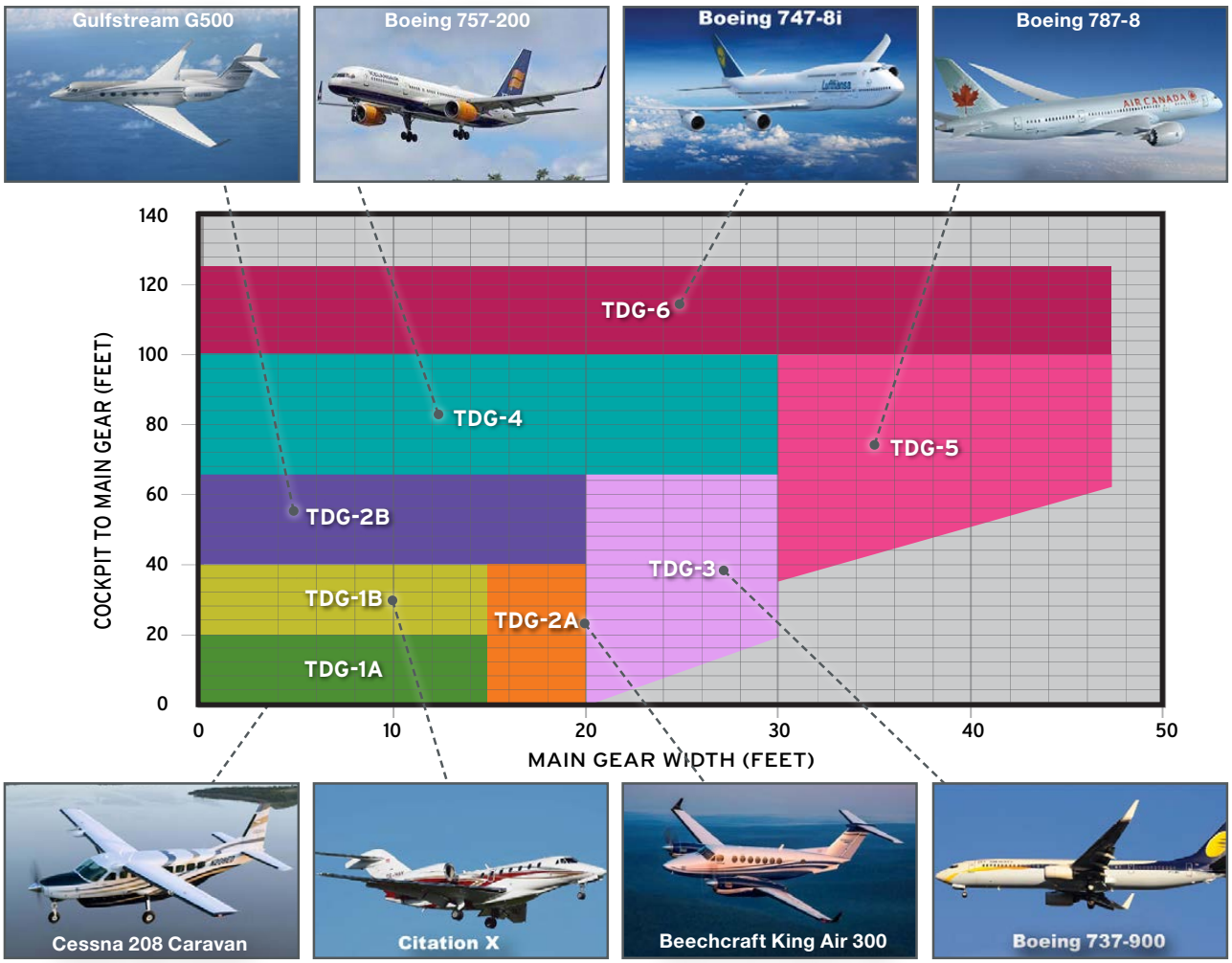
- **Taxiway A: TDG-2A (existing and future)**
- **Taxiway B: TDG-2A (existing and future)**

Table 3-6: Taxiway Design Standards (dimensions in feet)

	Current Conditions	Current/Future Standard (2013 ALP Future Standard)
Taxiway A		**ADG II / TDG 2A**
Taxiway Width	50	35
Taxiway Shoulder Width	15	15
TSA Width	79	79
TOFA Width	124	124
Taxiway B		**ADG II / TDG 2A**
Taxiway Width	50	35
Taxiway Shoulder Width	15	15
TSA Width	79	79
TOFA Width	124	124

Source: Century West Engineering

Figure 3-1: Taxiway Design Group Components



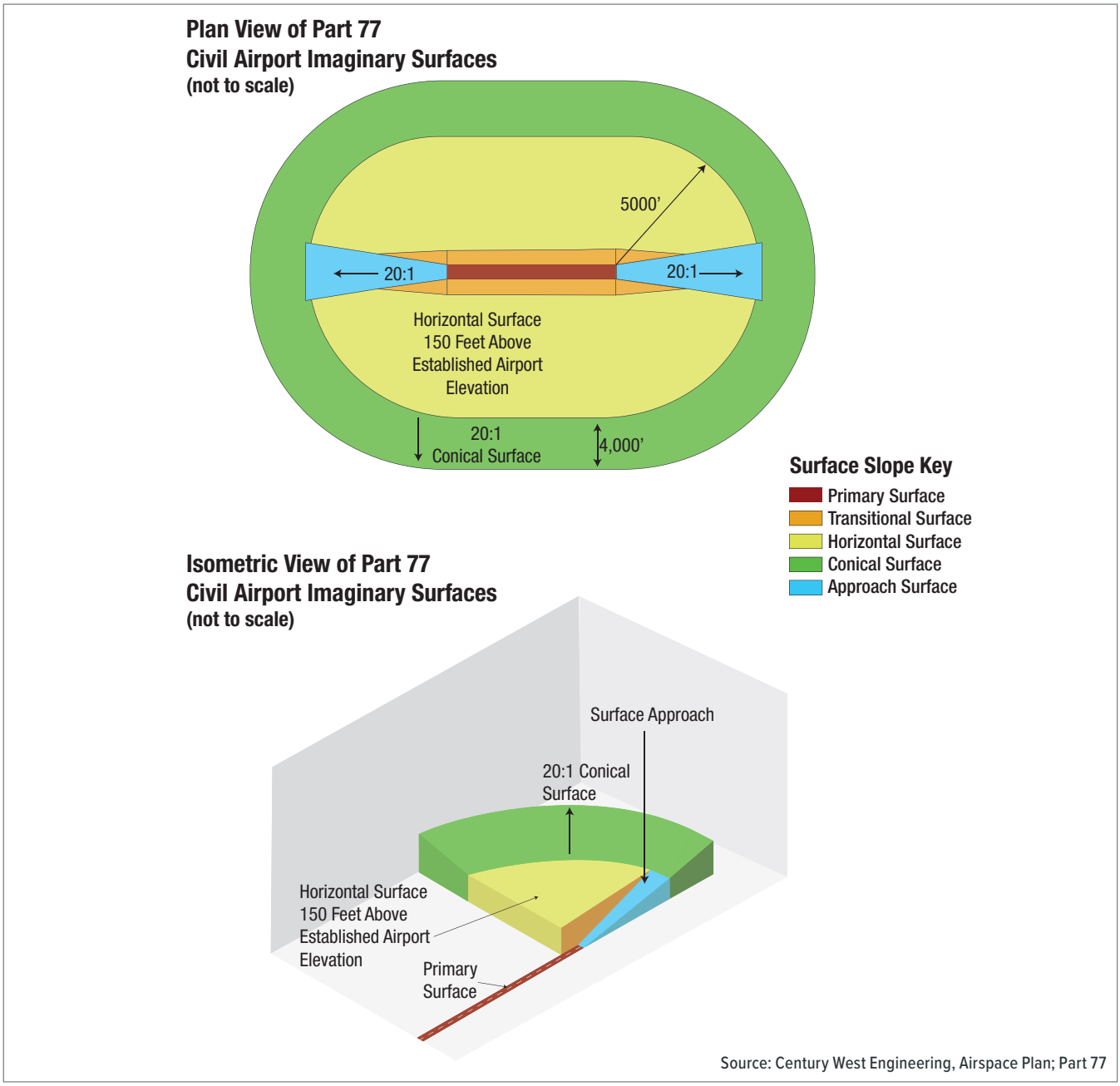
Source: Century West Engineering

Airside Facility Requirements

PART 77 AIRSPACE

U.S. airspace for airports is defined by Title 14, Code of Federal Regulations (CFR) Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace. Part 77 defines airport imaginary surfaces that are established to protect the airspace immediately surrounding a runway. The airspace surfaces and ground areas surrounding a runway should be free of obstructions (i.e., structures, parked aircraft, trees, etc.) to the maximum extent possible to provide a safe aircraft operating environment. A generic Part 77 diagram illustrating each type of airspace surface is provided in **Figure 3-2**.

Figure 3-2: Part 77 Airspace (Generic)



Source: Century West Engineering, Airspace Plan; Part 77

The definition of Part 77 surfaces at an airport reflects a variety of factors, but primary defining factors include the runway instrument approach category (visual, non-precision instrument, or precision instrument) and the size of the aircraft using the runway (Utility or Larger than Utility). Utility runways primarily serve aircraft with a maximum take-off weight (MTOW) of 12,500 pounds or less (also designated as "small" aircraft), and larger than utility runways serve aircraft with MTOW of greater than 12,500 pounds. Existing Runway 5/23 is a larger than utility runway and has non-precision instrument approach procedures published with approach visibility minimums as low as 3/4-mile.

It is appropriate to protect airport airspace based on the future configuration of the runway, which will be determined in the development alternatives analysis process. For reference the 2013 ALP depicts a larger than utility runway with a precision instrument approach on Runway 23 and a non-precision instrument approach on Runway 5.

The Part 77 surfaces for the existing runway and the 2013 ALP depicted future runway at Sanderson Field are summarized in **Table 3-7**. The 2013 ALP surfaces are presented for reference only. The future runway configuration and Part 77 surfaces will be determined through the development alternatives process.

Table 3-7: Part 77 Airspace Summary (SHN)

	Existing Condition	2013 ALP Depicted Future Condition
Part 77 Runway Designation	Larger than Utility Non-Precision Instrument As low as 3/4-mile	Larger than Utility Precision Instrument
Width of Primary Surface	1,000 feet	1,000 feet
Approach Surface Length	10,000 feet (Rwy 23) 10,000 feet (Rwy 5)	50,000 feet (Rwy 23) 10,000 feet (Rwy 5)
Approach Surface Width (Outer End)	4,000 feet (Rwy 23) 4,000 feet (Rwy 5)	16,000feet (Rwy 23) 4,000 feet (Rwy 5)
Approach Surface Slope	34:1 (Rwy 23) 34:1 (Rwy 5)	50:1/40:1 (Rwy 23) 34:1 (Rwy 5)
Transitional Surface	7:1 Slope to 150 feet above runway	7:1 Slope to 150 feet above runway
Horizontal Surface Elevation	150 feet above airport elevation	150 feet above airport elevation
Horizontal Surface Radius	10,000 feet	10,000 feet
Conical Surface	20:1 for 4,000 feet	20:1 for 4,000 feet

Source: Code of Federal Regulations (CFR), Title 14, Subpart E, Part 77

PART 77 AIRSPACE SURFACES AND OBSTRUCTIONS

This section provides descriptions of Part 77 airspace surfaces for Runway 5/23 depicted on the 2013 Airspace Plan drawing, based on the runway configuration in place at the time. Part 77 surfaces and obstructions may be updated through the development alternatives process to reflect changes in runway geometry and approach procedures identified in the preferred alternative. Each surface is described below.

Updated AGIS obstruction survey data were acquired from a fall 2024 mapping flight as part of the master plan. The AGIS data will be incorporated into the updated Part 77 Airspace Plan, and related drawings. Objects obstructing Part 77 surfaces should be mitigated through removal, lighting, and/or marking. The ALP and Airspace drawings will be updated to reflect the AGIS obstruction analysis, prior to submitting to FAA. Updated tables will be included for all identified obstructions, with precise location and elevation data. The updated ALP drawing set will serve as the primary reference for any future obstacle removal projects to be identified in the Airport Capital Improvement Plan (ACIP).

Approach Surface

Approach Surfaces extend outward and upward from each end of the primary surface, along the extended runway centerline. The dimensions and slope of the approach surfaces are determined by the type of aircraft intended to use the runway, and the most demanding approach type planned for the runway.

Primary Surface

The Primary Surface is a rectangular plane longitudinally centered on the runway (at centerline elevation) extending 200 feet beyond each runway end. The width of the primary surface depends on runway category, approach capability, and approach visibility minimums. The primary surface should be free of any penetration, except items with locations that are “fixed-by-function” (i.e., approach lighting, runway or taxiway edge lights, etc.). The outer ends of the primary surface connect to the inner portion of the runway approach surfaces.

Transitional Surface

The transitional surface is located along the lateral edges of the primary surface for each runway and is represented by a plane rising perpendicularly to the runway centerline at a slope of 7 to 1. The transitional surfaces extend outward and upward to an elevation 150 feet above the airport elevation. The outer edges of the transitional surface connect with the horizontal surface. The transitional surface should be free of obstructions (i.e., parked aircraft, structures, trees, terrain, etc.).

Horizontal Surface

The Horizontal Surface is a flat plane located 150 feet above the airport elevation. The horizontal surface boundaries are defined by the radii constructed from the center of the primary surface/inner approach surface edge (10,000 feet for Runway 5/23). The outer edges of the radii for each runway end are connected with tangent lines to complete the horizontal surface.

Conical Surface

The Conical Surface is an outer band of airspace that encircles the horizontal surface. The conical surface begins at the outer edge of the horizontal surface and extends outward 4,000 feet and upward at a slope of 20:1.

Airfield Pavement Strength and Condition

Airfield pavements are considered the most important asset at most airports. Monitoring and planning for future improvements to the strength and condition of airfield pavements is critical to satisfying existing and future aeronautical demand.

AIRFIELD PAVEMENT STRENGTH

Pavement strength ratings for Runway 5/23 are published for pilot use in the FAA Chart Supplement:

- 55,000 pounds (single wheel landing gear)
- 72,000 pounds (dual wheel landing gear)
- 130,000 pounds (double dual wheel landing gear in tandem)

The pavement strength for runway 5/23 is adequate to accommodate the critical aircraft. Use by heavier aircraft may accelerate pavement wear and increase the frequency of runway rehabilitation projects.

The pavement sections for major taxiways and the primary aircraft parking aprons correspond to the runways they serve. The main apron is constructed of Portland Cement Concrete (PCC), which is common for aircraft parking aprons or hardstands that accommodate heavier aircraft. Small aircraft aprons and hangar taxilanes are typically designed to accommodate aircraft weighing 12,500 pounds or less.

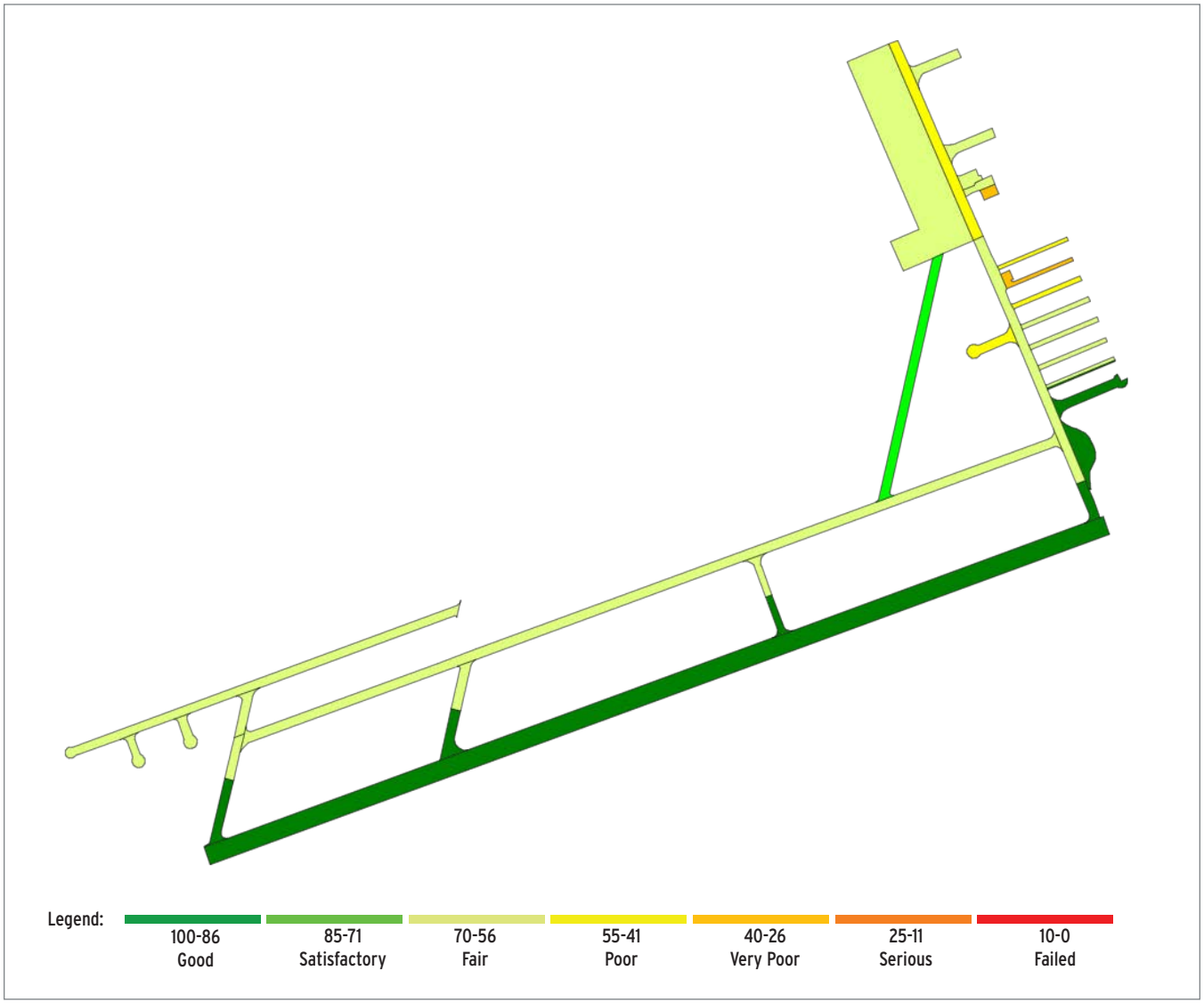
Airfield Pavement Condition

The Washington State Department of Transportation (WSDOT) Aviation Pavement Evaluation Program inspection was conducted at Sanderson Field in September 2024 (**Figure 3-3**). A summary of airfield pavement conditions observed in the inspection is provided below.

The WSDOT Aviation Pavement Evaluation Program reports that the overall (area weighted) condition of the runway, taxiway, and apron pavements at the Airport are consistent with project history and recent site visit observations:

- Runway: 100 (Good)
- Taxiway A, A1: 64-68 (Fair)
- Taxiway B: 72 (Satisfactory)
- Taxiway A3, A4, A5: 61-65 (Fair)/100 (Good)
- Main Apron: 60 (Fair)
- Fuel Apron: 56 (Fair)
- Hangar Taxilanes: 36-100 (Very Poor - Good)

Figure 3-3: 2024 Pavement Condition

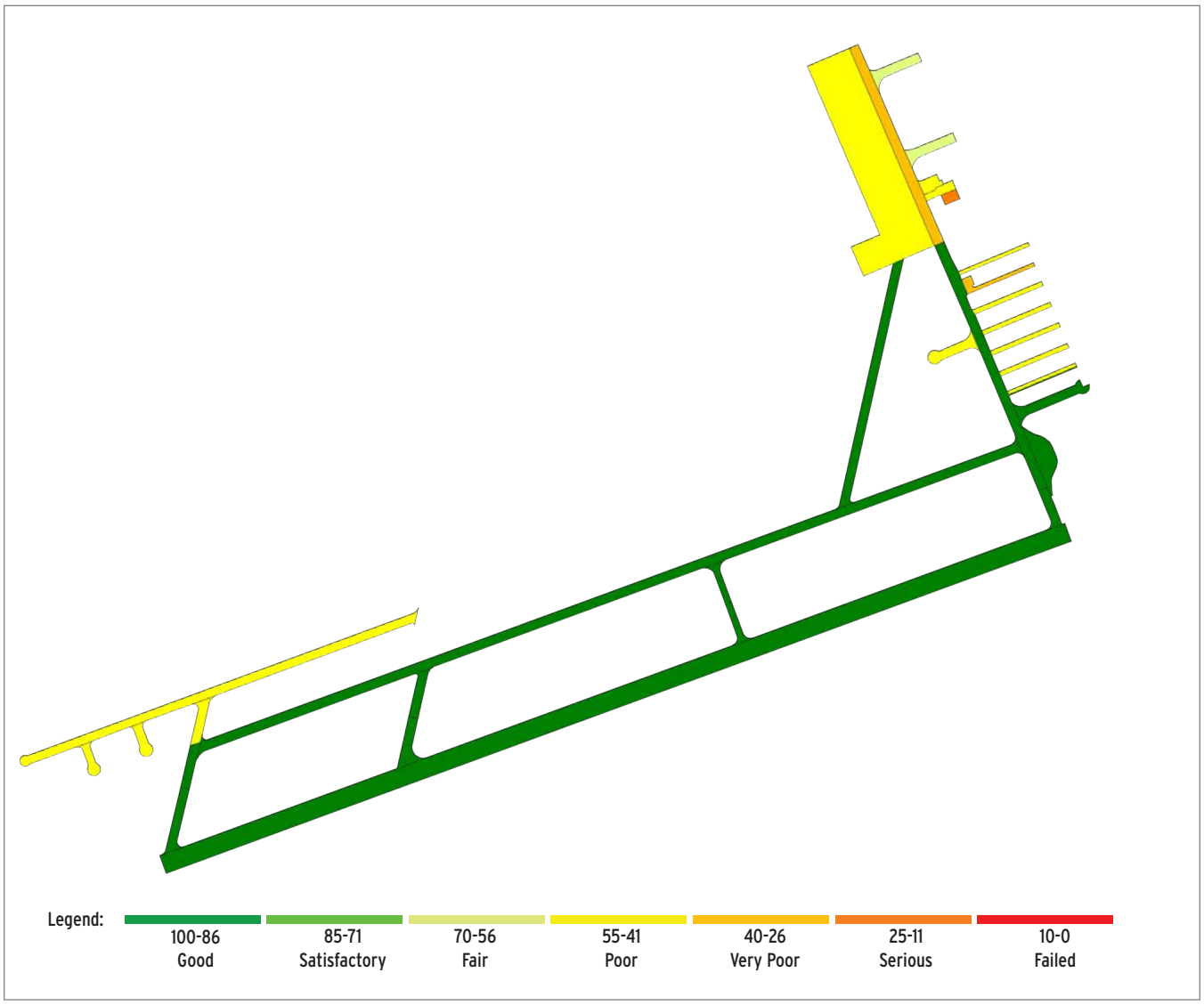


Source: Washington State Department of Transportation Aviation 2024-2025 Pavement Management Program Update

Projected pavement conditions were estimated for 2035 based on the 2024 survey, and anticipated wear. The 2035 projection (**Figure 3-4**) depicts moderate degradation of pavement conditions consistent with regular use over the modeled 11-year period. The modeled 2035 PCI scores for Taxiway A, B, and the connector taxiways reflect the pavement rehabilitation project initiated in 2025. A summary of projected 2035 pavement conditions are summarized below.

- Runway: 87 (Good)
- Taxiway A, A1: 93 (Good)
- Taxiway B: 93 (Good)
- Taxiway A3, A4, A5: 93 (Good)
- Main Apron: 54 (Poor)
- Fuel Apron: 46 (Poor)
- Hangar Taxilanes: 26-93 (Very Poor - Good)

Figure 3-4: 2035 Predicted Pavement Condition



Source: Washington State Department of Transportation Aviation 2024-2025 Pavement Management Program Update

It is expected that apron and taxilane pavements will require rehabilitation or reconstruction during the current 20-year planning period. A prioritized list of pavement rehabilitation or reconstruction projects will be provided in the updated capital improvement program. It is recommended that ongoing maintenance, including vegetation removal, crack filling, sealcoats, and joint repairs be conducted on a regular basis and consistent with WSDOT to maximize the longevity of airfield pavements through the planning period.

Airfield Facilities

Runway Orientation and Crosswind Coverage

The preferred orientation of runways is a function of wind velocity, combined with the ability of aircraft to operate under given conditions. While large aircraft can operate with limited levels of crosswinds during takeoff and landing, smaller aircraft are more susceptible to crosswinds. The ability of an aircraft to effectively manage crosswinds relies on variables such as pilot skill, aircraft type, and crosswind speeds.

The FAA recommends primary runways be aligned with the prevailing wind patterns to minimize crosswind conditions. To ensure safety, the FAA specifies primary wind coverage should be capable of accommodating at least 95% of wind conditions within the prescribed crosswind comment. This means that the runway should be oriented to minimize crosswind conditions defined as "blowing at a perpendicular angle to the runway" at least 95% of the time.

Aircraft size and type play a key role in the severity of crosswind operations. To maintain safe conditions the runway orientation should prevent crosswinds for the typical aircraft using the runway. Aircraft are grouped based on aircraft approach category (AAC), airplane design group (ADG). **Table 3-8** summarizes the allowable crosswind component based on the AAC and ADG.

Table 3-8: Allowable Crosswind Component By Runway Design Code

AAC/ADG	Allowable Crosswind Component
A-I and B-I	10.5 knots
A-II and B-II	13 knots
A-III, B-III C-I through D-III D-I through D-III	16 knots
A-IV and B-IV C-IV through C-VI D-IV through D-VI E-I through E-VI	20 knots

Source: FAA AC 150/5300-13B Change 1, Table B-1

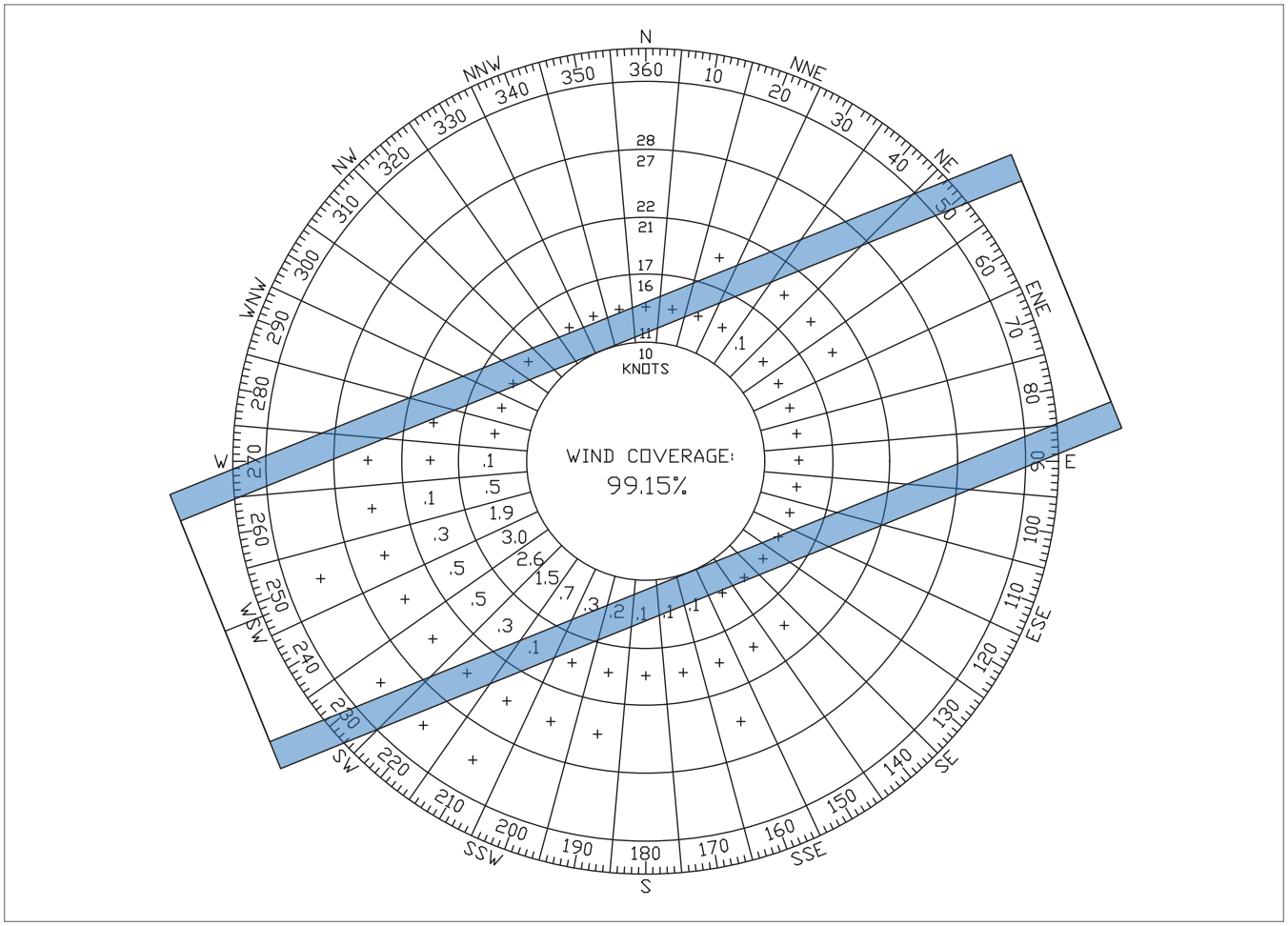
The FAA requires 10 years of wind data to accurately represent wind coverage. Wind data for Sanderson Field are recorded by an Automated Surface Observation System (ASOS) located on the Airport. A total of 143,726 wind observations from 2014-2023 were downloaded and evaluated using the FAA Windrose Generator available through the FAA Airport Data and Information Portal (ADIP). A review of data shows that the Runway 5/23 orientation meets the FAA threshold of 95% wind coverage for large and small aircraft, under both visual and instrument operations. **Table 3-9** summarizes the wind coverage for RWY 5/23, and **Figure 3-5** depicts the wind coverage graphically in a wind rose.

Table 3-9: Wind Coverage

Crosswind	Runway 5/23		
	All Weather	IFR	VFR
10.5 Knots	99.15%	99.59%	98.95%
13 Knots	99.67%	99.85%	99.59%
16 Knots	99.94%	99.97%	99.92%

Source: FAA Airport Data and Information Portal

Figure 3-5: All Weather Wind Rose (SHN)



Source: FAA Airport Data and Information Portal

Runway Visibility

Atmospheric conditions affecting runway visibility play a critical role in an aircraft's ability to access the runway under Instrument Meteorological Conditions (IMC). To assess visibility conditions for Runway 5/23, a comprehensive analysis was conducted using five years of hourly data from the onsite Automated Surface Observing System (ASOS). These data were examined to quantify the frequency of observations that meet standard visibility minimums for published IFR approach procedures. The results of the evaluation are summarized in **Table 3-10**.

Table 3-10: ASOS Visibility Observations

Visibility	Observations	Percent
3 miles and Up	41,585	82.84%
1 to 3 Miles Vis.	5,302	10.56%
3/4 to 1 Mile Vis.	1,133	2.26%
1/2 to 3/4 Mile Vis.	992	1.98%
Less than 1/2 Mile	1,188	2.37%
Total Observations	50,200	100.00%

Source: FAA Airport Data and Information Portal

RUNWAY LENGTH

Runway length requirements are based primarily on airport elevation, mean maximum temperature of the hottest month, runway gradient, and the aircraft expected to use the runway. For general aviation airports, the FAA recommends using a "family of design aircraft" approach for defining runway length requirements. *FAA AC 150/5325-4B, Runway Length Requirements for Airport Design*, provides the length analysis guidance for different segments of large and small aircraft fleets.

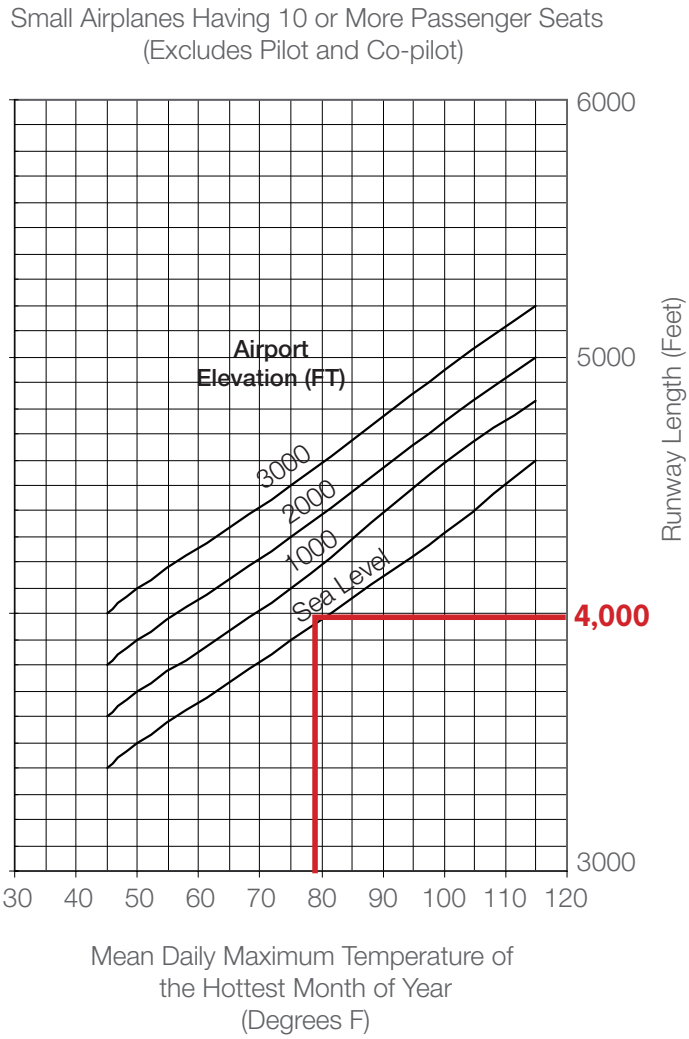
- Airport elevation: **273 feet above mean sea level (MSL)**
- Mean Maximum Temperature (the average daily high temperature for the hottest month of the year): **78°F**

Runway Length Assessment

An updated assessment of runway length was completed using current methods described in *FAA AC 150/5325-4B, Runway Length Requirements for Airport Design*. This methodology is consistent with FAA planning criteria that correlates the needs of the existing and future critical aircraft to approval of the Airport Layout Plan drawing and project eligibility for FAA funding. The specific design criteria applied to a runway do not preclude use by larger aircraft. However, airport management approval is typically required for use by heavier aircraft based on the operational limits of the airfield, particularly pavement strength.

Using FAA planning methodologies, the evaluation of runway length requirements begins with the operational requirements of the critical aircraft, or family of aircraft, expected to use each runway. Several airfield-specific conditions that affect aircraft performance are then verified including airport elevation, runway gradient, and the assumed operating temperature (average daily maximum temperature of the hottest month of the year). These inputs are applied to runway length curves presented in AC 150/5325-4B for the applicable segment of the GA aircraft fleet.

Figure 3-6: Runway Length Curves - Existing



Source: FAA AC 150/5325-4B Runway Length Requirements for Airport Design

The existing and future critical aircraft (King Air 300) is a multi-engine turboprop with a MTOW of 14,000 pounds. AC 150/5325 Chapter 3 presents runway length curves specifically for "large" aircraft with MTOW of more than 12,500 pounds up to and including 60,000 pounds. However, the AC states that the large airplane runway length curves are based on a grouping of only the turbojet-powered fleet (business jets). As such, the FAA runway length planning guidance for large airplanes does not include large turbine propellor aircraft (turboprops), including the King Air 300.

In some instances, where a runway has a large turboprop critical aircraft paired with significant jet activity (but short of 500 annual operations), it may be appropriate to use the large aircraft runway length curves presented in Chapter 3 of the AC. However, the modest jet activity at Sanderson Field in recent years does not support the application of the large a curves.

Since the King Air 300 is not a jet and performs in a manner more closely aligned with the small piston and turboprop driven aircraft represented in the runway length curves for "small airplanes having 10 or more passenger seats" presented in Figure 2-2 of the AC, it is appropriate to apply those curves to arrive at a representative runway length. The applicable runway length curves and derived runway length for Runway 5/23 are depicted in **Figure 3-6**.

Using the FAA methodology summarized above a runway length of 4,000 feet can be justified to accommodate the critical aircraft (Beechcraft King Air 300) and similar aircraft.

For comparison, the takeoff requirements for the current critical aircraft as presented in the Operating Handbook[1] are presented in **Figure 3-7**. The aircraft manufacturer data indicates that the accelerate-stop distance required for a fully loaded Beechcraft King Air 300 operating at sea level at 78° Fahrenheit (25.6° Celsius) is approximately 5,100 feet. This length is consistent with the existing length of Runway 5/23 (5,005 feet).

Figure 3-7: BE30 Takeoff Data - Sea Level - Anti-Ice Off - No Flaps/App Flaps

T.O. WT. LBS	ITEM	FLAPS		ITEMS	OUTSIDE AIR TEMPERATURE CENTIGRADE													
		0%	40%		-20° C (-4° F)		-10° C (-14° F)		0° C (32° F)		10° C (50° F)		20° C (68° F)		30° C (86° F)		40° C (104° F)	
14,000	V_1	112	101	ACCEL STOP	4,150	3,250	4,400	3,300	4,500	3,410	4,760	3,600	4,910	3,750	5,300	4,000	5,600	4,240
	V_2	120	107	ACCEL GO	3,780	3,050	3,800	3,050	3,800	3,200	4,200	3,360	4,580	3,840	5,200	4,380	5,950	5,200
	V_{YSE}	122																
13,500	V_1	110	100	ACCEL STOP	3,950	3,145	4,195	3,200	4,255	3,315	4,480	3,500	4,655	3,650	5,040	3,885	5,290	4,120
	V_2	118	105	ACCEL GO	3,565	2,740	3,575	2,740	3,575	2,725	3,895	3,005	4,200	3,445	4,775	3,875	5,425	4,600
	V_{YSE}	121																
13,000	V_1	108	100	ACCEL STOP	3,750	3,040	3,990	3,100	4,010	3,220	4,200	3,400	4,400	3,550	4,760	3,770	4,980	4,000
	V_2	116	103	ACCEL GO	3,350	2,430	3,350	2,430	3,350	2,550	3,590	2,650	3,820	3,050	4,350	3,370	4,900	4,000
	V_{YSE}	120																
12,500	V_1	107	100	ACCEL STOP	3,625	2,970	3,885	3,055	3,900	3,160	4,095	3,320	4,280	3,475	4,580	3,685	4,790	3,910
	V_2	115	102	ACCEL GO	3,125	2,215	3,125	2,215	3,125	2,300	3,355	2,425	3,585	2,800	4,050	3,070	4,555	3,575
	V_{YSE}	119																
12,000	V_1	105	100	ACCEL STOP	3,500	2,900	3,780	3,010	3,790	3,100	3,990	3,240	4,160	3,400	4,380	3,600	4,600	3,820
	V_2	113	101	ACCEL GO	2,900	2,000	2,900	2,000	2,900	2,050	3,120	2,200	3,350	2,550	3,750	2,770	4,210	3,150
	V_{YSE}	118																
11,500	V_1	105	100	ACCEL STOP	3,400	2,850	3,675	2,955	3,690	3,050	3,870	3,195	4,035	3,350	4,245	3,535	4,503	3,765
	V_2	113	101	ACCEL GO	2,665	1,875	2,700	1,875	2,700	1,930	2,935	2,050	3,150	2,360	3,510	2,575	3,980	2,925
	V_{YSE}	117																
11,000	V_1	105	100	ACCEL STOP	3,300	2,800	3,570	2,900	3,590	3,000	3,750	3,150	3,910	3,300	4,110	3,470	4,405	3,710
	V_2	113	101	ACCEL GO	2,430	1,750	2,500	1,750	2,500	1,810	2,750	1,900	2,950	2,170	3,270	2,380	3,750	2,700
	V_{YSE}	115																
10,500	V_1	105	100	ACCEL STOP	3,250	2,755	3,485	2,850	3,540	2,955	3,685	3,100	3,855	3,250	4,055	3,425	4,307	3,655
	V_2	113	101	ACCEL GO	2,315	1,675	2,355	1,675	2,360	1,740	2,570	1,825	2,775	2,040	3,125	2,250	3,550	2,600
	V_{YSE}	114																
10,000	V_1	105	100	ACCEL STOP	3,200	2,710	3,400	2,800	3,490	2,910	3,620	3,050	3,800	3,200	4,000	3,380	4,210	3,600
	V_2	113	101	ACCEL GO	2,200	1,600	2,210	1,600	2,220	1,670	2,390	1,750	2,600	1,910	2,980	2,120	3,350	2,500
	V_{YSE}	113																
MIN T.O. PWR					96		96		96		96		94.4		86.5		77.4	

Source: King Air 300 Operating Handbook, CAE SimuFlite. 2003

1 King Air 300 Operating Handbook, CAE SimuFlite. 2003

The 2013 Airport Layout Plan depicts an extension of the runway by 295 feet to 5,300 feet as well as a long-term reserve extension of 1,480 feet to 6,485 feet. The updated runway length analysis justifies a length shorter than the existing runway length. It is recommended that the Airport maintain the existing runway length and maintain the runway reserve depicted on the 2013 ALP. As the reserve is located on existing Airport property, it is appropriate to continue to protect this area for future development to accommodated potential changes in the fleet mix beyond the 20-year planning period.

Airport Design Standards

Runway 5/23 generally conforms to dimensional standards based on RDC, B-II-4000. The runways and taxiways currently exceeds several design standards that correspond to the current/future critical aircraft designations.

FAA AC 150/5300-13B Change 1 defines both dimensional and obstruction clearance standards for major airfield design standards for runways, taxiways and aircraft aprons. **Table 3-4**, provided earlier, summarizes current and future dimensional standards for Runway 5/23 at Sanderson Field. Design standards are described in the following text boxes and sections.

FAA DESIGN STANDARDS

Runway Width/Shoulders

Existing Standards: B-II-4000 runway width is 75 feet, with 10-foot shoulders, based on existing approach visibility minimums.

Future Standard: Future runway width and shoulder standards are dependent on future instrument approach procedure capabilities which will be evaluated in the development alternatives analysis.

Existing Conditions: Runway 5/23 width is 100 feet with 10- foot shoulders, which exceeds standards for a B-II-4000 runway and is capable of meeting B-II-2400 standards.

Runway Blast Pad

Existing Standards: B-II-4000 standard is 95 feet wide and 150 feet long (turf or stabilized soils, when required for ADG I, II, and II runways).

Future Standard: Future blast pad standards are dependent on future instrument approach procedure capabilities which will be evaluated in the development alternatives analysis.

Existing Conditions: The runway is not equipped with blast pads at either end.

Runway Protection Zone (RPZ)

Land use in the RPZs should be directly controlled by the airport through ownership or easement. RPZs should be clear of incompatible land uses such as roads, buildings, and critical infrastructure. RPZs begin 200 feet beyond each runway end and often coincide with the geometry

of the inner approach surface for the runway. The current and planned approach visibility levels for each runway are referenced below.

Current Standard: Approach RPZ dimensions for B-II-4000 runways are 1,000 x 1,510 x 1,700 feet (inner width, outer width, length); the corresponding Departure RPZ is 500 x 700 x 1,000 feet.

Future Standard: Future RPZ standards are dependent on future runway configuration and instrument approach procedure capabilities. These variables and any associated changes to RPZ standards will be evaluated in the development alternatives analysis.

Existing Conditions: Runway 5 RPZ is clear of incompatible land uses and meets current standards. Runway 23 RPZ is transected by U.S. Highway 101.

FAA DESIGN STANDARDS

Runway Safety Area (RSA)
Existing Standard: B-II-4000 standard is 150 feet wide (centered on runway) and 300 feet beyond runway ends. Gradient, surface compaction, and obstacle clearing standards apply.

Future Standard: The future RSA standards are in part dependent on the future instrument approach procedures, which will be evaluated and selected as part of the development alternatives process. The future RSA standards will be defined at that time.

Existing Conditions: The existing RSA appears to meet RDC B-II-4000 standards.

Runway Object Free Area (ROFA)
Existing Standard: B-II-4000 standard is 500 feet wide (centered on runway) and 300 feet beyond runway ends. Gradient and obstacle clearing standards apply.

Future Standard: The future ROFA standards are in part dependent on the future instrument approach procedures, which will be evaluated and selected as part of the development alternatives process. The future ROFA standards will be defined at that time.

Existing Conditions: The existing ROFA appears to meet RDC B-II-4000 standards.

Runway Heading

A review of magnetic variation (MAGVAR) data and anticipated annual rate of change accessed through the National Geodetic Survey's Magnetic Declination Calculator[2] indicates that Runway 5/23 will require a change to 6/24 near the end of the current 20-year planning based on the current annual rate of change.

Runway Protection Zones (RPZ)

By FAA definition "The RPZ is a protection zone that serves to enhance the protection of people and property on the ground." The RPZ shape and location often corresponds to the inner portion of the runway approach surface, although RPZs do not have vertical (slope) component. RPZ dimensions vary by runway design code (RDC).

The most recent update of the FAA Airport Design advisory circular *(AC 150/5300-13B Change 1, Appendix I)* identifies several common conditions and facilities that are considered compatible with RPZs. An updated Airport Land Use Compatibility Planning AC (150/5190-4B), issued by FAA in 2022, provides this guidance for RPZs.

The FAA recommends airport control of RPZ through property ownership or acquisition of an avigation easement that limits specific conditions and defines vertical clearances for the corresponding approach surfaces. In general, proposed runway changes that reduce the presence of incompatible land uses in an RPZ are considered to provide incremental safety benefits.

No changes to the RPZ size based on the current and future RDC are anticipated during the current 20-year planning period. Any future change in runway length, configuration, or approach visibility minimums may require changes in RPZ locations.

Although the FAA discourages roads in RPZs, they recognize that potential impacts vary, and in many cases the cost of realigning major roadways outside of RPZs, or reconfiguring runways to eliminate the RPZ conflict, may not be feasible. However, even in cases where roads pre-exist, or will continue to exist in an RPZ, maintaining a clear approach to the runway end is a high priority safety item for FAA. Since RPZs coincide with the inner portion of the Part 77 runway approach surface, vehicles traveling on these roads should not penetrate the runway approach, or if an obstruction does exist, it may be mitigated through a variety of actions.

2 https://www.ngdc.noaa.gov/geomag/calculators/magcalc.shtml#declination

Runway Object Free Area (ROFA)

The ROFA is a flat surface that sits at the same elevation as the runway. The ROFA should be clear of terrain and above ground objects except for those required for air navigation or aircraft ground maneuvering purposes.

Runway 5/23 meets/exceeds the current B-II-4000 dimensional, surface compaction, and obstacle clearance standards for the ROFA.

Runway Safety Area (RSA)

The RSA is a flat surface that sits at the same elevation as the runway and is intended to be clear of terrain and above ground objects. FAA standards define dimensional, gradient, surface condition, and obstruction clearance requirements. The RSA is intended to enhance the safety of aircraft that overshoot, overrun, or veer off the runway without causing significant structural damage, as well as to provide access for Aircraft Rescue and Firefighting (ARFF) equipment for emergency response.

Runway 5/23 meets/exceeds the current B-II-4000 dimensional, surface compaction, and obstacle clearance standards for the RSA.

FAA DESIGN STANDARDS

Runway Object Free Zone (OFZ)

Existing Standard: B-II-4000 standard is 400 feet wide (centered on runway) and 200 feet beyond runway ends. The OFZ is to be kept clear of aircraft and other object penetrations during runway operations. Frangible NAVAIDs are permitted in the OFZ if required by their function.

Future Standard: Future OFZ dimensional standards are dependent on future runway configuration and instrument approach procedure capabilities. These variables and any associated changes to OFZ standards will be evaluated in the development alternatives analysis.

Additional OFZ surface standards (Precision OFZ, inner-approach OFZ, and inner-transitional OFZ) would need to be met if future approach visibility minimums are lower than ¾-mile.

Existing Conditions: The existing runway meets OFZ standards based on the existing RDC (B-II-4000).

Obstacle Free Zone (OFZ)

The FAA defines the OFZ that surrounds a runway as "a design and an operational surface kept clear during aircraft operations. This clearing standard does not allow aircraft and other object penetrations, except for locating frangible NAVAIDs in the OFZ because of their function. The FAA will not consider modification of the OFZ surface."

The OFZ may include up to four components depending on approach and lighting capabilities (abbreviated FAA definitions provided below):

- **Runway Obstacle Free Zone (ROFZ).** The ROFZ is a defined volume of airspace centered on the runway centerline, at runway elevation for any particular location. The ROFZ extends 200 feet beyond each end of the runway. ROFA dimensions are determined by aircraft size (small and large) and in some cases, approach visibility minimums.
- **Inner-approach OFZ.** This OFZ is a defined volume of airspace centered on the approach area that only applies to runway ends with an approach lighting system (ALS). The surface begins 200 feet from the runway threshold (at the end of the ROFA) at the same elevation and extends 200 feet beyond the last light unit in the ALS. Its width is the same as the ROFZ and rises at a slope of 50 (horizontal) to 1 (vertical) from its beginning.
- **Inner-transitional OFZ.** This OFZ only applies to runway ends with lower than ¾-mile approach visibility minimums. This OFZ is a defined volume of airspace along the sides of the ROFZ and Inner- approach OFZ.
- **Precision OFZ.** This OFZ applies to any runway end with a vertically guided approach and landing minimums less than 250 feet, or visibility minimums less than ¾-mile (or RVR below 4,000 feet). The protected area begins at the threshold and continues along the extended runway centerline for a distance of 200 feet beyond the runway end. The surface is in effect when an aircraft is on final approach within 2 miles of the runway threshold.

The Runway OFZ (large aircraft standard - 400 feet) applies to the existing Runway 5/23. The inner-approach OFZ, inner-transitional OFZ, and precision OFZ do not apply to the existing runway as the approach visibility minimums

are not less than ¾-mile. If through the development alternatives process an approach with visibility minimums less than ¾-mile is selected as part of the preferred alternative, inner-approach, inner-transitional, and precision OFZ standards will apply as depicted for Runway 23 on the 2013 ALP.

Runway 5/23 meets/exceeds the dimensional and obstacle clearance standards for all OFZ components, for the current RDC.

FAA DESIGN STANDARDS

Runway – Parallel Taxiway/Taxilane Separation

Existing Standard: The standard runway to parallel taxiway separation for a B-II-4000 runway is 240 feet from centerline to centerline.

Future Standard: Future runway to parallel taxiway separation standards are dependent on future instrument approach procedure capabilities which will be evaluated in the development alternatives analysis.

Existing Conditions: A separation is 500 feet, which exceeds standards for all B-II runways.

Taxiway Safety Area (TSA)

Existing/Future Standard: ADG II dimension is 79 feet wide (extends 39.5 feet either side of the taxiway centerline). Additional gradient standards apply.

Existing Conditions: The TSAs for all existing taxiways appear to meet ADG II dimensional, grading and obstruction clearing standards.

Taxiway Object Free Area (TOFA)

Taxiways

Existing/Future Standard: ADG II dimension is 124 feet wide (extends 62 feet either side of the taxiway centerline). Additional gradient standards apply.

Existing Conditions: The TOFAs for Taxiway A, A3, A4, A5 and B meet ADG II dimensional, grading and obstruction clearing standards. Two fire hydrants are located in the Taxiway A1 TOFA near the T-hangar area.

Taxilane Object Free Area (TLOFA)

Existing/Future Standard:

- The ADG II standard is 110 feet wide, or 55 feet each side of taxilane centerline (applies to taxilanes and aprons used by large aircraft)
- The ADG I standard is 79 feet wide, or 39.5 feet each side of taxilane centerline (applies to small aircraft aprons and taxilanes)

Existing Conditions: Several existing aircraft hangar taxilanes in the T-hangar area do not meet the applicable TLOFA dimensional and obstruction clearance criteria. See recommendations later in this section for compliance with taxilane clearance.

Two items related to Taxiway A are identified in **Figure 3-8** as non-standard based on current FAA taxiway design guidance:

- **Exit taxiways A4 and A5 do not meet the 90-degree guidelines set forth by the FAA for connections to Runway 5/23.** Current FAA guidance recommends that taxiway connectors be designed to provide a 90-degree intersection (and aircraft alignment at the hold position) relative to the runway centerline, to increase visibility for pilots and reduce runway incursions.
- **Taxiway A1 provides direct access from the main apron to Runway 23:** The FAA recommends that entrance taxiways do not provide direct access from an apron to a runway, to increase situational awareness for pilots and reduce runway incursions.

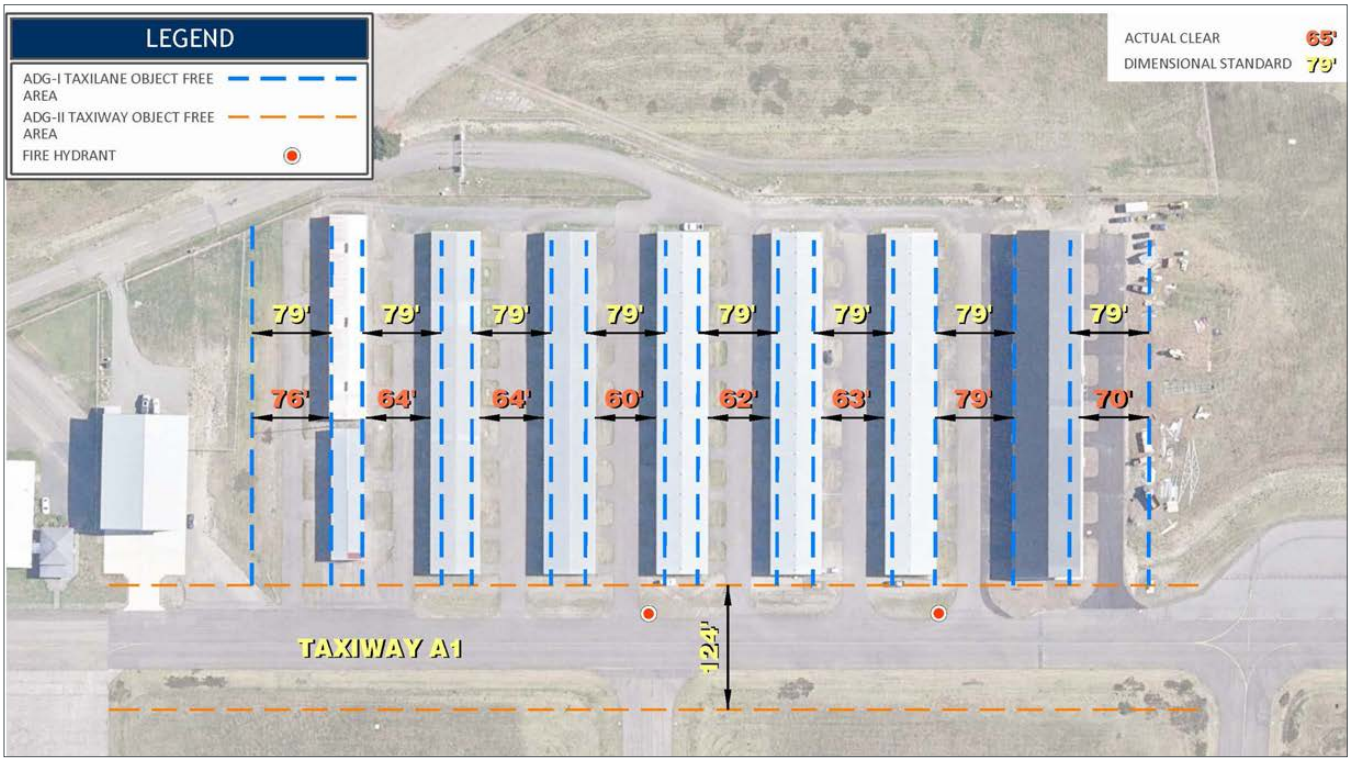
Figure 3-8: Non standard conditions

Source: Century West Engineering

TAXILANES

Taxilanes provide access to aircraft hangars, parking areas, and the fuel facility. By FAA standard, taxilane object free areas (TLOFA) are defined and should be free of items that could create a hazard for taxiing aircraft including parked aircraft, hangars, fences, other built items, and natural terrain. As illustrated in **Figure 3-9**, many taxilanes in the T-hangar area do not meet ADG-I standards for clear TLOFA (79 feet).

Figure 3-9: Existing and Standard Taxilane OFA Clearances



Source: Century West Engineering

AC 150/5300-13B (Appendix J, Table J-10) provides guidance for calculating taxilane object free areas based on ADG. The calculations presented in the table represent the maximum wingspan within each ADG. For example, ADG I includes aircraft with wingspans up to 49 feet. The TOLFA formula is:

½ Aircraft Wingspan (A) + Lateral Deviation (B) + Safety Buffer (C) = ½ TLOFA (D). Doubling the ½ TLOFA dimension provides the full TLOFA (E).

> **ADG I TLOFA:** (A) 24.5' + (B) 5' + (C) 10' = (D) 39.5'. (D) 39.5' x 2 = (E) 79' (TLOFA)

The formula establishes the centerline to object separation distance based on the wingspan of the most demanding aircraft anticipated to use the taxilane. Applying the FAA formula to T-hangar taxilanes that exclusively serve smaller hangar units (for example 42-foot wide doors) provides a practical TLOFA clearance measure with the same lateral deviation and safety buffer components.

> **ADG I (42-foot Wingspan) TLOFA:** For a maximum 42-foot door width (actual aircraft wingspans would be less to provide adequate wingtip clearance): (A) 21' + (B) 5' + (C)10' = (D) 36'. (D) 36' x 2 = (E) 72' (TLOFA)

While this method of determining TLOFA widths identifies less restrictive TLOFAs for these specific hangar areas, in several cases the available space between the hangars is less than the calculated TLOFA. Future hangars constructed in new hangar areas, or reconstructed in existing hangar areas should be configured to provide adequate lateral clearances to meet TLOFA requirements.

AIRFIELD INSTRUMENTATION, SIGNAGE, LIGHTING, AND MARKINGS

Most of the existing airfield lighting systems have been installed/replaced since the last airport layout plan was completed in 2013. The service life of the systems varies. However, for planning purposes, it is assumed that all existing airfield lighting systems will reach the end of their service life during the current planning period and require replacement. FAA airfield lighting guidance supports use of common technology between systems. The current LED standard used at Sanderson Field will be applied to all new and replacement airfield lighting systems.

Runway & Taxiway Lighting

The Runway 5/23 lighting systems are consistent with the requirements of a non-precision instrument runway (NPIR). The existing lighting systems are in good condition.

Existing Lighting Systems – Runway 5/23 & Parallel Taxiway

- MIRL – Medium Intensity Runway Edge Lighting
- Precision Approach Path Indicators (PAPI) – 4-light units Runway 23
- Runway End Identification Lights (REIL) – Runway 23
- Taxiway edge reflectors
- Airport Rotating Beacon - Located on the top of the water tower north of the Runway 5 end.
- Airfield Signs – Mandatory Instruction, Location, Direction, Destination, Information, Distance Remaining

All airfield lighting systems should be maintained and updated as necessary. The airport rotating beacon will likely reach the end of useful life within the planning period. Replacement of existing lighting systems with updated LED lighting is recommended at the end of useful life.

Weather Reporting

The Airport has an automated surface observing system (ASOS) that provides 24-hour weather information. The ASOS is located west of Taxiway A1. Future system needs related to maintaining/replacing FAA-owned weather systems are determined by FAA. Replacement of the ASOS should be anticipated during the current planning period based on typical useful life.

Airfield Markings

The airfield markings are consistent with FAA standards for color (white/yellow), configuration, and approach type. The condition of the markings varies. Generally, the runway markings are in good condition; the taxiway markings are in fair condition; and the apron markings are in poor condition. Regular maintenance including repainting is required and is typically coordinated with pavement maintenance projects.

Runway Markings

The existing non-precision instrument runway (NPIR) markings on Runway 23 and Runway 5 are consistent with FAA requirements.

Taxiways Markings

The markings on Taxiways A, A1-A5, and B include centerline stripes and aircraft hold lines, consistent with FAA requirements. The taxiway markings are consistent with FAA standards for color (yellow) and configuration and are in fair condition. Regular repainting is required and is typically coordinated with pavement maintenance projects.

Apron/Taxilane Markings

Markings on the apron include taxilane centerlines and aircraft parking position markings. Generally, the apron markings are in poor condition as they are significantly faded and/or worn.

It is recommended that all runway, taxiway, and apron markings be maintained in accordance with the WSDOT Pavement Maintenance Program. A runway MAGVAR change is anticipated toward the end of the planning period. Runway number markings will be updated to 6/24 at that time.

Airfield Signs

The signage for Runway 5/23 and Taxiway A consists of illuminated LED signage. The mandatory, location, destination, direction, and information signs are the Airport provide all necessary information. The existing signs should be maintained and replaced as necessary. Signage should also be reconfigured to account for any future changes to airfield geometry, and to address an anticipated MAGVAR runway name change to Runway 6/24 at the end of the planning period.

Landside Facility Requirements

Landside facilities include aircraft parking apron(s), hangars, terminal, fixed base operator (FBO) facilities, and related items. The landside facility requirements were analyzed relative to hangar demand, apron and aircraft parking requirements, runway access, and conformance with FAA design standards. Future facility demand is estimated based on the updated aviation activity forecasts presented in the aviation activity forecast.

AIRCRAFT PARKING APRON

Aircraft parking apron facility requirements were analyzed relative to existing FAA apron and aircraft parking requirements analysis provided in *FAA AC 150/5300-13B Change 1, Airport Design*. The parking requirements by aircraft type are summarized in **Table 3-12** and described in the following sections. To quantify the based and transient aircraft parking needs, a projection (based on FAA National Aerospace Forecast Total GA Fleet growth rates) of based aircraft and peak day projections were used to determine the parking necessary to satisfy existing and future demand.

Based and Transient Aircraft Parking

The evaluation of apron and taxilane configurations in the Airport Development Alternatives (Chapter 4) will reflect the aircraft using each facility, consistent with FAA design guidance: *"Provide planning and design to accommodate varying aircraft types and sizes anticipated to use the airport." (AC 150/5300- 13B, Change 1 Appendix E. E.1.3, General Aviation Facilities).* It is assumed that based aircraft are stored in hangars and that apron parking primarily accommodates transient aircraft.

The main apron consists of two parallel (north-south) aircraft tiedown rows with a total of 34 aircraft parking spaces. The west row is currently configured to accommodate 20 aircraft, including 9 designated tail-in small aircraft tiedowns. The east row has 19 nested tiedowns for small aircraft and 1 tiedown at the north end dedicated for large aircraft. There are also 5 pull-through parking spaces at the south end of the apron available to accommodate transient business aircraft or helicopters.

Space requirements for large transient business aircraft were estimated based on typical parking configurations used for ADG II aircraft. Based on the maximum ADG II wingspan of 79 feet, drive-through parking positions are configured to provide adequate wingtip clearances and nose/tail clearances from adjacent taxilane OFAs.

Transient aircraft parking demand is determined based on transient operational peaks. Transient operations are estimated to be 70% of total operations. Activity peaking is evaluated to identify potential capacity-related issues that may need to be addressed through facility improvements or operational changes. The Peak Month represents the month of the year with the greatest number of aircraft operations (takeoffs and landings). The peak month for most general aviation airports in North America occurs during the summer when weather conditions and daylight are optimal. For planning purposes, peak month operations at Sanderson Field are estimated to be 15% of annual operations during the planning period.

Peak Day operations are defined by the average day in the peak month (Design Day) and the busy day in the typical week during peak month (Busy Day). The Design Day is calculated by dividing peak month operations by 31. For planning purposes, the Busy Day is estimated to be 25% higher than the average day in the peak month (Design Day x 1.25), based on common activities generating surges in flight activity.

The peak activity period in the Design Day is the Design Hour. For planning purposes, the Design Hour operations are estimated to account for 20% of Design Day operations (Design Day x 0.20).

The operational peaks for each forecast year are summarized in **Table 3-11**.

Table 3-11: Operational Peaks

	Transient Operational Peaks				
	2024	2029	2034	2039	2044
Total Transient Operations	19,218	19,999	20,812	21,658	22,538
Peak Month	2,883	3,000	3,122	3,249	3,381
Design Day	93	97	101	105	109
Busy Day	116	121	126	131	136
Design Hour	19	19	20	21	22

Note: Values may not total due to rounding.

Based on available data, the operations fleet mix is estimated to be:

- Single-Engine Pistons: 60%
- Multi-Engine Pistons: 5%
- Turboprops: 25%
- Jets: 5%
- Helicopters: 5%

Some shifts in activity are anticipated in the current planning period, consistent with national trends and local conditions.

Parking needs for transient aircraft were calculated to be 25% of Busy Day operations. This multiplier assumes that 50% of the operations at that time are departures and 50% of the remaining operations will require apron parking at one time. Using this formula, parking demand was calculated for each aircraft type. Future demand is assumed to increase in line with national trends as reflected in the 2024-2044 National Aerospace Forecasts General Aviation Hours Flown projections (0.8% annually). Aircraft parking demand is summarized in **Table 3-12**.

Table 3-12: Projected Aircraft Parking Demand

	Aircraft Parking Demand				
	2024	2029	2034	2039	2044
SEP	17	18	18	19	20
MEP	1	1	2	2	2
TP	7	7	7	8	8
Jet	1	2	2	2	2
Helicopter	1	2	2	2	2
Total	27	30	31	33	34

Source: Century West

Business Aircraft Parking

The main apron has 6 parking spaces (5 on the south and one on the north) sized for transient business aircraft and/or helicopters. The apron can accommodate these aircraft while maintaining clearance from adjacent taxilane OFAs. However, the lateral clearances between the 5 parking stands on the south end of the apron do not meet ADG separation standards. In cases where additional capacity is needed, large aircraft may also utilize multiple

adjacent small-aircraft nested parking positions. Establishing dedicated business aircraft parking meeting ADG II standards is recommended.

Helicopter Parking

Sanderson Field accommodates locally based helicopters and occasional transient helicopters in the five pull-through parking locations at the south end of the main apron. These parking spaces are able to accommodate both transient helicopters and fixed-wing business aircraft. It could be advantageous to establish at least one dedicated helicopter parking position separated from fixed-wing aircraft parking to avoid operational conflicts between the two groups.

AIRCRAFT HANGARS

The Airport currently has 15 existing hangars that provide aircraft storage and support commercial tenant activities. The existing buildings accommodate aircraft storage and tenant operations space (approximately 188,000 square feet, 120+ aircraft):

- Seven (7) – Conventional hangars
- Eight (8) – Multi-unit T-hangars (104 individual bays)

Tenant requirements will vary and the requirements for larger hangars capable of business aircraft or expanded commercial operations should be reflected in site planning. It is recommended that a 100% development reserve be incorporated into future landside planning.

The Airport currently has adequate existing built hangars to accommodate the existing fleet. However, construction of hangars will be driven by market demand and preferences of developers. Hangar development reserve areas capable of accommodating multiple aircraft types and sizes should be identified to provide varied options to developers and allow for unforeseen increased demand.

Support Facilities Requirements

Support facilities such as aircraft fueling, security/perimeter fencing, surface access and vehicle parking, and utilities may require upgrades during the planning period. Existing facilities should be maintained, replaced, and/or upgraded as necessary.

SURFACE ACCESS AND VEHICLE PARKING

The primary access to Sanderson Fields east landside area is provided from U.S. Highway 101 in connection with entrance roads leading to vehicle parking (W Sanderson Way, and W Enterprise Rd). The two existing access points appear to be adequate to accommodate aviation-related vehicle traffic at the airport. Currently, both entrances to the east side of the Airport have a center turn lane in addition to the north and south travel lanes on Highway 101. Additional access points may be constructed at West Airview Way if future demand warrants it.

The east landside area has several areas used for vehicle parking located adjacent to the road system and within individual lease areas. Some of the vehicle parking is paved, other areas are gravel surfaced. A paved vehicle parking area is located near the southwest T-hangar area and access road. The heaviest concentrations of vehicle parking appear to be located in the vicinity of commercial facilities. Current vehicle parking areas appear to be adequate to accommodate the current demand at the Airport. Additional vehicle parking should be included in future development to accommodate new demand.

FUEL FACILITIES

The existing aviation fuel storage on the Airport includes two 12,000-gallon above-ground tanks (1 - 100LL AVGAS, 1 - Jet A) owned and operated by Skydive Kapowsin. Kapowsin also owns and operates two 650-gallon Jet A fuel trucks. The fixed tank fuel dispensing system includes a 24-hour credit card payment system for self-fueling. Based on current and forecast activity, the existing tank capacity for both the stationary 100LL and Jet A fuel, as well as the Jet A fuel trucks appear to be adequate.

UTILITIES

The existing airport utilities as discussed in the Existing Conditions chapter appear to be adequate to support future development in the east landside development area of the Airport. It is recommended the existing utilities be maintained and extended, as required to accommodate new development during the planning period.

AIRPORT FIREFIGHTING

The Airport has no on-site Aircraft Rescue and Fire Fighting (ARFF) facilities or assets and none are required based on current FAA regulations. The airport has three fire hydrants located adjacent to Taxiway A1. These hydrants are located in the object free areas and should be relocated to positions where they do not impact FAA design surfaces.

PERIMETER FENCING/GATES

The Airport is full fenced with a 6-foot chain link around the perimeter of the airfield and additional sections of fencing located within the landside development areas. There are automated gates located adjacent to the southeast T-hangars and the northernmost hangars on the main apron. Vehicle and pedestrian swing gates are located adjacent to hangars and other development areas of the airfield.

The Airports fencing and gates are free of any ROFA and RSA. However, some perimeter fencing is damaged and aging around the old fairgrounds and is in need of repair.

LAND USE

On-Airport Land Use

The entirety of Sanderson Field is located in the City of Shelton's UGA, however portions of the Part 77 Airspace surfaces fall outside of the Shelton city limits and are under the jurisdiction of Mason County. The existing zoning accommodates all airport related development and provides adequate protection from potential incompatible land uses.

Off-Airport Land Use

As noted in Chapter 2, large portions of the Part 77 surfaces established for the Airport extend into unincorporated Mason County and over the City of Shelton. The current City and County airport overlay zoning should be updated for consistency with the airport master plan and the updated ALP and Part 77 airspace plan. See Chapter 2 for information on existing land use and zoning. A review of off-airport land use provided in the Existing Conditions Chapter did not identify any known land use compatibility issues. A review of existing avigation easements will be conducted to identify any existing or potential gaps in coverage/ protection, in conjunction with the updates to the Airport Layout Plan and Exhibit "A" Property Plan drawing.

Summary

The significant investment in Sanderson Field runway-taxiway system and other airfield facilities, combined with significant tenant facility investment made since the last master plan will allow the Airport to focus on other facility needs early in the current 20-year planning period. A summary of facility needs is provided in **Table 3-13**.

Modest growth and no change in critical aircraft are anticipated for the Airport. This results in moderate airside and landside facility demands beyond existing capabilities. The existing airfield facilities can accommodate existing and reasonable future demand with targeted facility improvements. For the most part, the need for new or expanded facilities, such as aircraft hangars, will be market driven. The non-conforming items noted within this chapter can be addressed systematically during the current planning period to improve overall safety for all users.

Preliminary airport development alternatives will be presented in Chapter 4 to evaluate different options capable of meeting forecast demand, in addition to identifying any development constraints that exist. The review of the preliminary alternatives will allow the Port of Shelton to define and refine the preferred alternative for the master plan and develop a viable implementation strategy.

Table 3-13: Facility Requirements Summary

Facility	Facility Requirements
Runway	• Maintain existing length and width • Construct blast pads on each runway end • Anticipate MagVar change to 6/24 • Evaluate approach procedure capabilities in Development Alternatives Analysis • Ongoing pavement maintenance • Maintain existing runway extension reserve
Taxiways	• Maintain existing taxiway widths • Correct acute angle connector taxiways (A4 and A5) • Mitigate direct runway access at Taxiway A1 • Maintain pavements according to WSDOT pavement maintenance program
Taxilanes	• Ensure TLOFAs are clear of object penetrations and appropriate wingtip lateral clearances are met • Maintain pavements according to WSDOT pavement maintenance program
Navigational Aids and Lighting	• Maintain existing NAVAIDs and update as needed to coincide with changes to runway geometry and/or instrument approach procedures
Weather	• Maintain existing ASOS through end of useful life; replace when necessary
Hangars	• Maintain existing hangar capacity to accommodate current based fleet. Existing hangars approaching end of useful life should be replaced • Identify hangar development and reserves areas to accommodate future market-driven hangar construction • Future hangars should be spaced to allow for TOFA/TLOFA lateral clearances
Apron	• Maintain existing apron pavements according to WSDOT pavement maintenance program • Maintain existing aircraft parking capacity to accommodate existing fleet • Future parking configurations should accommodate a total of 34 transient aircraft including 2 helicopters, 2 jets, and up to 8 turboprops of various sizes • Add two dedicated helicopter parking positions to accommodate anticipated demand • Ensure TOFA/TLOFAs are clear of object penetrations and appropriate wingtip lateral clearances are met
Aircraft Fueling	• Maintain existing fuel system • Periodically review flowage fees to ensure the Airport captures available revenue • Consider electric aircraft charging facilities
Surface Access/ Parking	• Maintain existing parking capacity • Add additional capacity as needed for future development projects
Security	• Maintain existing security fence and gates • Extend security fencing and gates to future development areas
Utilities	• Upgrade and/or extend utilities as needed to serve future development

CHAPTER 4

Alternatives Analysis

The evaluation of future development alternatives represents a critical step in the airport master planning process. The primary goal is to define a path for future development that provides an efficient use of resources and is capable of accommodating the forecast demand and facility needs defined in the master plan.

Introduction

As noted in the facility requirements evaluation, current and long-term planning for Sanderson Field (Airport) is based on maintaining and improving the Airport's ability to serve a range of general aviation aircraft, primarily large multi-engine turboprops, but also including occasional medium business jet. Existing facilities accommodate a wide variety of conventional fixed-wing and rotary-wing aircraft. The existing airfield facilities generally meet or exceed Federal Aviation Administration (FAA) Airplane Design Group (ADG) II and Taxiway Design Group (TDG) 2 standards. Non-conforming items identified in the facility requirements assessment will be addressed in the appropriate airside or landside development alternatives.

FACILITY NEEDS OVERVIEW

Table 4-1 summarizes the primary demand factors and corresponding facility needs that will be evaluated in the alternatives analysis. Individual demand-driven facility development reserves are defined as 100% of the net forecast to account for uncertainty in predicting demand for new hangars and aircraft parking.

Table 4-1: Summary of Demand Factors and Facility Development Needs

Facility	Facility Requirements
Runway	• Maintain existing length and width • Construct blast pads on each runway end • Anticipate MagVar change to 6/24 • Evaluate approach procedure capabilities in Development Alternatives Analysis • Ongoing pavement maintenance • Maintain existing runway extension reserve
Taxiways	• Maintain existing taxiway widths • Correct acute angle connector taxiways (A4 and A5) • Mitigate direct runway access at Taxiway A1 • Maintain pavements according to Washington State Department of Transportation (WSDOT) pavement maintenance program
Taxilanes	• Ensure Taxilane Object Free Areas (TLOFA) are clear of object penetrations and appropriate wingtip lateral clearances are met • Maintain pavements according to WSDOT pavement maintenance program
Navigational Aids and Lighting	• Maintain existing NAVAIDs and update as needed to coincide with changes to runway geometry and/or instrument approach procedures
Weather	• Maintain existing Automated Surface Observing System (ASOS) through end of useful life; replace when necessary
Hangars	• Maintain existing hangar capacity to accommodate current based fleet. Existing hangars approaching end of useful life should be replaced • Identify hangar development and reserves areas to accommodate future market-driven hangar construction • Future hangars should be spaced to allow for Taxiway Object Free Area (TOFA)/TLOFA lateral clearances
Apron	• Maintain existing apron pavements according to WSDOT pavement maintenance program • Maintain existing aircraft parking capacity to accommodate existing fleet • Future parking configurations should accommodate a total of 34 transient aircraft including 2 helicopters, 2 jets, and up to 8 turboprops of various sizes • Add two dedicated helicopter parking positions to accommodate anticipated demand • Ensure TOFA/TLOFAs are clear of object penetrations and appropriate wingtip lateral clearances are met
Aircraft Fueling	• Maintain existing fuel system • Periodically review flowage fees to ensure the Airport captures available revenue • Aircraft electric charging facilities
Surface Access/ Parking	• Maintain existing parking capacity • Add additional capacity as needed for future development projects
Security	• Maintain existing security fence and gates • Extend security fencing and gates to future development areas
Utilities	• Upgrade and/or extend utilities as needed to serve future development

Development Alternatives Analysis Process

The preliminary alternatives will focus primarily on the landside improvements needed to accommodate current and future demand. Based on demand and input from the public, options will include reconfiguration or expansion of existing on-airport development areas. No property acquisition is anticipated, although reconfiguration of some parcels may be considered, if beneficial to the Airport.

Airport development challenges to be resolved include:

1. Optimize operational efficiency and safety for fixed wing aircraft and helicopters.
2. Identify the highest and best use of existing and future airport landside capacity.
3. Provide compliance with all applicable FAA standards.

FAA PLANNING GUIDANCE

The evaluation process utilized in this study is based on guidance provided in *AC 150/5070-6B Airport Master Planning*. Evaluation criteria categories selected to support the evaluation of development alternatives include:

Operational Capability – Includes criteria that evaluate how well the Airport functions as a system and is able to satisfy future activity levels, meet functional objectives such as accommodating the design aircraft, and provide for the most efficient taxiway system or aircraft parking layout.

FAA Design Standards – Includes an analysis of existing FAA design standards and various requirements or areas of focus currently identified by Advisory Circulars.

Airspace Compatibility – Includes the identification and analysis of the impacts that proposed changes to the airport environment would have on the local and regional airspace systems.

Land Use, Transportation, and Environmental Compatibility – Includes an analysis of best planning practices as they relate to land use, transportation systems, and a cursory analysis/identification of potential environmental effects as defined in *FAA Order 1050.1 Environmental Impacts Policies and Procedures and FAA Order 5050.4 FAA Airports Guidance for Complying with NEPA*.

By analyzing the development alternatives against the evaluation criteria presented above, and subsequently discussed with local stakeholders and interested airport users, an interactive process of identifying and selecting elements of a preferred alternative will emerge that can best accommodate all required facility improvements.

Throughout this process, the Port of Shelton (Port) will seek public input and coordination with the Port of Shelton Board of Commissioners and FAA to shape the preferred alternative.

Once the preferred alternative is selected by the Port, a detailed capital improvement program will be created that identifies and prioritizes specific projects to be implemented. The elements of the preferred alternative will be integrated into the updated Alternative Layout Plan (ALP) drawings that will guide future improvements at the Airport.

No Build Alternative

A No-Build Alternative is included to represent the maintenance of existing facilities and capabilities. Unlike the active development alternatives that are intended to respond to future demand for facility needs, the No-Build Alternative represents a “no-action” option. The existing airfield would remain unchanged from its present configuration and the Airport would be operated in a “maintenance-only” mode.

No improvement in public use facilities would be planned, although construction of private hangars or related facilities could be accommodated within currently developed areas.

The primary result of this alternative would be the inability of the Airport to accommodate aviation demand beyond current facility capabilities. Future aviation activity would be constrained by the capacity, safety, and operational limits of the existing airport facilities. In addition, the absence of new facility development effectively limits the Port's ability to increase revenues and operate the Airport on a financially sustainable basis over the long term.

The no-action alternative establishes a baseline from which the other alternatives can be developed and compared. The purpose and need for the alternatives are defined by the findings of the forecasts and facilities requirements analyses. The need to safely accommodate access and use of the public transportation facility provides the underlying rationale for making facility improvements. The timing of public investment in facilities is driven by safety, capacity, and the ability to operate an airport on a financially sustainable basis, whereas market factors generally determine the level and pace of private investment in hangars or other facilities at an airport.

Based on the factors noted above, the No-Build Alternative is inconsistent with the management and development policies established by the Port of Shelton and its commitment to provide a safe and efficient air transportation facility to serve the surrounding areas that is socially, environmentally, and economically sustainable.

Preliminary Development Alternatives

The preliminary development alternatives are intended to facilitate a discussion about the most effective way to meet the facility needs of the Airport expected over the next 20 years. The facility needs noted earlier are presented as individual proposed airside improvements to existing runways or taxiways, or they are incorporated more broadly into landside development concepts for aircraft aprons, hangars, and associated facilities. Items such as lighting improvements, minor roadway extensions and pavement maintenance do not typically require an alternatives analysis and will be incorporated into the preferred development alternative and the ALP, as needed.

The preliminary development alternatives have been organized into airside and landside groups. The landside alternatives are further organized by development areas within Sanderson Field's existing property. These are summarized below.

Airside Improvements

- Proposed Airside Improvements (Figure 4-1)

Landside Alternatives

- Terminal Apron Development Area (Figure 4-2)
- East Side Hangar Development Area (Figure 4-3)
- Infield Hangar Development Area (Figure 4-4)
- South (Fairgrounds) Development Area (Figure 4-5)
- West Hangar Development Area (Figure 4-6)

The preliminary development alternatives described below and depicted in **Figures 4-1 to 4-6** are intended to illustrate the key elements of the proposed concepts. The evaluation of the preliminary alternatives will lead to the selection of the preferred alternative by the Port that captures the desired airside and landside elements. It is important to note that the preferred alternative selected may come from one of the preliminary alternatives presented, a combination or hybrid of these alternatives, or a new concept that evolves through evaluation and discussion.

Also important to note is that master plan implementation will be accomplished through the completion of numerous individual development projects that will be phased over many years. The sequence and actual timing of projects will be determined by specific facility demand, the Port's development priorities for Sanderson Field, and the availability of both local and FAA funding.

It is anticipated that some proposed projects or long-term development reserves may be deferred beyond the current 20-year planning period, as the facility needs at most airports often exceed available resources. As noted earlier, the Port has the option of limiting future facility improvements based on financial considerations or other development limitations.

PROPOSED AIRSIDE IMPROVEMENTS

Overview

As discussed in Chapter 3 - Facility Requirements, the existing runway and taxiway system largely meets FAA standards, with few exceptions related to taxiway/runway connections. The proposed improvements are primarily focused on addressing the non-standard conditions. No dimensional changes to the runway are proposed during the current planning period, though a runway extension identified in the previous plan is carried forward in this plan as a reserve as justification for the extension is not anticipated to be met in the 20-year planning period.

The airfield improvements depicted in **Figure 4-1** are based on guidance from *FAA AC 150/5300-13B, Change 1 - Airport Design*. Although the current runway and taxiway configuration meets or exceeds most existing and future FAA standards, some specific components may require updating to meet current FAA design guidance and development priorities.

These projects may be combined with other runway or taxiway improvements included in the recommended preferred alternative or combined with larger pavement maintenance or rehabilitation projects. Potential project sequencing will be determined during the capital improvement program (CIP) development.

Runway

No changes in runway dimensions are proposed during the current planning period. Pavement maintenance and useful life replacements of existing lighting and signage are expected. No changes in runway markings are anticipated based on current/future approach capabilities. However, a change in the current "5/23" runway designation, to "6/24" is anticipated late in the planning period due to a change in magnetic variation (MagVar). The change in runway designation will require replacing existing markings (runway end numbers), updating affected airfield signs/panels, and updating FAA publications and instrument procedures for consistent reference.

The extension of Runway 5 (1,780 feet) depicted on the previous master plan is carried forward in this plan as a reserve. Activity needed to justify, this extension is not anticipated to be met in the 20-year planning period. However, the extension is located on existing airport property. Continuing to protect for the extension is appropriate to ensure that an extension can be accommodated at a later date if the need arises.

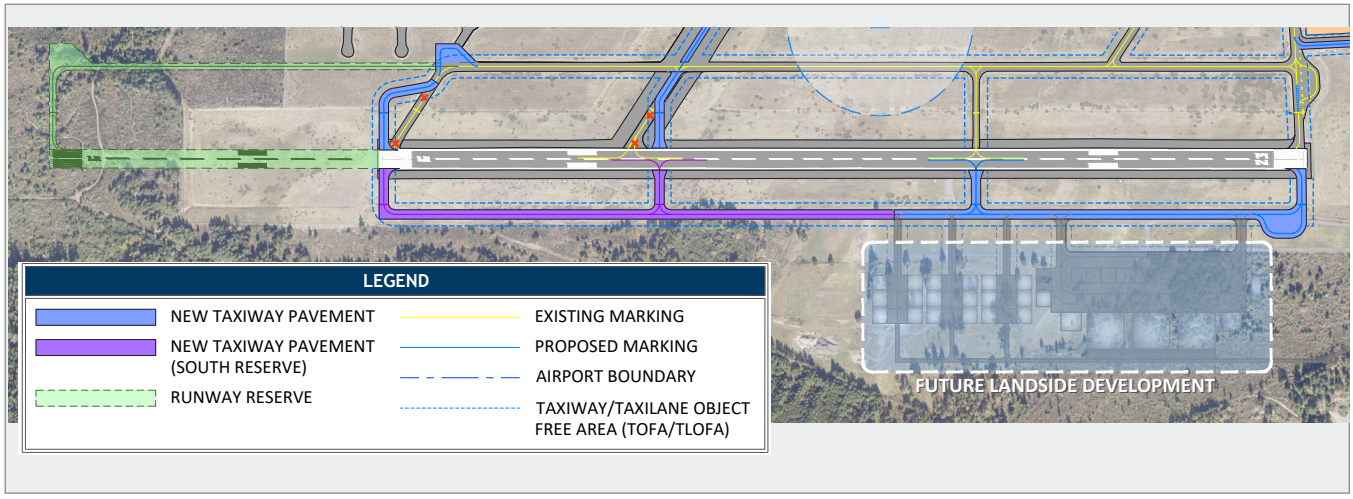
Taxiways

Minor geometry changes are depicted at runway existing connector taxiways A4 and A5 to address non-standard acute angle runway entrances. Enhanced taxiway markings, lighting, and signage are proposed for Taxiway A1 at the Runway 23 connection to address direct runway access from the terminal apron. Typically, a reconfiguration of the taxiway/runway connection to require aircraft to make at least one 90-degree turn before entering the runway is preferred to address direct runway access taxiways. Due to the unique geometry of Taxiway A1, implementing such a change would be impractical and expensive. Enhanced markings, lighting, and signage will serve to increase pilot situational awareness as they enter the runway environment.

A new 2,225-foot partial-length parallel taxiway (future Taxiway C) is proposed south of Runway 5/23 to provide access to the South Development Area (discussed in the Landside section below). The taxiway centerline is 300 feet south of the runway centerline which meets the FAA standard for runway-to-parallel taxiway separation (RDC B-II, vis. ≤ ½-mile). Two south connector taxiways are located opposite connector taxiways A1 and A3.

An additional 2,780 feet of south parallel taxiway reserve is proposed to connect to the existing end of Runway 5, with two additional connector taxiways. Development of the taxiway reserve is not expected to occur within the 20-year planning period.

Figure 4-1: Proposed Airside Improvements



Source: Century West Engineering

PRELIMINARY LANDSIDE DEVELOPMENT CONCEPTS

Overview

The landside planning evaluations are intended to identify options for meeting the net twenty-year demand forecast for based aircraft and projected transient aircraft parking demand, plus development reserves equal to 100% of the forecast demand.

The landside facility needs include development areas and taxilane access for new aircraft hangars and parking for larger fixed wing aircraft and helicopters. The current parking capacity of the terminal apron exceeds the anticipated parking demand for locally-based and transient aircraft. However, existing apron areas may be modified or reduced in some options to accommodate other aircraft needs, which could result in the need to provide additional tiedowns.

The FAA recommends that airport master plans be initially developed in an “unconstrained” manner, rather than establishing pre-defined limits that drive the planning process. The evaluation of development alternatives for the Airport is unconstrained, consistent with FAA guidance, forecast demand, and defined facility requirements.

Four development areas (Terminal Apron, East, South, and West) are identified for future improvements. The proposed developments are intended to leverage existing vehicle and aircraft access where possible, while providing opportunities for incremental development that can be effectively phased over time in response to actual demand. It is acknowledged that when combined, the concepts presented for the five landside development areas provide facilities that exceed the projected 20-year demand. The primary goal in the alternatives review process is to identify the most viable development components that can be phased over the next 20 years and reserve the remaining areas for long-term aeronautical use.

The preliminary landside development areas described below include:

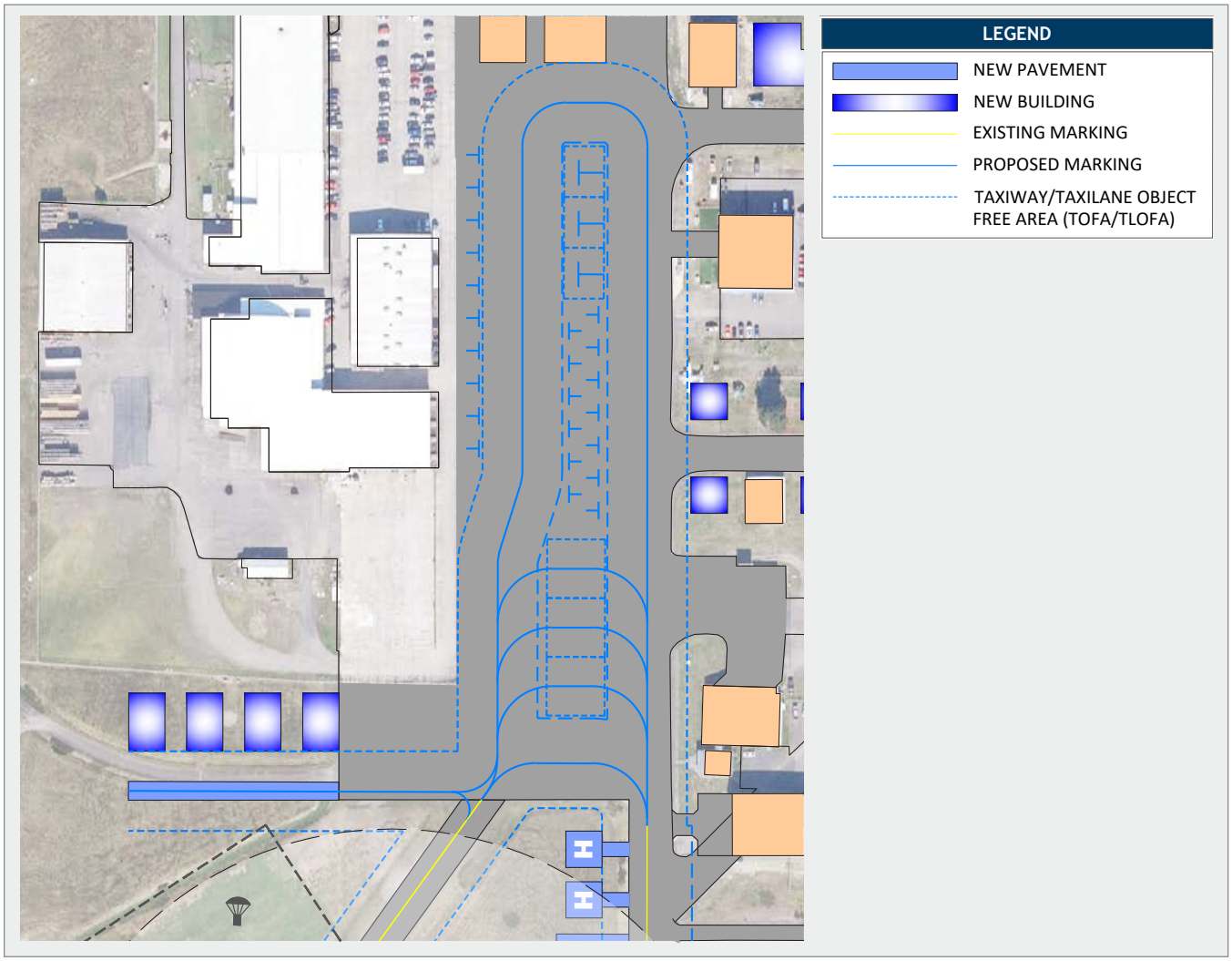
- Terminal Apron Development Area (Figure 4-2)
- East Development Area (Figure 4-3)
- South Development Area (Figure 4-4)
- West Development Area (Figure 4-5)

TERMINAL APRON DEVELOPMENT AREA

The Terminal Apron Development Area Concept (**Figure 4-2**) is located on and around the current terminal apron. It proposes a reconfiguration of the terminal apron taxilanes and aircraft parking, paired with infill hangar development. The reconfigured apron includes 23 small aircraft tiedown positions, and six large aircraft drive/push-through parking positions intended to accommodate business class turboprop and jet aircraft. A total of 29 aircraft parking positions are proposed in this concept to accommodate transient and based aircraft.

In addition to apron parking, the concept includes six new box hangar sites in currently undeveloped lots east of the apron, and four small box hangar sites off the southwest corner of the apron (served by a new ADG I taxilane). In total, the concept adds approximately 44,000 square feet of hangar storage.

Figure 4-2: Terminal Apron Development Area



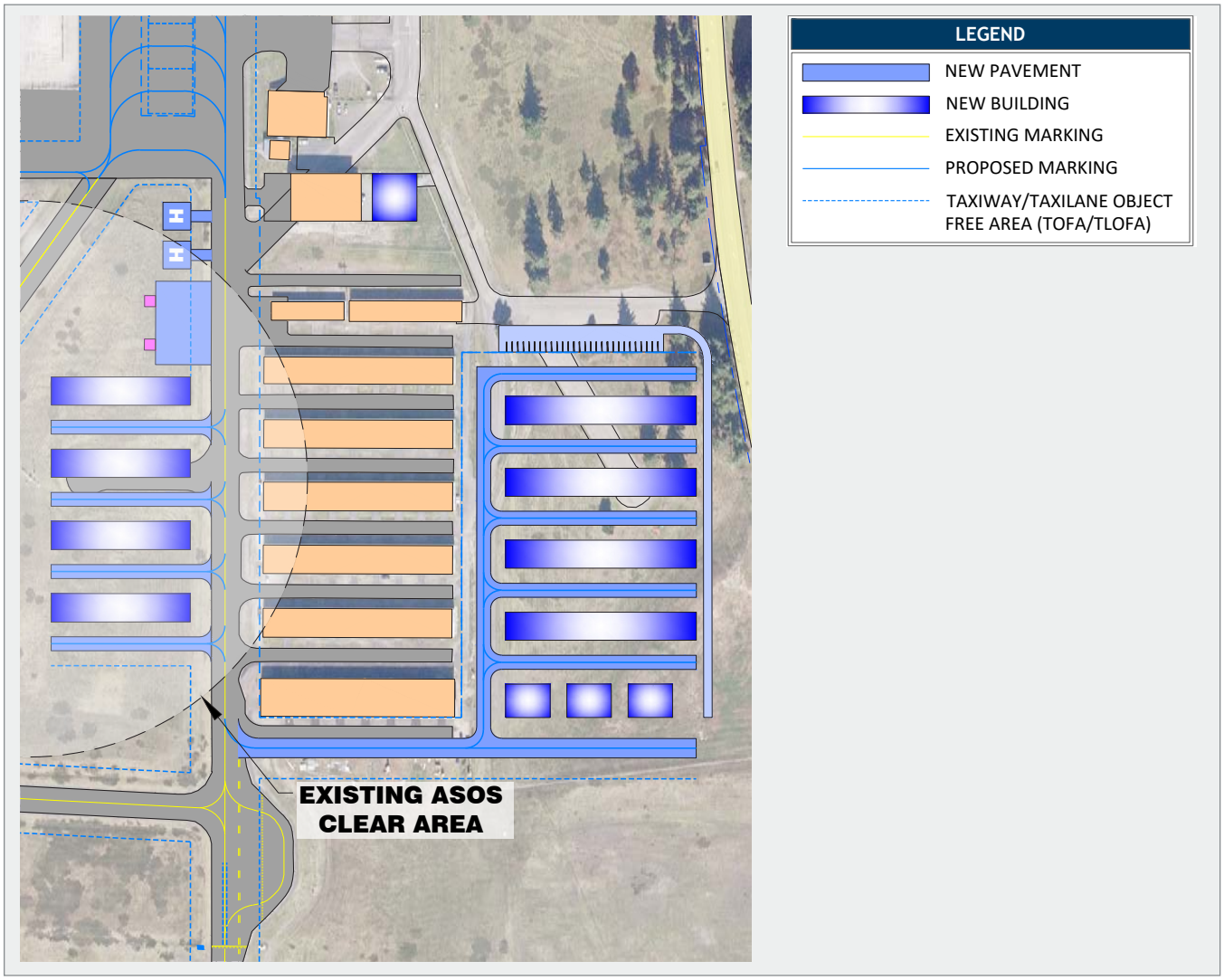
Source: Century West Engineering

EAST DEVELOPMENT AREA

The East Development Area Concept (**Figure 4-3**) proposes two new hangar blocks on either side of the existing T-hangar area east of Taxiway A1. The concept includes one row of box hangars sized for ADG II aircraft and accessed via an ADG II taxilane and four rows of ADG I T-hangars served by ADG I taxilanes east of the existing T-hangars. Vehicle would access these hangars from an internal access roadway that connects to West Enterprise Road.

Four ADG I T-hangars are proposed opposite of the existing T-hangars west of Taxiway A1. This western hangar block would encroach upon the ASOS critical area an would require a relocation of the ASOS west of the current location (see **Figure 4-5**). In addition to hangars, the East Development concept includes two dedicated helicopter parking pads and a 15,000 square foot electric aircraft charging apron with two charging stations. Vehicle access to these facilities is provided via surface roadways and Taxiway A1.

Figure 4-3: East Development Area



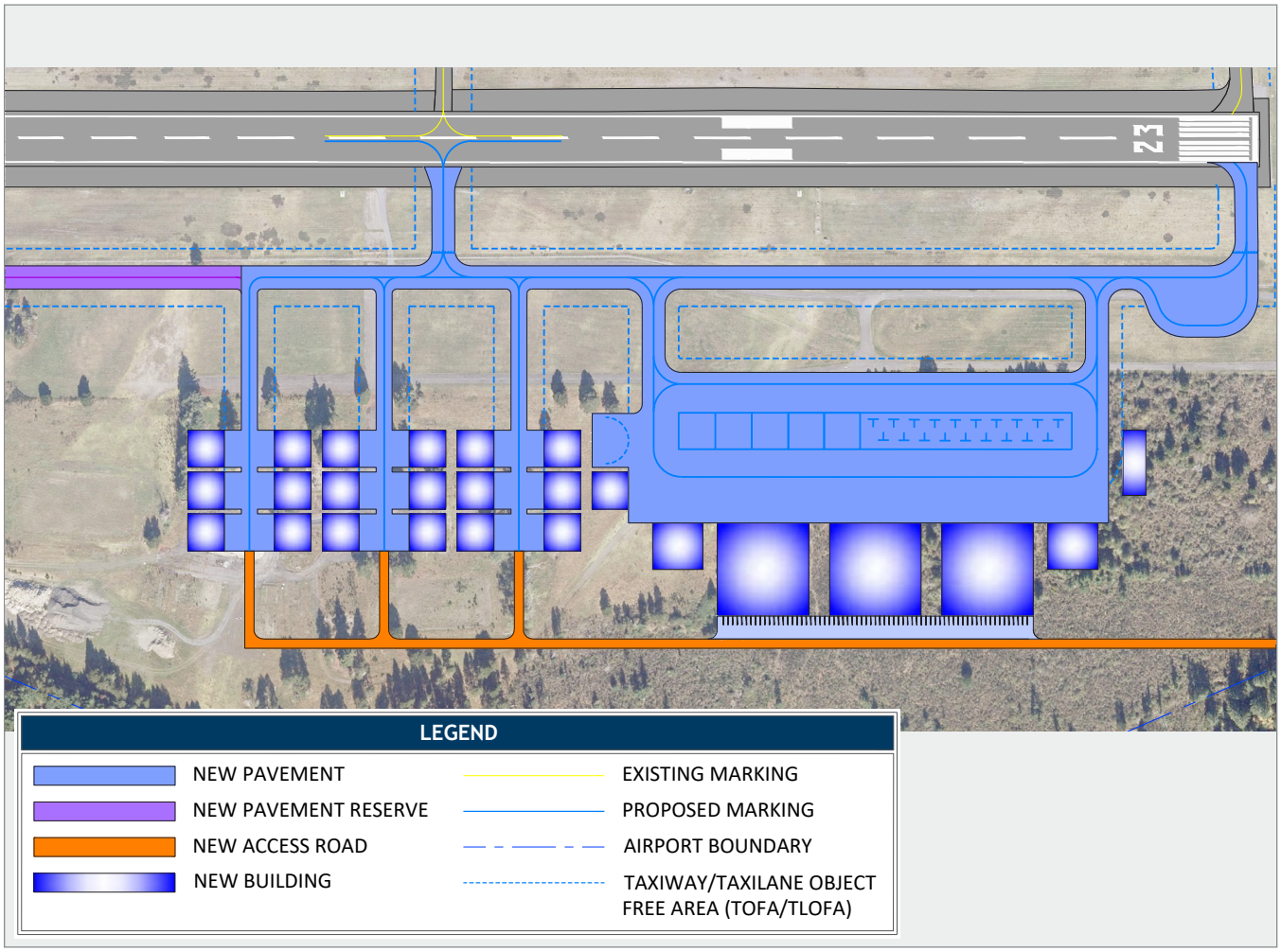
Source: Century West Engineering

SOUTH DEVELOPMENT AREA

The South Development Area (**Figure 4-4**) is located south of the runway on the former Mason County fairgrounds site. The proposed development footprint for the south landside area includes runway setbacks for build and parked aircraft required to protect future precision instrument airspace. This concept proposes a new partial length south parallel taxiway providing access to a new 340,000 square feet of apron. The south apron is capable of accommodating 19 small aircraft parking positions and five large aircraft parking positions. Sites for three large commercial hangars and three small box hangars are positioned around the perimeter of the apron, adding approximately 149,000 square feet of hangar storage. This apron and hangar configuration could be an ideal location for a new FBO presence on the airfield.

Sites for 24 additional medium-sized box hangars west of the apron, capable of accommodating ADG II aircraft, are proposed, providing approximately 153,600 square feet of new hangar storage. Access to these hangars is provided by four ADG II stub taxilanes connected to the south parallel taxiway. Vehicles would access the South Development Area from the existing connection to U.S. Highway 101 via a new access road. The reconfiguration of the access road connection on U.S. Highway 101 would require coordination with U.S. DOT.

Figure 4-4: South Development Area



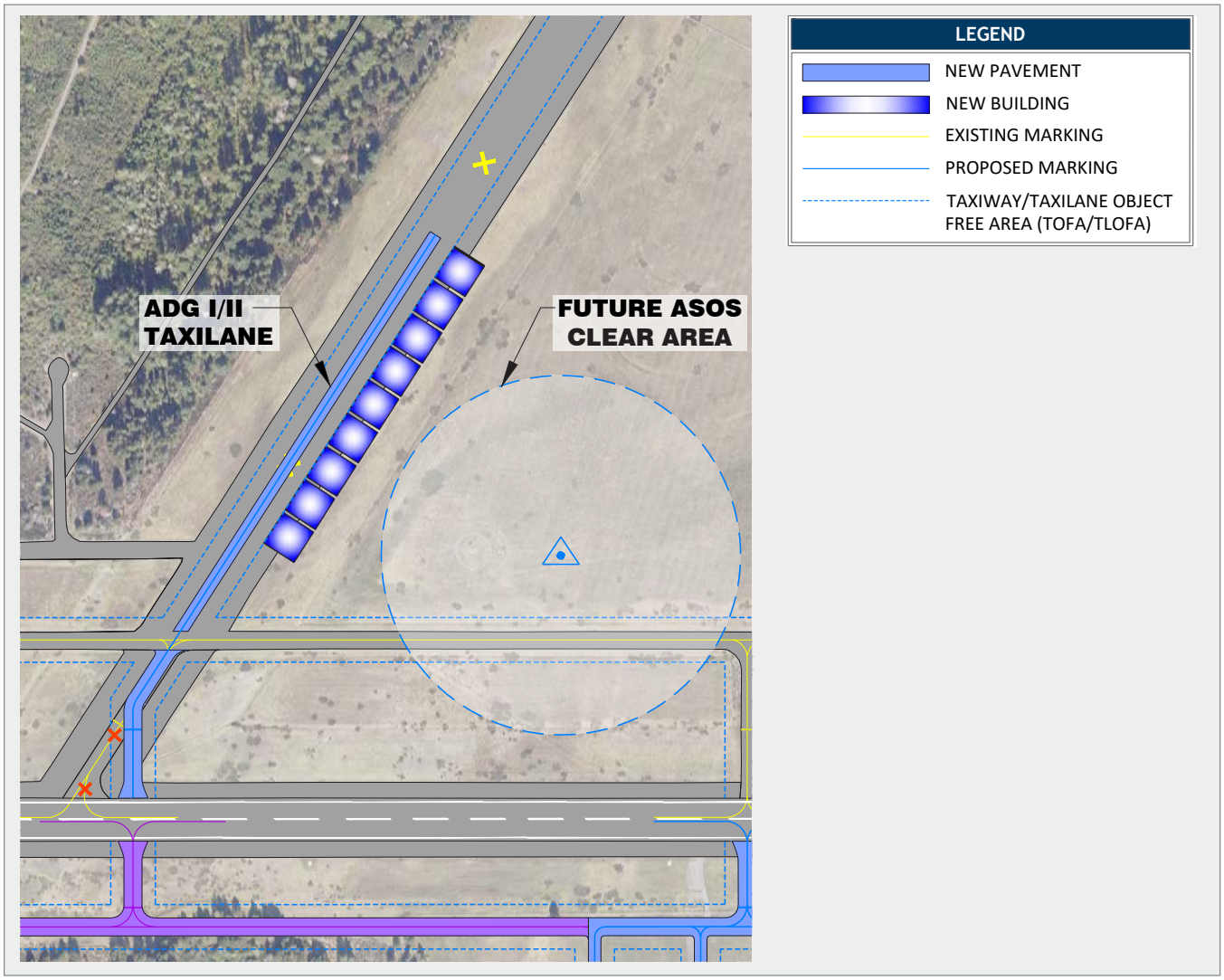
Source: Century West Engineering

WEST DEVELOPMENT AREA

The West Development Area (**Figure 4-5**) is located on the west side of the Airport adjacent to the former crosswind runway. The proposed development consists of nine small box hangars providing approximately 90,000 square feet of additional hangar storage. Aircraft access to and from the runway is provided on the former runway pavement (rehabilitated as taxilane) and Taxiway A. Appropriate markings and signage will be constructed on the former runway to meet ADG I or II taxilane standards. Vehicle access to the west hangar development area is provided from the north on the former crosswind runway.

This development area is proposed as a reserve, as it would most likely only be developed once space in the other development areas has been exhausted. Construction of these hangars would require significant extensions of utility and surface access infrastructure.

Figure 4-5: West Development Area



Source: Century West Engineering

An overview of the concepts discussed above are presented in **Figure 4-6**.

LAND USE, TRANSPORTATION, AND ENVIRONMENTAL ISSUES

The preliminary development alternatives were reviewed to identify potential issues related to local site conditions and summarizes potential issues by development area. This information is intended to provide a preliminary level of screening and comparison of potential issues when comparing the alternatives. Additional evaluations will be performed as the alternatives are refined. A summary of known issues in provided in **Table 4-2**.

Table 4-2: Potential Development Factors

Development	Potential Factors
Airside & Landside	Land Use • No known issues related to land use or zoning. All development is on airport property. No changes in current designations recommended. Traffic/Transportation • No known issues related to traffic and transportation related to proposed airfield improvements. Alterations to the South Development access drive connection to U.S. Highway 101 should be coordinated with U.S. DOT. Traffic/Transportation • New FAA funded airfield construction projects will require NEPA environmental review. Mitigation for increased impervious surface areas (buildings, taxilanes, apron), grading, drainage, stormwater collection, and treatment will be determined by applicable engineering and environmental requirements. Proposed improvements located on airport property are subject to reviews related to wetlands, streams, or another critical habitat. Traffic/Transportation • No property acquisition is required to implement the master plan identified improvements. Acquiring and maintaining air (avigation) easements for any portions of existing or future Runway (or Runway Reserves) Protection Zones (RPZ) not owned outright by the Port of Shelton is recommended.

Commission and Public Comment

The preliminary development alternatives were presented to the Port of Shelton Commission at the October 7, 2025 Commission Meeting, followed by a public open house. The meeting and open house were advertised and open to the public.

Following the presentation, the Commissioners and public were invited to give input on the materials presented. The comments received were primarily focused on the South Development Area. It was noted that aircraft taxiing on Taxiway A1across Runway 23 from the South Development Area to the Terminal Apron could conflict with traffic taxiing in the opposite direction, creating a bottleneck at the runway end. The issue may be compounded by the fact that currently the only fuel system is located on the terminal apron. An aircraft holding area/pullout was added to the east end of the future south parallel taxiway near taxiways A1 and C1 to reduce potential congestion.

In addition to the comments about the South Development Area, other comments were offered suggesting improvements that fall outside the purview of the Airport Master Plan. The following items have been noted and may be implemented at the discretion of airport management, though they would not be eligible for FAA funding.

- Dedicated pilot facilities with restrooms, meeting room, and crew chambers
- Updated fuel system
- On-site restaurant/lunch spot

Further public comments were accepted for two weeks following the meeting. No additional comments were received in that period.

Preferred Alternative

Following the Port commission meeting and public comment period, all input received was considered and a preliminary preferred alternative was created. The preferred alternative largely aligned with the materials presented in the preliminary alternative concepts with the following additions:

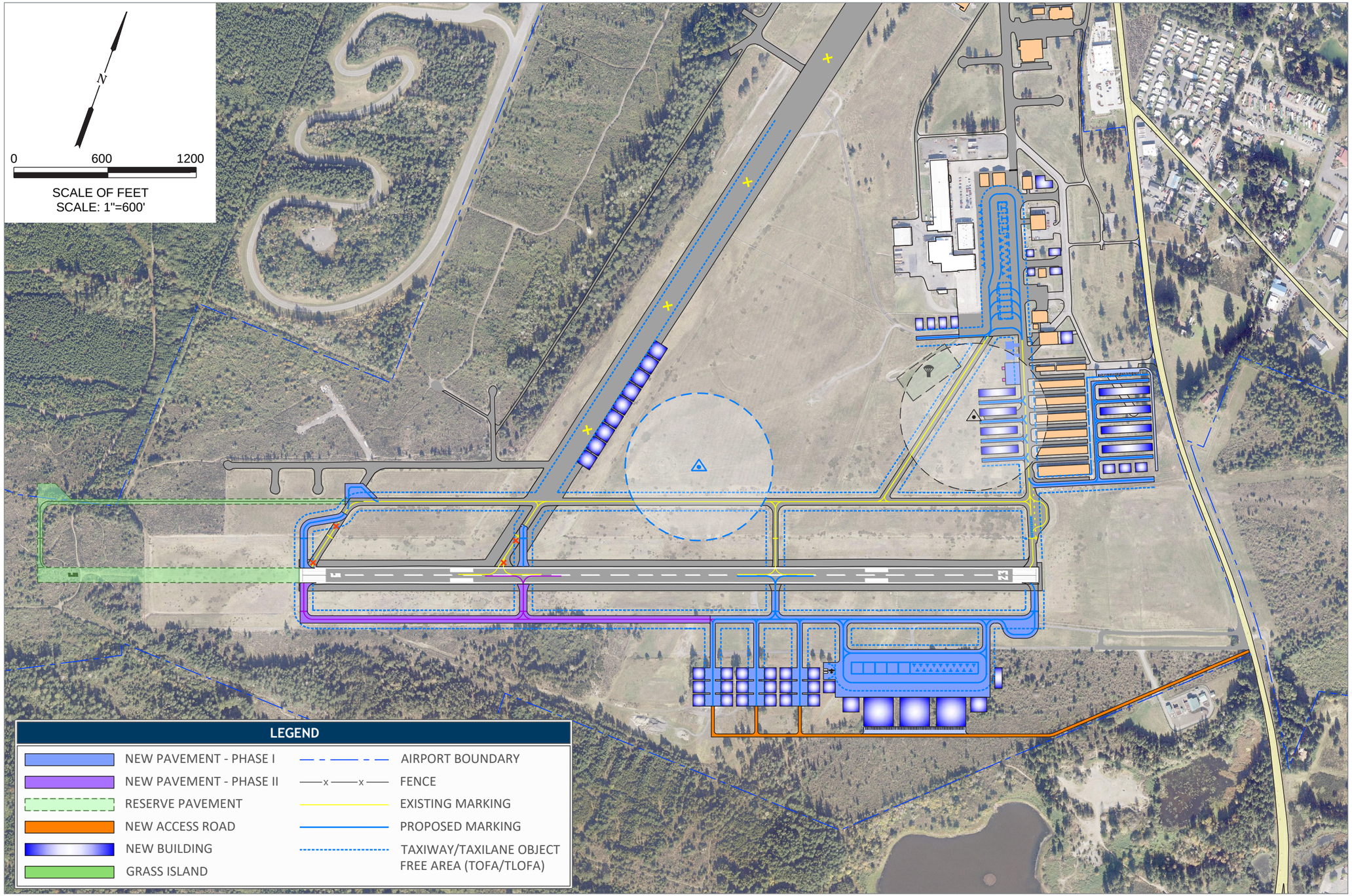
- A second self-serve fuel system was added to the South Development Area apron to reduce the need for aircraft to taxi to the Terminal Apron for fuel.
- A turn-out/runup apron was added to the proposed parallel taxiway south of Runway 23 to alleviate potential congestion and conflicts between aircraft taxiing to/from Runway 23.

The preferred alternative is depicted in **Figure 4-6** and summarized in **Table 4-3**.

Table 4-3: Alternative Features

Key Features	Development Areas			
Development Features	**Terminal Apron**	**East**	**South**	**West**
Hangar Taxilanes	ADG I/II taxilanes with standard TLOFAs	ADG I taxilanes with standard TLOFAs to T-hangars. ADG II taxilanes with standard TLOFAs to box hangars	ADG I taxilanes with standard TLOFAs to small box hangars. ADG II taxilanes with standard TLOFAs to apron hangars	ADG I taxilanes with standard TLOFAs
Apron Taxilanes	ADG II taxilanes with standard TOFAs	N/A	ADG II taxilanes with standard TOFAs	N/A
Large Conventional/ Commercial Hangar Sites	N/A	N/A	5	N/A
ADG I T-Hangars	N/A	8 Buildings (112 units)	N/A	N/A
ADG I/II Conventional Hangars	6	3	20	9
Public Road & Vehicle Access Improvements	None	Existing automated vehicle access gate will need to be relocated	Vehicle access drive connection to U.S. Highway 101 requires coordination with U.S. DOT	Automated vehicle access gate recommended to accommodate access from the north.
Site Development Issues	Utility extensions to new development areas will be needed	Same	Same	Same

Figure 4-6: Preferred Alternative Overview



Source: Century West Engineering

CHAPTER 5

Capital Improvement Plan

Introduction

The purpose of this chapter is to present the proposed implementation program for the 2025-2045 Sanderson Field Airport Master Plan. The main feature of this information is the 20-year Airport Capital Improvement Program (ACIP) that was developed based on the analyses conducted in the Facility Requirements and Development Alternatives evaluations (Chapters 3 and 4).

The ACIP projects are summarized in **Table 5-1**, later in the chapter. The ACIP is organized into near term and long-term planning periods that reflect project prioritization and the Port's ability to support the proposed financial investments. The anticipated share of Federal Aviation Administration (FAA) funding is based on the current eligibility of individual projects for federal funding, but does not represent a commitment by the FAA to fund each project. The anticipated local share in the ACIP assumes Port funding the non-FAA share of each project. Other potential funding sources such as Washington Department of Transportation (WSDOT) Aviation Division grants, may be available for reduce the local share for individual projects.

Several factors were considered in determining project prioritization, including safety, forecast demand, the need to maintain/ replace existing airfield facilities, and financial capabilities of both the Port of Shelton and the FAA to support the development program based on existing funding sources. Minor pavement maintenance items such as vegetation removal and crack filling are not included in the ACIP but will need to be undertaken by the Port on an annual or semi-annual basis.

Airport Development Schedule and Cost Estimates

Cost estimates for each individual project were developed in 2025-dollars based on typical construction costs associated with the specific type of project. The project costs listed in the ACIP represent order-of-magnitude estimates that approximate design, engineering, environmental, other related costs, and contingencies. The estimates are intended only for preliminary planning and programming purposes. Specific project analysis and detailed engineering design will be required prior to project implementation to provide more refined and detailed estimates of the development costs.

These cost estimates can continue to assist management through adjustments to the 2025-dollar amounts to account for subsequent inflation as the plan is conducted in future years. This can be accomplished by converting the appropriate change in the United States Consumer Price Index (USCPI).

U.S. Consumer Price Index for All Urban Consumers (USCPI-U) to a multiplier using the following formula:

X / I = Y

Where:
X = USCPI in any given future year
Y = Change Ratio
I = Current Index (USCPI)[1]

USCPI-U
324.054
(1982-1984 = 100)
December 2025

Multiplying the change ratio (Y) times any 2025-based cost estimate presented in this study will yield the adjusted dollar amounts appropriate in any future year evaluation. Several different CPI-based indices are available for use, and any applicable index may be substituted by the airport sponsor in its financial management program.

ACIP PROJECTS

The following sections outline the recommended development program and funding assumptions for the short-term and long-term projects. Overall project scheduling is defined based on the facility requirements needs identified in the master plan evaluation. The anticipated staging of development projects is based on a combination of needs and development priorities. Several projects involve life-cycle replacement of existing pavement or facilities that are required beyond basic maintenance. **Table 5-1** summarizes the near-term and long-term projects in the 20-year ACIP.

It is recognized that actual activity levels may vary from projected levels. Therefore, the staging of development presented in the ACIP should be viewed as a general guide. The implementation of development projects should occur when demand warrants, rather than according to the estimated staging presented in this chapter. If the assumptions made in the master plan remain valid, the project prioritization reflected in the ACIP will provide a reliable guide for development. When activity deviates from projected levels, program adjustments may be made. The annual Joint Planning Conference (JPC) coordinated with WSDOT Aviation and FAA, provides the ability to adjust the Port's near term development priorities through updates of the State Capital Improvement Program (SCIP) to reflect changes in demand and to move longer term projects forward intermediate as other projects are completed.

1 U.S. Bureau of Labor Statistics. (2026, January 13). Consumer Price Index – December 2025 (Report No. USDL-26-0042) [PDF]. U.S.

In addition to major capital projects, the Port will continue to require regular facility maintenance such as pavement maintenance, vegetation control, sweeping, and lighting repair.

Near Term Projects (Years 1-5)

The five-year ACIP includes all projects from the FAA-approved CIP plus two newly planned projects. These near-term projects consist of environmental assessment, design, and construction of a connector taxiway linking the runway and Taxiway A3 to the planned south aviation development area, and realignment of the east hangar area taxilane to meet lateral clearance standards, along with extension of the taxilane and utilities to new hangar sites.

Longer Term Projects (Years 6-20)

Beyond the initial five-year period (2030–2045), project priorities shift toward the maintenance and rehabilitation of pavements and airfield electrical systems as they reach the end of their useful service lives. The main priority of long-term projects includes pavement maintenance and geometry improvements of the Airport's taxiways and taxilanes, updated NAVAIDs and lighting. Additional projects include apron expansion, installation of an aircraft electric charging station, and improvements to landside facilities to include hangar development site preparation improvements to accommodate future demand requirements.

Safety improvements based on current FAA design guidance include the reconfiguration of Taxiways A3 and A4 to provide 90-degree runway connectors.

Projects are planned to accommodate future demand for aircraft storage, including hangar development east of the main T-hangar development. Site preparation, utility extensions to potential hangar sites, and taxilane improvements are included in the project that will be developed in phases based on actual demand. Development of a partial-length south parallel taxiway, aircraft apron, and hangar taxilanes are planned for the south aviation development area. Other improvements include vehicle access to development areas and designated helicopter parking.

Demand for electric aircraft charging infrastructure is anticipated within the 20-year planning horizon. A project to install an electric aircraft charging station is planned to accommodate emerging electric aircraft technologies.

Table 5-1: Capital Improvement Projects

Short Term Projects (2026-2029)	Estimated Cost	Anticipated FAA Share (90%)	Anticipated Local Share (10%)
Connector Taxiway to Southside Aviation Site - Phase 1 Environmental	$166,667	$150,000	$16,667
T-Hangar Taxilane Shift and Extension Phase 1 Environmental/Design	$200,000	$180,000	$20,000
Connector Taxiway to Southside Aviation Site - Phase 2 Design	$304,444	$274,000	$30,444
T-Hangar Taxilane Shift and Extension Phase 2 Construction	$1,500,000	$1,350,000	$150,000
Connector Taxiway to Southside Aviation Site - Phase 3 Construction	$666,667	$600,000	$66,667
SHORT-TERM TOTAL (0-5 Years)	**$2,837,778**	**$2,554,000**	**$283,778**

(continued on next page)

Table 5-1: Capital Improvement Projects (continued)

Long Term Projects (2029-2045)	Estimated Cost	Anticipated FAA Share (90%)	Anticipated Local Share (10%)
Taxiway A1 (North) Reconstruction	$780,000	$702,000	$78,000
Main Apron Rehabilitation	$1,500,000	$1,350,000	$150,000
T-Hangar Taxilane Rehabilitation (Crack Fill, Seal Coat)	$200,000	$180,000	$20,000
Runway 5/23 Pavement Maintenance (Crack Seal, and Stripe)	$330,000	$297,000	$33,000
Taxiway A Pavement Maintenance (Crack Seal, and Stripe)	$120,000	$108,000	$12,000
Taxiway B Pavement Maintenance (Crack Seal, and Stripe)	$20,000	$18,000	$2,000
South Partial Parallel Taxiway C - Design/Environmental/Construction	$1,270,000	$1,143,000	$127,000
South Aviation Development Area Apron - Design/Environmental/ Construction	$3,230,000	$2,907,000	$323,000
New Access Road and Vehicle Gate (South Aviation Development Area)	$860,000	$774,000	$86,000
Helicopter Parking Pad - Design/Environmental/Construction	$250,000	$225,000	$25,000
Taxiway A 90-degree connector Reconfiguration (A3, A4) -Design/ Environmental/Construction	$570,000	$513,000	$57,000
Aircraft Fuel Tank and Fueling Apron - Design/Environmental/ Construction (South Aviation Development Area)	$1,450,000	$1,305,000	$145,000
Utilities Improvements/Extensions (South Side Hangar Areas)	$500,000	$450,000	$50,000
Runway 5/23 Pavement Maintenance (Crack Fill, Seal Coat)	$1,080,000	$972,000	$108,000
Taxiway A Pavement Maintenance (Crack Fill, Seal Coat)	$730,000	$657,000	$73,000
Taxiway B Pavement Maintenance (Crack Fill, Seal Coat)	$260,000	$234,000	$26,000
Electric Aircraft Charging Apron - Design/Environmental/Construction	$1,000,000	$900,000	$100,000
Runway 5/23 Edge Lighting replacement	$1,130,000	$1,017,000	$113,000
Taxiway A Edge Lighting replacement	$2,020,000	$1,818,000	$202,000
Airport Beacon Replacement (LED)	$110,000	$99,000	$11,000
Taxiway B Pavement Maintenance (Mill and Overlay)	$180,000	$162,000	$18,000
Runway 5/23 Pavement Maintenance (Mill and Overlay)	$1,400,000	$1,260,000	$140,000
Taxiway A Pavement Maintenance (Mill and Overlay)	$930,000	$837,000	$93,000
Taxiway C Pavement Maintenance (Crack Fill, Seal Coat)	$270,000	$243,000	$27,000
ASOS Relocation	$410,000	$369,000	$41,000
LONG-TERM PROJECTS TOTAL COSTS (2029-Beyond)	**$20,600,000**	**$18,540,000**	**$2,060,000**
TOTAL PROJECT COSTS	**$23,437,778**	**$21,094,000**	**$2,343,778**

*Typical FAA/local split for eligible projects is 90%/10% based on current AIP Legislation
**Long-term projects include design, construction, and environmental

Capital Funding Sources & Programs

Grants provided through the FAA Airport Improvement Program (AIP) are the primary source of funding for public use airports in the federal airport system. **Table 5-1** identifies the typical federal and local share of project costs based on current funding formulas. It is important to note that overall project eligibility for FAA funding does not guarantee availability of funding within the defined 20-year period of the master plan.

FEDERAL FUNDING

The current AIP, reauthorized in 2024, is the latest evolution of a funding program originally authorized by Congress in 1946 as the Federal Aid to Airports Program (FAAP). Other appropriations of AIP funds go to states, general aviation airports, commercial service airports, and for noise compatibility planning. Any remaining AIP funds at the national level are designated as Discretionary funds and may be used by the FAA to fund eligible projects. Discretionary funds are typically used to enhance airport capacity, safety, and/or security and are often directed to specific national priorities such as the recent program to improve runway safety areas. AIP funds can only be used for eligible capital improvement projects and may not be used to support airport operation and maintenance costs. AIP funding for eligible projects is described in FAA Order 5100.38D (Change 1), Airport Improvement Program Handbook.

Funds for the AIP are derived from the Airport and Airway Trust Fund, which is supported by user fees, fuel taxes, and other similar revenue sources. Currently, AIP grants cover 90% of eligible project costs for general aviation airports like the Sanderson Field.

The FAA Reauthorization Act of 2024 extends funding through fiscal year 2028. AIP funding programs for general aviation (GA) airports include:

- AIP General Aviation Non-Primary Entitlement (NPE) Grants: The AIP provides NPE funds for general aviation airports based on fixed amount of $150,000 per year. The NPE funds can be carried over for up to four years, or a maximum of $600,000. Unused NPEs may be “donated” to other GA airports within the state through the Airports District Office (ADO), or the funds revert into a national pot for reallocation among all FAA regions.

- AIP Discretionary Grants: The AIP provides Discretionary funds to airports for projects that have a high federal priority or to enhance safety, security, or capacity. These grants are over and above NPE funding. Discretionary grant amounts can vary significantly compared to NPE and are awarded at the FAA’s sole discretion. Discretionary grant applications are evaluated based on need, the FAA’s project priority ranking system, and the FAA’s assessment of a project’s significance within the national airport and airway system.

- FAA Facilities and Equipment Funds: Additional funds are available under the FAA Facilities and Equipment (F&E) program to purchase navigational aids and air safety-related technical equipment, including Airport Traffic Control Towers (ATCTs) for use at commercial service airports in the National Airport System. Each F&E project is evaluated independently using a cost-benefit analysis to determine funding eligibility and priority ranking. Qualified projects are 100% funded by the FAA, while remaining projects may be eligible for funding through the AIP or other FAA programs. In addition, an airport can apply for NAVAID maintenance funding through the F&E program for those facilities not funded through the F&E program.

FAA funding is limited to projects that have a clearly defined need and are identified through preparation of an FAA approved Airport Layout Plan (ALP). Periodic updates of the ALP are required when new or unanticipated project needs or opportunities exist that require use of FAA funds and to reflect the status of completed projects. The FAA will generally not participate in projects involving vehicle parking, utilities, building renovations, or projects associated with non-aviation development. Projects such as hangar construction or fuel systems are eligible for funding, although the FAA considers these types of projects as a much lower priority than other airfield needs.

Airport sponsors accept obligations (grant assurances) when accepting FAA AIP grants. A summary of the applicable grant assurances is provided in **Appendix F**.

STATE FUNDING

WSDOT Aviation provides an additional source of funding for airport projects in the form of grants through its Airport Aid Grants program. The Aviation Division has established grant criteria for airport sponsors requesting aid to define projects related to pavement, safety, maintenance, security, or planning.

Although Aviation Division funding is distributed widely to general aviation airports throughout the state, predicting any consistent level of funding for purposes of long-term financial planning is not possible. Competition for the limited grant funds is consistently high, with priority often given to airports with limited resources or to airports that are not eligible to receive FAA grants. Project funding is determined on a case-by-case basis and is affected by overall funding levels and competition among airports during any state budget cycle (biennium).

The current maximum grant award through the Aviation Division is $750,000. Due to the volume of grant applications received in any given cycle, large grant awards under this program remain relatively uncommon.

The WSDOT Aviation webpage provides the following information:

"On projects seeking state funds only, the airport sponsor must contribute a minimum 5 percent match of the entire project cost. If the sponsor is able, and would like to contribute a larger match amount, they certainly can and will receive additional points towards their total project application score during WSDOT Aviation's prioritization review of all grant applications.

For projects receiving federal funds, it has been a long-standing practice of the Airport Aid Program to support airports in matching their Airport Improvement Program (AIP) grants. Currently, AIP grants require 10 percent of the project total to come from the airport sponsor. WSDOT supports grants to airports for up to half of their match requirement."

For long-term planning purposes, the local share (10%) of FAA-eligible projects is assumed to be evenly split (5%/5%) between local and state levels in the updated CIP. However, since available funding levels in the state grant program may vary year to year, it is recommended that whenever possible, the Port of Shelton manage its capital program where WSDOT grants are supportive, but not essential to fully fund the local match required for FAA grants.

When WSDOT Aviation Division grant requests are successful, the required Port expenditure (local match) for FAA grants or funding non-FAA eligible projects will be reduced.

Community Aviation Revitalization Loan Program (description provided by WSDOT)

The Community Aviation Revitalization Loan Program was established by EHB 1102 and funded initially with $5 million. The revolving loan program is for revenue-producing capital projects that help public-use general aviation airports become more self-sustainable. The program funds are distributed with the guidance of the Community Aviation Revitalization Board (CARB).

As currently authorized, the program provides loans up to $750,000 at 3% interest to airports with less than 75,000 annual commercial enplanements, as reported to the FAA. Loans can have a maximum 20-year loan period and recipients can opt to have up to a 3-year loan repayment grace period. Loan recipients must commit to providing public access to the airport for a period of time equivalent to one and one-half times the length of the loan. Eligible projects can include hangars, fueling facilities, business parks on airport property, paid parking facilities, passenger amenities, and other revenue-generating or cost-cutting developments that help make the airport more self-sustaining and less dependent on public funding.

State Capital Improvement Program (SCIP)

The FAA's Seattle ADO coordinates its capital improvement programming with state aviation agencies in Washington and Oregon. The coordinated program is known as the "state" capital improvement program, or "SCIP." The SCIP is the primary tool used by FAA, state aviation agencies, and local airport sponsors to prioritize current and near-term future funding decisions through evaluation formulas and ongoing coordination. Airport sponsors provide annual updates to the short-term project lists in order to maintain a current system of defined project needs. For Washington airports, the FAA and WSDOT Aviation schedule annual JPCs with airport sponsors to regularly update the SCIP.

LOCAL FUNDING

The locally funded (Port/tenant) portion of the CIP for the 20-year planning period is estimated to be approximately **$2,343,778**, as currently defined. Hangar and building maintenance have not been included in the FAA share of the CIP, since no FAA funding is assumed. Portions of local matching funds are generated through airport revenues, including land leases and hangar rentals, and may include other capital funds, interfund loans or the issuance of long-term debt (revenue or general obligation bonds). The WSDOT CARB loan program is a similar form of long-term debt available to support eligible projects at Washington GA airports.

CHAPTER 6

Airport Layout Plan

Introduction

This chapter presents the updated 2026 Airport Layout Plan (ALP) for the Sanderson Field Airport (SHN). The ALP documents existing airfield facilities and data, and graphically depicts recommended development for the Airport based on facility needs and forecast demand. The proposed improvements shown on the ALP reflect the preferred alternative selected by Port of Shelton with input provided by the Federal Aviation Administration (FAA), airport stakeholders, airport users, and members of the community. The analyses and findings of the previous chapters provided technical and policy guidance for this plan's outcome, as reflected in the ALP.

The following plans make up the set of drawings commonly referred to as the ALP:

Sheet 1 – Title Sheet

Sheets 2-3 – Airport Data Sheets

Sheet 4 – Airport Layout Plan

Sheet 5 – Terminal Area Plan - North

Sheet 6 – Terminal Area Plan - South

Sheet 7 - Airport Airspace Plan (PART 77)

Sheet 8 – Runway 5 Approach Plan & Profile

Sheet 9 – Runway 23 Approach Plan & Profile

Sheet 10 – Inner Portion Runway 5 Approach Surfaces

Sheet 11 – Inner Portion Runway 23 Approach Surfaces

Sheet 12 – Runway Centerline Profile

Sheet 13 – Runway 5-23 Instrument Departure Surfaces

Sheet 14 – On Airport Land Use

Sheet 15 – Off Airport Land Use

Sheet 16 – Exhibit A – Airport Property Inventory Map

Sheets 17-22 – Airspace Obstruction Data Tables)

A brief summary of the sheets are provided below:

Title Sheet (Sheet 1)

The Title Sheet serves as an introduction to the ALP drawing set. It provides the Airport's location and vicinity maps and an index of the drawings included in the full plan set. The FAA ALP approval letter is embedded on the cover sheet, in lieu of the FAA signing the ALP and Exhibit A drawings.

Airport Data Sheet (Sheet 2 and 3)

The Airport Data Sheets contains existing and future runway/taxiway dimensions and the applicable FAA dimensional standards. All-weather and IFR wind roses, detailed notes for the ALP set, and other data presented in the full drawing set are also provided. Two data sheets are provided due to the volume of FAA-required information for the Airport.

Airport Layout Plan (Sheet 4)

The ALP drawing graphically depicts existing and future airfield facilities. Future facilities are color-coded or otherwise graphically enhanced to distinguish them from existing facilities in both color and monochrome reproduction. Future facilities are represented in the airport master plan's 20-year capital improvement program (CIP) as individual projects or project groupings. Development reserves are depicted for proposed improvements not included in the 20-year CIP.

As noted in the Facility Requirements chapter, the runway at Sanderson Field will require a change in designation (runway numbers) during the current 20-year planning period due to the ongoing change in magnetic variation. Magnetic variation, also known as magnetic declination, represents the difference between true and magnetic north. Runway designations are based on magnetic headings. For example, Runway 5/23 corresponds to 050/230 degrees magnetic (+ or - 5 degrees). Magnetic variation changes based on location on earth and gradually shifts due to the magnetic pull of the earth's poles. A "MAGVAR" change occurs when a runway's magnetic heading moves past the midpoint between the fixed 10-degree increments on a 360-degree compass. For Sanderson Field, the new runway designation is adjusted clockwise to the next 10-degree heading increment based on the direction of magnetic change: Runway 5/23 will become 6/24.

The MAGVAR change at Sanderson Field will require updated runway markings (numbers) and signage, and updates to all aeronautical publications. The current instrument approaches (RNAV GPS) to Runway 5 and Runway 23 and the current **IFR Takeoff Minimums (Obstacle) Departure Procedures, and Diverse Vector Area (Radar Vectors) and IFR Alternate Airport Minimums** will need to be updated and re-commissioned by FAA. This action will require Port coordination well in advance of construction (typically 12 to 24 months), to avoid a temporary loss of procedures due to the extended time required for FAA to process changes to flight procedures.

The ALP depicts the following changes to the existing runway-taxiway system:

- No changes in Runway 5/23 (future 6/24) configuration or dimensions during the current planning period. A runway extension reserve is depicted to preserve the Port's long-term expansion options.
- Reconfigured exit taxiways (A4 and A5) on the north side of the runway to provide 90-degree taxiway exit connections to the runway.
- New partial-length south parallel taxiway (Taxiway C) and two 90-degree exit taxiways (C1 and C3) aligned with Taxiways A1 and A3. Taxiway C will have a 300-foot runway centerline separation.
- A future Precision Obstacle Free Zone (POFZ) and Approach Lighting System (ALS) at the Runway 23 end in conjunction with future precision instrument approach. Precision Instrument Runway (PIR) markings for Runway 23.
- New Aircraft hold areas:
  - Taxiway A (@ Rwy 5 end)
  - Taxiway C (@ Rwy 23 end)

New hangar development is identified in three areas:

- Terminal Area - multi-unit hangars east of Taxiway A1 and existing T-hangars and west of Taxiway A1; infill conventional hangars adjacent to east side of main apron. The future hangars located on the west side of Taxiway A1 requires relocation of the existing ASOS weather station to west, near the closed runway.
- South Development Area (new) - conventional and multi-unit hangars adjacent to east end of runway and future south parallel taxiway section. Relocated vehicle access road connection with Highway 101.
- West Development Area (new, conventional/multi-unit hangar sites adjacent to closed runway).
- Proposed aircraft parking apron improvements:
- Main Apron (existing PCC pavement). Reconfigured aircraft parking positions with ADG II taxilanes and TLOFA clearances. As proposed, 3 medium and 3 large drive-through aircraft parking positions (north and south ends of apron); 23 small airplane tiedowns. Adjacent infill building development area east of apron. Two future helicopter parking pads and two electric aircraft charging stations located adjacent to the south end of the apron with Taxiway A1 access.
- New South Apron. Apron taxilane and aircraft parking configuration with ADG II taxilanes and TLOFA clearances. Dual taxilanes provide access to a center dual-facing parking row. At full build out, 5 drive-through business class aircraft parking positions and 19 small airplane tiedowns are provided. Aircraft fueling area reserve. Adjacent vehicle access and parking, building development area.

Other proposed items:

- Relocate existing ASOS at end of useful life to accommodate future hangar development.
- Property acquisition beyond west end of runway to project inner approach surface, future RPZ (NLT ¾ mile vis.), and reserve runway extension/RPZ.

Terminal Area Plan - North (Sheet 5)

The Terminal Area Plan – North provides additional detail for existing and new facilities in the Airport's main terminal area, located on the north side of Runway 5/23. The drawing focuses on the main apron and fueling area, existing/future hangar areas, and vehicle access & parking.

Two areas of proposed hangar development are located on the east and west sides of the existing east T-hangar area. The future hangars are configured in east-west rows with ADG I/II taxilanes that connect to Taxiway A1. Several hangar development sites are identified east of the main apron that are able to utilize existing taxilane access. Additional vehicle access and parking is proposed directly north of the east hangar expansion area.

Large undeveloped areas of aeronautical and non-aeronautical mixed use lands are located in the eastern section of the terminal area, with frontage on U.S. Highway 101. The areas are located between West Enterprise Road and the highway.

Terminal Area Plan – South (Sheet 6)

The Terminal Area Plan – South provides additional detail about future landside facilities located on the south side of Runway 5/23, near its east end. The drawing focuses on planned hangar sites, aircraft parking apron, an aircraft fueling area, and vehicle access and parking. Future ADG II taxiway, aircraft hold area, and taxilane improvements are depicted.

Airport Airspace Plan (Part 77) (Sheet 7)

Part 77 Airspace drawings depict the protected airspace established for the Airport based on the definitions contained in the Code of Federal Regulations (CFR) Title 14, Part 77 - Safe, Efficient Use, and Preservation of the Navigable Airspace. The airspace plan depicts the five "imaginary surfaces" defined in Part 77.25 including the primary, transitional, approach, horizontal, and conical surfaces, and documented obstacles within each surface. Part 77 surfaces should be free of built or terrain obstructions to the greatest extent possible. Objects that penetrate Part 77 surfaces may require action to mark or remove depending on their severity, location, and the feasibility of the action. The drawing identifies and references obstruction tables (sheets 17-22) with recommended dispositions. The obstacles presented on the drawing are defined (location and elevation) by the AGIS survey data. Notable non-penetrating obstacles captured in the AGIS survey are also listed for reference only.

As noted in the Facility Requirements chapter, the physical characteristics of the Part 77 surfaces are defined by the size of aircraft using the runway and the approach capabilities of the runway. The existing and future definitions for the runway at Sanderson Field are based on the highest approach capabilities on either runway end:

Runway 5/23 (E) – 6/24 (F)

- **Larger than Utility, Non-Precision Instrument Runway (Existing NPI)**
- **Larger than Utility, Precision Instrument Runway (Future PIR)**

The Part 77 Airspace Plan depicts obstacles in the conical, horizontal, transitional, primary and approach surfaces based on the future (or ultimate) runway configuration documented on the ALP. All Part 77 surfaces correspond to an airport elevation of 273 feet above mean sea level (MSL), the high point on the runway (Runway 23 threshold), verified through AGIS survey.

As noted earlier, the number designation for the runway will change during the planning period. However, to avoid confusion, the current runway numbers (5/23) are used in the drawing titles. Existing (E) and future (F) designations are noted on each drawing, as applicable.

Areas of terrain/tree penetration are depicted throughout the horizontal surface and areas within the conical, transitional, and primary surfaces. The obstruction tables with recommended dispositions for all Part 77 surfaces are provided on ALP Sheets 17-22.

The applicable surfaces are summarized below.

Approach Surfaces: Based on planned (future) approach capabilities, Runway 23 has a precision instrument approach surface and Runway 5 has a non-precision approach surface.

The Runway 23 approach surface extends 50,000 feet at a slope of 50:1 and 40:1. The approach surface slope represents the horizontal distance required for each increment of vertical rise. The approach surface begins at the end of the primary surface (273' MSL) and extends vertically 1,200 feet to an elevation of 1,473 feet MSL. The first 10,000 feet of the approach surface has a 50:1 slope, which steepens to 40:1 for the outer 40,000 feet.

The Runway 5 approach surface extends 10,000 feet at a slope of 34:1. The approach surface begins at the end of the primary surface (259' MSL) and extends vertically 294 feet to an elevation of 553 feet MSL.

Primary Surface: The current and future primary surface is 1,000 feet wide and extends 200 feet beyond each end of the runway. This width dimension corresponds to both precision instrument (future) and non-precision instrument runways with visibility minimums as low as ¾ of a mile (existing) for larger than utility runways. The

primary surface is a flat plane of airspace centered on the runway, with the same elevation as the nearest point on the runway centerline. Surveyed penetrating and non-penetrating obstacles located in the primary surface are depicted on Sheet 8.

Transitional Surface: The Transitional surface extends outward and upward from the outer edges of the runway primary surface. The transitional surface has a slope of 7:1 and extend upwards to an elevation of 150 feet above airfield elevation, where it connects to the horizontal surface. Surveyed penetrating and non-penetrating obstacles located in the transitional surface are depicted on Sheet 8.

Horizontal Surface: The horizontal surface is drawn from 10,000-foot radii that extend from both ends of the Runway 5/23 primary surface to form an oval. The surface is a flat plane of airspace established 150 feet above the airfield, at an elevation of 423 feet MSL.

Conical Surface: The conical surface extends outward and upward from the outer edge of the horizontal surface at a slope of 20:1 for 4,000 feet. The surface begins as 423 feet MSL and extends to 623 feet MSL, which is 350 feet above the airport elevation.

In addition to the Part 77 approach surfaces, both runway ends have 20:1 Approach Protection Surfaces defined in FAA AC 150/5300-13B. These surfaces are design tools intended to mitigate close-in obstructions to the (non-modifiable) Part 77 approach surfaces defined in 14 CFR, Part 77. The "5300-13B" surfaces were previously defined by FAA as obstacle clearance surfaces (OCS) or threshold siting surfaces (TSS).

Approach Plan & Profile - Runway 5 and Runway 23 (Inner Portion) (Sheet 8)

The Approach Surface Plan and Profile drawing depicts detailed views of the existing/future approach surface and the approach protection surface for both runways. The full length of the Runway 5 surfaces are depicted on this sheet. Only the inner portions of the Runway 23 surfaces are depicted on this sheet; the outer portions of the surfaces are depicted on Sheet 9.

This drawing identifies penetrating obstacles and non-penetrating obstacles (provided for reference only) for the approach surfaces and the adjacent primary and transitional surfaces. For Runway 5, the 34:1 Part 77 approach and the 20:1 Type 4 approach protection surfaces (AC 150/5300-13B) are depicted. For Runway 23, the inner portion of the future 50:1/40:1 Part 77 approach and 30:1 Type 6 approach protection surfaces is depicted. The Type 4 approach protection surfaces and the Part 77 approach surfaces begin 200 feet beyond the runway ends. The Type 6 approach protection surface begins at the runway end.

Runway 23 Approach Plan & Profile (Sheet 9)

The Approach Surface Plan and Profile drawing depicts detailed views of the outer portions of the existing/future approach surface and the approach protection surface for Runway 23. No penetrating obstacles and non-penetrating obstacles are identified for this section of the approach surfaces.

Inner Portion Runway 5 and Runway 23 Approach Surfaces (Sheets 10 and 11)

The Inner Approach Surface drawings depict detailed plan and profile views from the inner portion approach surfaces for the existing/future runway ends to a position where the surface is 100 feet above the runway end. The drawing provides additional details on identifying obstructions, terrain, and other physical features within the approach surfaces, and identifies the obstructions using the numbering identifiers from the Part 77 Airspace Plan drawing. The existing/future 20:1 or 30:1 approach protection surfaces (AC 150/5300-13B) for both runway ends are also depicted for reference.

Runway Centerline Profile (Sheet 12)

The Runway Centerline Profile drawing depicts a detailed plan and profile views for the existing/future Runway 5/23 (6/24). The drawing depicts line of sight reference and elevation changes at intervals with a line depicting line of site between each runway end.

Runway 5/23 Instrument Departure Surface (Sheet 13)

The Departure Surface drawing is derived from the FAA Terminal Instrument Procedures (TERPS – FAA Order 8260.3G) and depicts plan and profile views of the departure surface and associated obstacles. The FAA designs instrument departure procedures for airports based on the ability of aircraft to safely climb on departure without visual reference above nearby terrain, as they depart the terminal airspace and transition to enroute airspace.

Runway departure surfaces are defined by FAA in AC 150/5300-13B – Airport Design, Change 1. The departure surfaces originate at the opposite runway end from takeoff, and extend for 12,152 feet at a slope of 40:1 (overall rise: 303.8'). Instrument departures are authorized from both runway ends. Numerous obstacles are depicted for both departure surfaces. The published instrument departure procedures for both runway ends require a minimum rate of climb (Rwy 5: 312 feet per nautical mile; Rwy 23: 414 feet per nautical mile) to clear charted obstacles.

On-Airport Land Use (Sheet 14)

The On-Airport Land Use Plan depicts land use categories common to general aviation airports:

- **Aeronautical Development** (aviation related development; hangars, aircraft parking, etc.)
- **Aeronautical Compatible Non-Aviation Facilities** (development that is compatible with the airfield's aeronautical facilities)
- **Airport Operations Protected Area** (runways, taxiways, protected areas, and portions of runway approach surfaces located on airport property)
- **Runway Protection Zone** (defined surfaces at runway ends)

Other land uses include open space and revenue support (aviation and non-aviation). The existing RPZs for Runway 5/23, and the future RPZ for Runway 23, are located entirely on airport property. Small portions of the future RPZ for Runway 5 extend off airport property and are identified for both future avigation easements and property acquisition (fee simple).

The land use classifications are consistent with the ALP drawing and reflect both existing and future facilities. The airport operations areas and RPZs are intended to protect the function of the runway-taxiway system. All aircraft parking and hangar development is located in aeronautical development areas.

Off-Airport Land Use (Sheet 15)

The Off-Airport Land Use Plan depicts current zoning for Sanderson Field and surrounding areas, including areas under the Airport's visual flight rules (VFR) traffic patterns. Mason County has land use jurisdiction for the Airport and areas surrounding Sanderson Field to the north, west and south. Mason County zoning designations depicted on this drawing are from the Mason County Code (Chapter 17), which defines zoning districts and mapping. Large areas of City of Shelton zoning (Chapter 20) are depicted east south of the Airport. The land use surrounding the Airport consist of a combination of rural and suburban densities. Sanderson Field is zoned airport industrial. Areas of neighborhood residential, industrial, and commercial/industrial are directly adjacent to the Airport.

Exhibit A – Airport Property Inventory Map (Sheet 16)

The Exhibit A Property Inventory Map depicts all property owned or controlled by the Port of Shelton as part of the Airport. The Exhibit A drawing notes the form of ownership or control for all airport land (fee simple, easement, etc.) and the date of acquisition, per FAA guidelines. Total airport acreage is currently 1,012 acres. Approximately 55 acres of future property acquisition is depicted on the ALP in the vicinity of the Runway 5 approach and RPZ.

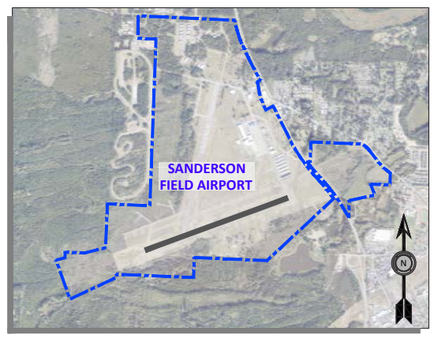
Airspace Obstruction Data Tables (Sheets 17-22)

The obstacles depicted on several drawings in the ALP set are listed in tabular form on five separate drawings. The listed obstructions are organized by their respective Part 77 surface category. Each listed obstacle has location and elevation information, and a proposed disposition as identified on Sheets 17-22.

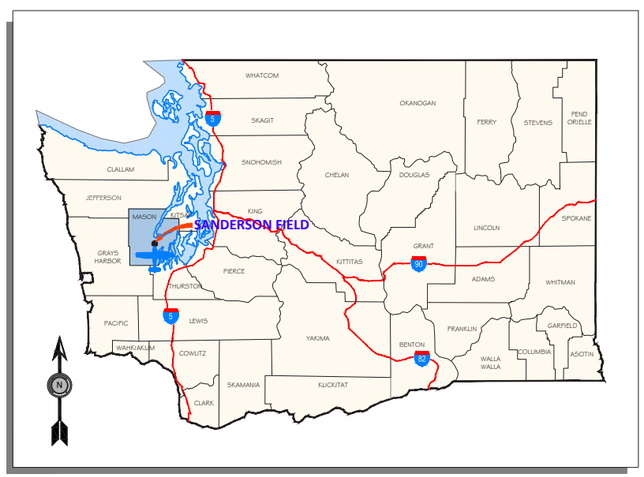
SANDERSON FIELD AIRPORT (SHN)
AIRPORT LAYOUT PLAN

SHELTON, WASHINGTON
AIP NO. 3-41-0069-20-2024
JUNE 2026

LOCATION MAP



VICINITY MAP



STATE MAP

SHEET INDEX

NUMBER	REV. DATE	CONTENTS
1		TITLE SHEET
2		AIRPORT DATA SHEET
3		AIRPORT DATA SHEET
4		AIRPORT LAYOUT PLAN
5		TERMINAL AREA PLAN - NORTH
6		TERMINAL AREA PLAN - SOUTH
7		AIRPORT AIRSPACE PLAN (PART 77)
8		RUNWAY 5 APPROACH & RUNWAY 23 INNER APPROACH PLAN & PROFILE
9		RUNWAY 23 OUTER APPROACH PLAN & PROFILE
10		INNER PORTION RUNWAY 5 APPROACH SURFACES
11		INNER PORTION RUNWAY 23 APPROACH SURFACES
12		RUNWAY CENTERLINE PROFILE
13		RUNWAY 5-23 INSTRUMENT DEPARTURE SURFACE
14		ON AIRPORT LAND USE PLAN
15		OFF AIRPORT LAND USE PLAN
16		EXHIBIT A - AIRPORT PROPERTY INVENTORY MAP
17		AIRSPACE OBSTRUCTION DATA TABLES
18		AIRSPACE OBSTRUCTION DATA TABLES
19		AIRSPACE OBSTRUCTION DATA TABLES
20		AIRSPACE OBSTRUCTION DATA TABLES
21		AIRSPACE OBSTRUCTION DATA TABLES
22		AIRSPACE OBSTRUCTION DATA TABLES

FAA APPROVAL LETTER

DRAFT

"THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-41-0069-20-2024) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NO.	DATE	BY	APPR	REVISIONS

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING.
0" 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

FEDERAL AVIATION ADMINISTRATION APPROVAL

APPROVAL DATE: _____

SIGNATURE

PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD AIRPORT

TITLE SHEET

FIGURE NO.

SHEET NO. 1 OF 22

AIRPORT DATA

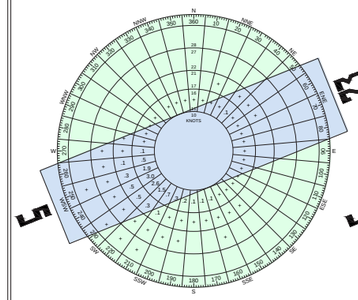
		EXISTING (E)	FUTURE (F)
AIRPORT IDENTIFIER		KSHN	SAME
MEAN MAX TEMPURATURE		78° (F)	SAME
AIRPORT ELEVATION		273.04'	SAME
AIRPORT ACREAGE		1,012	1,067
NAVAIDS		NDB, GPS	SAME
AIRPORT REFERENCE POINT	LAT.	N 47° 14' 00.81"	SAME
	LONG.	W 123° 08' 51.17"	SAME
MISCELLANEOUS FACILITIES		SEE NOTE 3	
MAGNETIC DECLINATION ✱		15° 4' E ± 0° 22'	0° 7' W ANNUALLY
NIPIAS SERVICE LEVEL		GENERAL AVIATION	SAME
STATE SERVICE LEVEL		REGIONAL	SAME

✱ NATIONAL GEODETIC SURVEY MAGNETIC DECLINATION CALCULATOR (HTTPS://WWW.NGDC.NOAA.GOV/GEOMAG/CALCULATORS/MAGCALC.SHTML) ACCESSED ON JANUARY 29, 2026

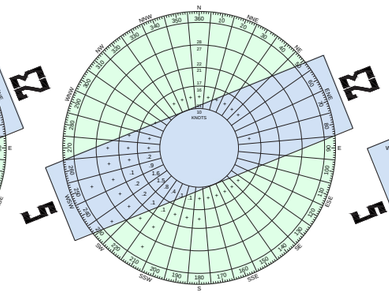
RUNWAY 5-23 (E) / 6-24 (F) DATA

		EXISTING (E)	FUTURE (F)
RUNWAY IDENTIFICATION		5-23	6-24 (SEE NOTE 6)
(SEE NOTE 4)	5	LARGER THAN UTILITY	SAME
(SEE NOTE 4)	23	LARGER THAN UTILITY	SAME
RUNWAY DESIGN CODE (RDC) / RUNWAY REFERENCE CODE (RRC)		B/II/4000	B/II/2400
APPROACH REFERENCE CODE (APRC)		D/V/4000 - D/VI/4000	D/V/4000 - D/VI/4000 & B/II/2400
DEPARTURE REFERENCE CODE (DPRC)		D/VI	B/III - D/II
CRITICAL AIRCRAFT		BEECHCRAFT KINGAIR 300	SAME
RUNWAY PAVEMENT TYPE		ASPHALT	SAME
PAVEMENT STRENGTH (IN 1000 LBS)		S-55 / D-72 / DT-130	SAME
PAVEMENT CONDITION INDEX (PCI)		100 GOOD (2024)	N/A
PAVEMENT CLASSIFICATION NUMBER (PCN)		17	SAME
RUNWAY SURFACE TREATMENT		NONE	SAME
RUNWAY PERCENT GRADIENT / MAXIMUM GRADE (SEE NOTE 5)		0.29%	SAME
PERCENT WIND COVERAGE		SEE WIND ROSE	
RUNWAY DIMENSIONS LENGTH AND WIDTH		5005' X 100'	SAME
DISPLACED THRESHOLD		N/A	SAME
DISPLACED THRESHOLD ELEVATION		N/A	SAME
DISPLACED THRESHOLD COORDINATES	LAT.	N/A	SAME
	LONG.	N/A	SAME
RUNWAY END COORDINATES	5	N47° 13' 51.52" W123° 09' 24.77"	SAME
	23	N47° 14' 10.10" W123° 08' 17.56"	SAME
RUNWAY END ELEVATIONS	5	258.57'	SAME
	23	272.87'	SAME
RUNWAY LIGHTING		MIRL	SAME
RUNWAY MARKING		NON-PRECISION	NON-PRECISION(6) - PRECISION(24)
14 CFR PART 77 RUNWAY CATEGORY	5	NON-PRECISION INSTRUMENT	NON-PRECISION INSTRUMENT
	23	NON-PRECISION INSTRUMENT	PRECISION INSTRUMENT
RUNWAY PROTECTION ZONE		SEE RUNWAY 5/23(E) - 6/24(F) (FAA STANDARDS) TABLE	
RUNWAY APPROACH SLOPE		34:1 (5) / 50:1 - 40:1 (23)	SAME
APPROACH VISIBILITY MINIMUMS	5	NOT LOWER THAN 1 MILE	NOT LOWER THAN 3/4 MILE
	23	NOT LOWER THAN 3/4 MILE	LOWER THAN 3/4 MILE
AERONAUTICAL SURVEY REQUIRED		VERTICALLY GUIDED	SAME
RUNWAY DEPARTURE SURFACE		YES (TERPS 40:1)	SAME
RUNWAY SAFETY AREA - RSA		SEE RUNWAY DESIGN SURFACES TABLE (SHEET 3)	
RUNWAY OBJECT FREE AREA - OFA			
RUNWAY OBSTACLE FREE ZONE - OFZ			
THRESHOLD SITING SURFACE - TSS		SEE NOTE 7	
THRESHOLD SITING SURFACE PENETRATIONS			
APPROACH PROTECTION SURFACES (SEE NOTE 10)	5	SURFACE 4	SAME
	23	SURFACE 4	SURFACE 6
APPROACH PROTECTION SURFACES PENETRATIONS		YES	SAME
RUNWAY VISUAL AND INSTRUMENT NAVAIDS		PAPI(23), REIL(23), MIRL	SAME; MALS-R(24)
TOUCHDOWN ZONE ELEVATION (TDZE)	5	269.71'	SAME
	23	273.04'	SAME
TAXIWAY AND TAXILANE SAFETY AREA -TSA		SEE TAXIWAY/TAXILANE DATA TABLE (SHEET 3)	
TAXIWAY AND TAXILANE OBJECT FREE AREA - TOFA			
TAXIWAY AND TAXILANE SEPARATION			
TAXIWAY AND TAXILANE LIGHTING		MITL	MITL
VERTICAL DATUM		NAD88	SAME
HORIZONTAL DATUM		NAVD83	SAME

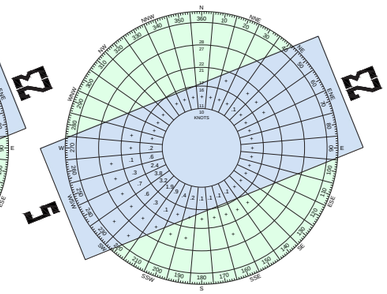
WIND DATA



ALL WEATHER WIND ROSE



IFR WIND ROSE



VFR WIND ROSE

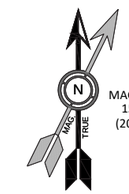
SOURCE:
FAA AIRPORT DATA AND INFORMATION PORTAL
STATION 727925 SANDERSON FIELD AIRPORT
PERIOD OF OBSERVATIONS : 2014-2023
NUMBER OF OBSERVATIONS : 143,726
(RWY 5-23 APPROACH MINS. NOT LOWER THAN 1-MILE)

RUNWAY 5-23 WIND COVERAGE

RUNWAY ALIGNMENT	CROSSWIND COMP. (KNOTS)	ALL-WEATHER WIND COVERAGE	IFR WIND COVERAGE	VFR WIND COVERAGE
RUNWAY 5	10.5	50.33%	60.78%	44.92%
	13	50.38%	60.81%	44.99%
	16	50.43%	60.82%	45.05%
RUNWAY 23	10.5	81.05%	81.55%	80.85%
	13	81.52%	81.79%	81.42%
	16	81.74%	0.82%	81.69%
COMBINED 5-23	10.5	99.15%	99.59%	98.95%
	13	99.67%	99.85%	99.59%
	16	99.94%	99.97%	99.92%

NOTES

1. NATIONAL GEODETIC SURVEY MAGNETIC DECLINATION CALCULATOR (HTTPS://WWW.NGDC.NOAA.GOV/GEOMAG/CALCULATORS/MAGCALC.SHTML) ACCESSED ON JANUARY 29, 2026.
2. AGIS SURVEY - 2025, PROVIDED RUNWAY END COORDINATES AND ELEVATIONS.
3. SEE SHEET 3FOR MISCELLANEOUS FACILITIES LIST.
4. PER FAA CHECKLIST DESIGNATION IS BASED ON PAVEMENT STRENGTH.
5. THE RUNWAY LONGITUDINAL GRADIENT COMPLIES WITH APPLICABLE LINE-OF-SIGHT REQUIREMENTS.
6. FUTURE RUNWAY DESIGNATION TO BE CHANGE TO 6-24 DUE TO ONGOING CHANGE IN MAGNETIC DECLINATION.
7. THRESHOLD SITING IS SHOWN ON SHEETS 8-11, WITH ASSOCIATED OBSTRUCTIONS LISTED ON SHEETS 17-22.
8. EXISTING NORTH PARALLEL TAXIWAY SEPARATION (500') CORRESPONDS TO D/V/4000 - D/VI/4000 APRC, FUTURE SOUTH PARALLEL TAXIWAY SEPARATION (300') CORRESPONDS TO B/II/2400 APRC, PER FAA GUIDELINES (5300-13B, CHANGE 1. TABLE L-1)
9. EXISTING NORTH PARALLEL TAXIWAY SEPARATION (500') CORRESPONDS TO DPRC D/VI, FUTURE SOUTH PARALLEL TAXIWAY SEPARATION (300') CORRESPONDS TO DPRC B/III - D/II.
10. APPROACH AND DEPARTURE SURFACES DEFINED BY FAA AC 150/5300-13B CHANGE 1. THESE SURFACES MAY / MAY NOT DUPLICATE THE PART 77 AND TERPS AIRSPACE SURFACES DEFINED FOR THE RUNWAY.
11. ALL COORDINATES REFERENCED IN THIS DOCUMENT ARE BASED ON THE NORTH AMERICAN DATUM OF NAD83, AND ALL ELEVATIONS REFERENCED IN THIS DOCUMENT ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF NAD88.



MAGNETIC DEC.
15° 4' EAST
(2026 VALUE)

DECLARED DISTANCES

	EXISTING (E)		FUTURE (F)	
	RWY 5	RWY 23	RWY 6	RWY 24
TORA	5005'	5005'	5005'	5005'
TODA	5005'	5005'	5005'	5005'
ASDA	5005'	5005'	5005'	5005'
LDA	5005'	5005'	5005'	5005'

DRAFT

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NO.	DATE	BY	APPR	REVISIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING.
0" 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

FEDERAL AVIATION ADMINISTRATION APPROVAL
APPROVAL DATE: _____
SIGNATURE

PORT OF SHELTON APPROVAL
APPROVAL DATE: _____
SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRPORT DATA SHEET

FIGURE NO.

SHEET NO.
2 OF 22

RUNWAY 5-23(E) - 6-24(F) DESIGN SURFACES

	EXISTING CONDITIONS	EXISTING STANDARD	FUTURE CONDITIONS	FUTURE STANDARD
RUNWAY SAFETY AREA LENGTH AND WIDTH LENGTH BEYOND RUNWAY END	5,605' X 150' 300'	5,605' X 150' 300'	6,205' X 300' 600'	6,205' X 300' 600'
OBJECT FREE AREA LENGTH AND WIDTH LENGTH BEYOND RUNWAY END	5,605' X 500' 300'	5,605' X 500' 300'	6,205' X 800' 600'	6,205' X 800' 600'
OBSTACLE FREE ZONE LENGTH AND WIDTH LENGTH BEYOND RUNWAY END	5,405' X 400' 200'	5,405' X 400' 200'	5,405' X 400' 200'	5,405' X 400' 200'

MISCELLANEOUS FACILITIES LIST

NAVIGATIONAL AID	OWNERSHIP
AIRPORT BEACON	PORT
LIGHTED WIND CONE AND SEGMENTED CIRCLE	PORT
ASOS	PORT
MIRL (RUNWAY 5/23)	PORT
REIL	PORT
PAPI (P4L)	FAA

RUNWAY 5-23(E) - 6-24(F) (FAA STANDARDS)

RUNWAY PROTECTION ZONE (RPZ)			
	INNER WIDTH	LENGTH	OUTER WIDTH
EXISTING RWY 5 (APPR.)	500'	1,000'	700'
EXISTING RWY 23 (APPR.)	1,000'	1,700'	1,510'
EXISTING RWY 5 (DEPART.)	500'	1,000'	700'
EXISTING RWY 23 (DEPART.)	500'	1,000'	700'
FUTURE RWY 5 (APPR.)	1,000'	1,700'	1,510'
FUTURE RWY 23 (APPR.)	1,000'	2,500'	1,750'
FUTURE RWY 5 (DEPART.)	500'	1,000'	700'
FUTURE RWY 23 (DEPART.)	500'	1,000'	700'

MODIFICATION TO DESIGN STANDARDS

APPROVAL DATE	CASE NUMBER	MODIFICATION	DESCRIPTION
"NONE REQUIRED"			

NON STANDARD CONDITIONS

NO.	ITEM	DESCRIPTION	DISPOSITION
A	TAXILANE OFA	VARIOUS EXISTING T-HANGAR TAXILANES HAVE LESS THAN STANDARD TLOFA CLEARANCE OF 68'-74'	RECONFIGURE HANGARS AND/OR TAXILANES AT END OF USEFUL LIFE TO MEET STANDARD
B	TAXIWAY OFA	FIRE HYDRANTS WITHIN TAXIWAY OBJECT FREE AND TAXIWAY SAFETY AREAS	REPLACE / RELOCATE HYDRANTS TO ELIMINATE TAXIWAY OBJECT FREE AREA AND TAXIWAY SAFETY AREA PENETRATION

TAXIWAY/TAXILANE DATA TABLE

	CURRENT CONDITIONS	CURRENT / FUTURE STANDARD
TAXIWAY A / A1		ADG II / TDG 2A
TAXIWAY WIDTH	50'	35'
TAXIWAY SHOULDER WIDTH	15'	15'
TSA WIDTH	79'	79'
TOFA WIDTH	124'	124'
TAXIWAY SEPARATION FIXED OR MOVEABLE OBJECT	62'	62'
TAXIWAY EDGE SAFETY MARGIN	7.5'	7.5'
TAXIWAY B		ADG II / TDG 2A
TAXIWAY WIDTH	50'	35'
TAXIWAY SHOULDER WIDTH	15'	15'
TSA WIDTH	79'	79'
TOFA WIDTH	124'	124'
TAXIWAY SEPARATION FIXED OR MOVEABLE OBJECT	62'	62'
TAXIWAY EDGE SAFETY MARGIN	7.5'	7.5'
TAXILANE WIDTHS	20' - 32'	25' & 35'
TAXILANE OBJECT FREE AREA	VARIES	79' & 110'
TAXILANE SEPARATION	39.5' & 55'	39.5' & 55'
TAXIWAY MARKING	BASIC	SAME

APRON DIMENSIONS

	SQUARE FOOTAGE APPROX.
APRON EXISTING	329,401
APRON FUTURE	676,232

LEGEND

	EXISTING (E)	FUTURE (F)
BUILDINGS / HANGAR SITES		
BUILDINGS - OFF AIRPORT		N/A
RUNWAY/AIRFIELD PAVEMENT		
AIRFIELD PAVEMENT PHASE II	N/A	
RUNWAY/AIRFIELD PAVEMENT RESERVE	N/A	
BUILDING RESTRICTION LINE (BRL)	BRL (E)	SAME
AIRPORT PROPERTY LINE		
RUNWAY SAFETY AREA (RSA)		
OBJECT FREE AREA (OFA)		
OBSTACLE FREE ZONE (OFZ)		
APPROACH SURFACE		SAME
TAXIWAY SAFETY AREA (TSA)		
TAXIWAY/TAXILANE OBJECT FREE AREA (TOFA)		
RUNWAY PROTECTION ZONE (RPZ)		
AIRPORT REFERENCE POINT (ARP)		SAME
VISUAL GUIDANCE INDICATOR	(PAPI)	SAME
GROUND CONTOURS	100	N/A
GATES		
ACCESS ROAD		
FUEL TANKS		SAME
AIRCRAFT CHARGING STATION	N/A	
FENCE	x x x	xx xx xx
THRESHOLD LIGHTS		SAME
AIRCRAFT PARKING AREA / TIEDOWNS		
RUNWAY LIGHTS		SAME
TAXIWAY LIGHTS		
TAXIWAY MARKING		
RUNWAY MARKING		
AVIGATION EASEMENT	N/A	
TREE / PLANT / BUSH LINE		SAME
REIL		SAME
VEHICLE PARKING	N/A	
WATER / STREAM		SAME
BEACON		SAME
TAXIWAY EDGE SAFETY MARGIN (TESM)		
AUTOMATED WEATHER OBS. SYSTEM (ASOS)		
PAVEMENT TO BE REMOVED		N/A
MARKING TO BE REMOVED		N/A
FENCING / GATE TO BE REMOVED	x x	N/A
PRECISION OBSTACLE FREE ZONE (POFZ)	N/A	
NON-AVIATION AREA		SAME
FIRE HYDRANT		SAME
MALSR	N/A	
PROPERTY ACQUISITION	N/A	
SEGMENTED CIRCLE / WIND INDICATOR		SAME

DRAFT

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NO.	DATE	BY	APPR	REVISIONS

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FEDERAL AVIATION ADMINISTRATION APPROVAL

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PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRPORT DATA SHEET

FIGURE NO.

SHEET NO. 3 OF 22

BUILDING / FACILITY KEY

NO.	DESCRIPTION	TOP ELEV.	NO.	DESCRIPTION	TOP ELEV.
1	COMMERCIAL / INDUSTRIAL	319.7'	29	COMMERCIAL / INDUSTRIAL	286.0'
2	COMMERCIAL / INDUSTRIAL	320.0'	30	COMMERCIAL / INDUSTRIAL	286.0'
3	COMMERCIAL / INDUSTRIAL	315.6'	31	NOT USED	N/A
4	COMMERCIAL / INDUSTRIAL	319.6'	32	AIRPLANE HANGAR	297.6'
5	COMMERCIAL / INDUSTRIAL	319.7'	33	AIRPLANE HANGAR	304.9'
6	COMMERCIAL / INDUSTRIAL	320.1'	34	AIRPLANE HANGAR	290.6'
7	COMMERCIAL / INDUSTRIAL	319.4'	35	AIRPLANE HANGAR	294.9'
8	COMMERCIAL / INDUSTRIAL	319.5'	36	AIRPLANE HANGAR	288.1'
9	COMMERCIAL / INDUSTRIAL	319.4'	37	AIRPLANE HANGAR	288.1'
10	COMMERCIAL / INDUSTRIAL	308.9'	38	AIRPLANE HANGAR	303.3'
11	COMMERCIAL / INDUSTRIAL	312.5'	39	AIRPLANE HANGARS	289' - 294'
12	COMMERCIAL / INDUSTRIAL	322.0'	40	PORT OF SHELTON (ADMIN.)	300.2
13	COMMERCIAL / INDUSTRIAL	319.3'	41	AIRPLANE HANGAR	298.5'
14	COMMERCIAL / INDUSTRIAL	303.6'	42	SEGMENTED CIRCLE (E)	292.9'
15	COMMERCIAL / INDUSTRIAL	308.3'	43	PARACHUTE DROP ZONE (E)	275.7'
16	COMMERCIAL / INDUSTRIAL	312.0'	44	FUEL TANKS (E)	287.5'
17	COMMERCIAL / INDUSTRIAL	322.4'	45	BEACON (E)	469.7'
18	COMMERCIAL / INDUSTRIAL	321.2'	46	ASOS (E)	312.5'
19	COMMERCIAL / INDUSTRIAL	309.7'	47	ASOS (F)	N/A
20	COMMERCIAL / INDUSTRIAL	299.6'	48	AIRCRAFT CHARGE STATIONS (F)	N/A
21	COMMERCIAL / INDUSTRIAL	295.7'	49	WSP TRAINING FACILITY	N/A
22	COMMERCIAL / INDUSTRIAL	298.1'	50	BUILDINGS / HANGAR SITES (F)	N/A
23	COMMERCIAL / INDUSTRIAL	292.6'	51	HELICOPTER PARKING (F)	N/A
24	COMMERCIAL / INDUSTRIAL	301.8'	52	FUEL (F)	N/A
25	COMMERCIAL / INDUSTRIAL	296.8'	53	VEHICLE PARKING (E)	N/A
26	COMMERCIAL / INDUSTRIAL	296.8'	54	VEHICLE PARKING (F)	N/A
27	COMMERCIAL / INDUSTRIAL	294.0'	55	COMMERCIAL / INDUSTRIAL	N/A
28	COMMERCIAL / INDUSTRIAL	N/A			

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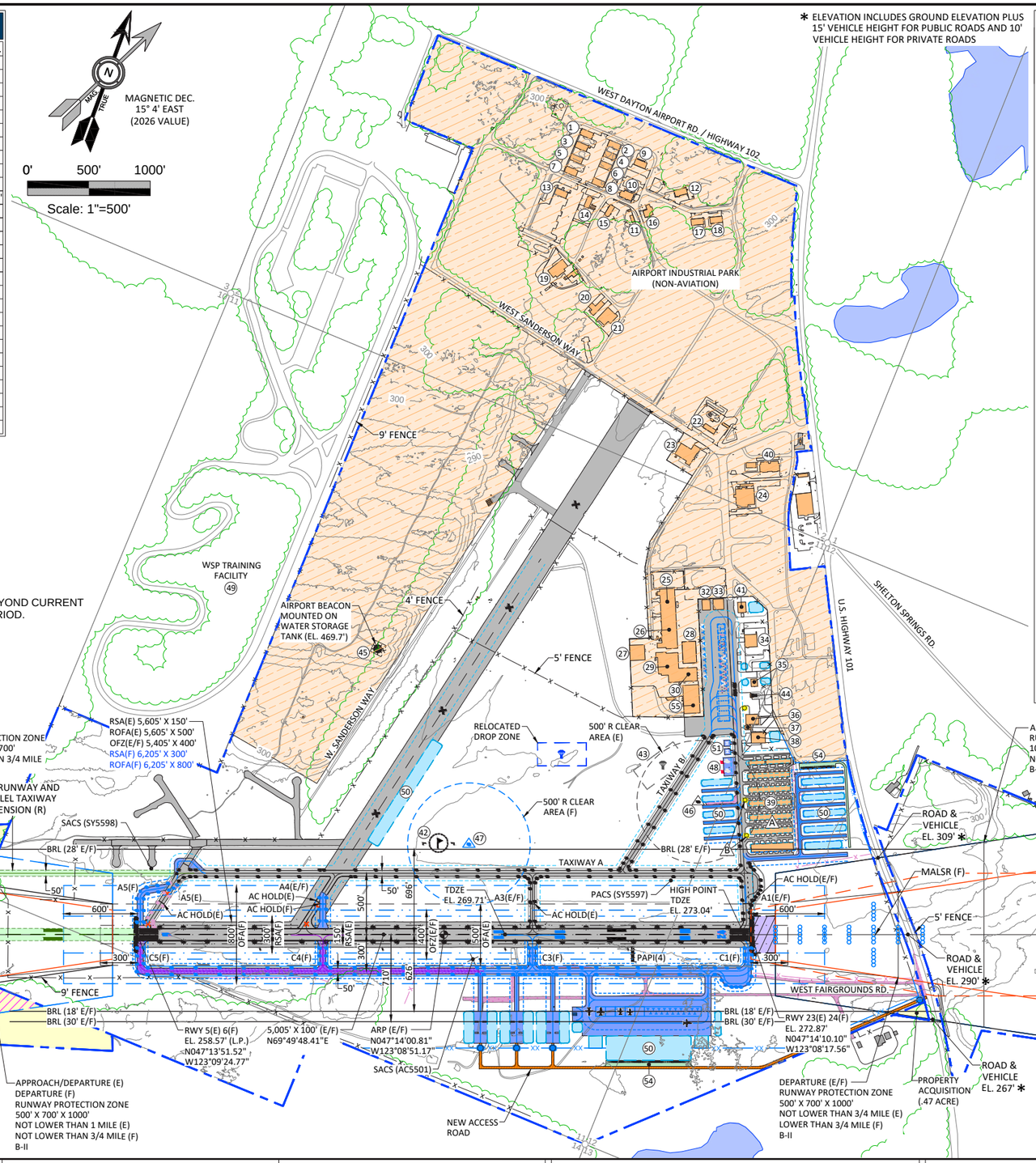
NOTES:

1. DATE OF AGIS OBSTRUCTION SURVEY: 2025
2. FUTURE RUNWAY 5-23 TO BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.
3. ⚠ REFER TO NON STANDARD CONDITIONS TABLE ON SHEET 3.
4. RESERVE (R) ITEMS BEYOND CURRENT 20-YEAR PLANNING PERIOD.



LEGEND

	EXISTING (E)	FUTURE (F)
BUILDINGS / HANGAR SITES		
BUILDINGS - OFF AIRPORT		N/A
RUNWAY/AIRFIELD PAVEMENT		
AIRFIELD PAVEMENT PHASE II	N/A	
RUNWAY/AIRFIELD PAVEMENT RESERVE	N/A	
BUILDING RESTRICTION LINE (BRL)	BRL (E)	SAME
AIRPORT PROPERTY LINE		
RUNWAY SAFETY AREA (RSA)		
OBJECT FREE AREA (OFA)		
OBSTACLE FREE ZONE (OFZ)		
APPROACH SURFACE		SAME
TAXIWAY SAFETY AREA (TSA)		
TAXIWAY/TAXILANE OBJECT FREE AREA (TOFA)		
RUNWAY PROTECTION ZONE (RPZ)		
AIRPORT REFERENCE POINT (ARP)		SAME
VISUAL GUIDANCE INDICATOR	(PAPI)	SAME
GROUND CONTOURS	100	N/A
GATES		
ACCESS ROAD		
FUEL TANKS		SAME
AIRCRAFT CHARGING STATION	N/A	
FENCE	x x x	xx xx xx
THRESHOLD LIGHTS		SAME
AIRCRAFT PARKING AREA / TIEDOWNS		
RUNWAY LIGHTS		SAME
TAXIWAY LIGHTS		
TAXIWAY MARKING		
RUNWAY MARKING		
AVIGATION EASEMENT	N/A	
TREE / PLANT / BUSH LINE		SAME
REIL		SAME
VEHICLE PARKING	N/A	
WATER / STREAM		SAME
BEACON		SAME
TAXIWAY EDGE SAFETY MARGIN (TESM)		
AUTOMATED WEATHER OBS. SYSTEM (ASOS)		
PAVEMENT TO BE REMOVED		N/A
MARKING TO BE REMOVED		N/A
FENCING / GATE TO BE REMOVED	x x	N/A
PRECISION OBSTACLE FREE ZONE (POFZ)	N/A	
NON-AVIATION AREA		SAME
FIRE HYDRANT		SAME
MALSR	N/A	
PROPERTY ACQUISITION	N/A	
SEGMENTED CIRCLE / WIND INDICATOR		SAME

NO.	DATE	BY	APPR	REVISIONS

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APPROVAL DATE: _____
SIGNATURE

PORT OF SHELTON APPROVAL
APPROVAL DATE: _____
SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRPORT LAYOUT PLAN

FIGURE NO.

SHEET NO. 4 OF 22

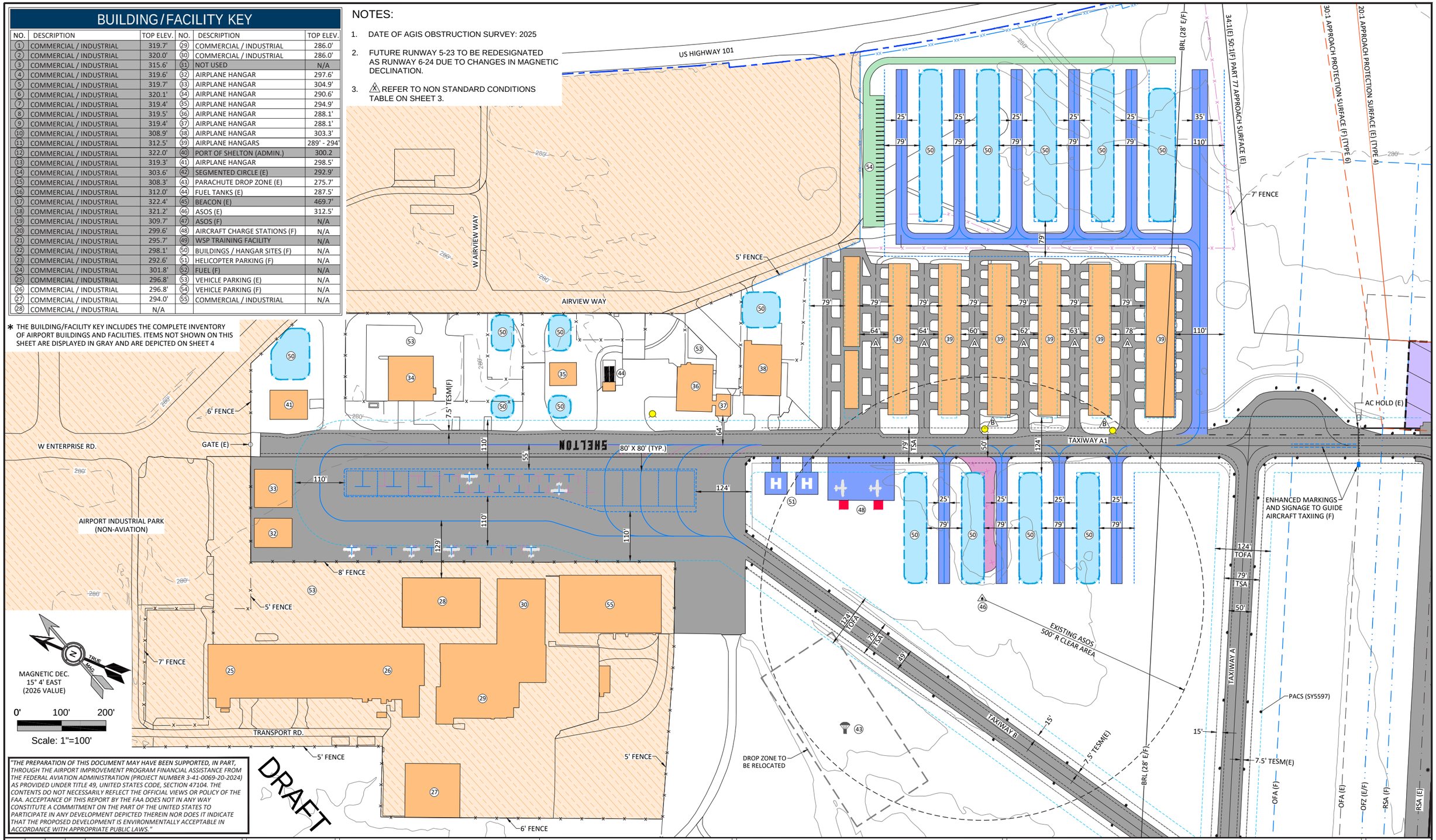
BUILDING/FACILITY KEY

NO.	DESCRIPTION	TOP ELEV.	NO.	DESCRIPTION	TOP ELEV.
1	COMMERCIAL / INDUSTRIAL	319.7'	29	COMMERCIAL / INDUSTRIAL	286.0'
2	COMMERCIAL / INDUSTRIAL	320.0'	30	COMMERCIAL / INDUSTRIAL	286.0'
3	COMMERCIAL / INDUSTRIAL	315.6'	31	NOT USED	N/A
4	COMMERCIAL / INDUSTRIAL	319.6'	32	AIRPLANE HANGAR	297.6'
5	COMMERCIAL / INDUSTRIAL	319.7'	33	AIRPLANE HANGAR	304.9'
6	COMMERCIAL / INDUSTRIAL	320.1'	34	AIRPLANE HANGAR	290.6'
7	COMMERCIAL / INDUSTRIAL	319.4'	35	AIRPLANE HANGAR	294.9'
8	COMMERCIAL / INDUSTRIAL	319.5'	36	AIRPLANE HANGAR	288.1'
9	COMMERCIAL / INDUSTRIAL	319.4'	37	AIRPLANE HANGAR	288.1'
10	COMMERCIAL / INDUSTRIAL	308.9'	38	AIRPLANE HANGAR	303.3'
11	COMMERCIAL / INDUSTRIAL	312.5'	39	AIRPLANE HANGARS	289' - 294'
12	COMMERCIAL / INDUSTRIAL	322.0'	40	PORT OF SHELTON (ADMIN.)	300.2
13	COMMERCIAL / INDUSTRIAL	319.3'	41	AIRPLANE HANGAR	298.5'
14	COMMERCIAL / INDUSTRIAL	303.6'	42	SEGMENTED CIRCLE (E)	292.9'
15	COMMERCIAL / INDUSTRIAL	308.3'	43	PARACHUTE DROP ZONE (E)	275.7'
16	COMMERCIAL / INDUSTRIAL	312.0'	44	FUEL TANKS (E)	287.5'
17	COMMERCIAL / INDUSTRIAL	322.4'	45	BEACON (E)	469.7'
18	COMMERCIAL / INDUSTRIAL	321.2'	46	ASOS (E)	312.5'
19	COMMERCIAL / INDUSTRIAL	309.7'	47	ASOS (F)	N/A
20	COMMERCIAL / INDUSTRIAL	299.6'	48	AIRCRAFT CHARGE STATIONS (F)	N/A
21	COMMERCIAL / INDUSTRIAL	295.7'	49	WSP TRAINING FACILITY	N/A
22	COMMERCIAL / INDUSTRIAL	298.1'	50	BUILDINGS / HANGAR SITES (F)	N/A
23	COMMERCIAL / INDUSTRIAL	292.6'	51	HELICOPTER PARKING (F)	N/A
24	COMMERCIAL / INDUSTRIAL	301.8'	52	FUEL (F)	N/A
25	COMMERCIAL / INDUSTRIAL	296.8'	53	VEHICLE PARKING (E)	N/A
26	COMMERCIAL / INDUSTRIAL	296.8'	54	VEHICLE PARKING (F)	N/A
27	COMMERCIAL / INDUSTRIAL	294.0'	55	COMMERCIAL / INDUSTRIAL	N/A
28	COMMERCIAL / INDUSTRIAL	N/A			

* THE BUILDING/FACILITY KEY INCLUDES THE COMPLETE INVENTORY OF AIRPORT BUILDINGS AND FACILITIES. ITEMS NOT SHOWN ON THIS SHEET ARE DISPLAYED IN GRAY AND ARE DEPICTED ON SHEET 4

NOTES:

1. DATE OF AGIS OBSTRUCTION SURVEY: 2025
2. FUTURE RUNWAY 5-23 TO BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.
3. ⚠ REFER TO NON STANDARD CONDITIONS TABLE ON SHEET 3.



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PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

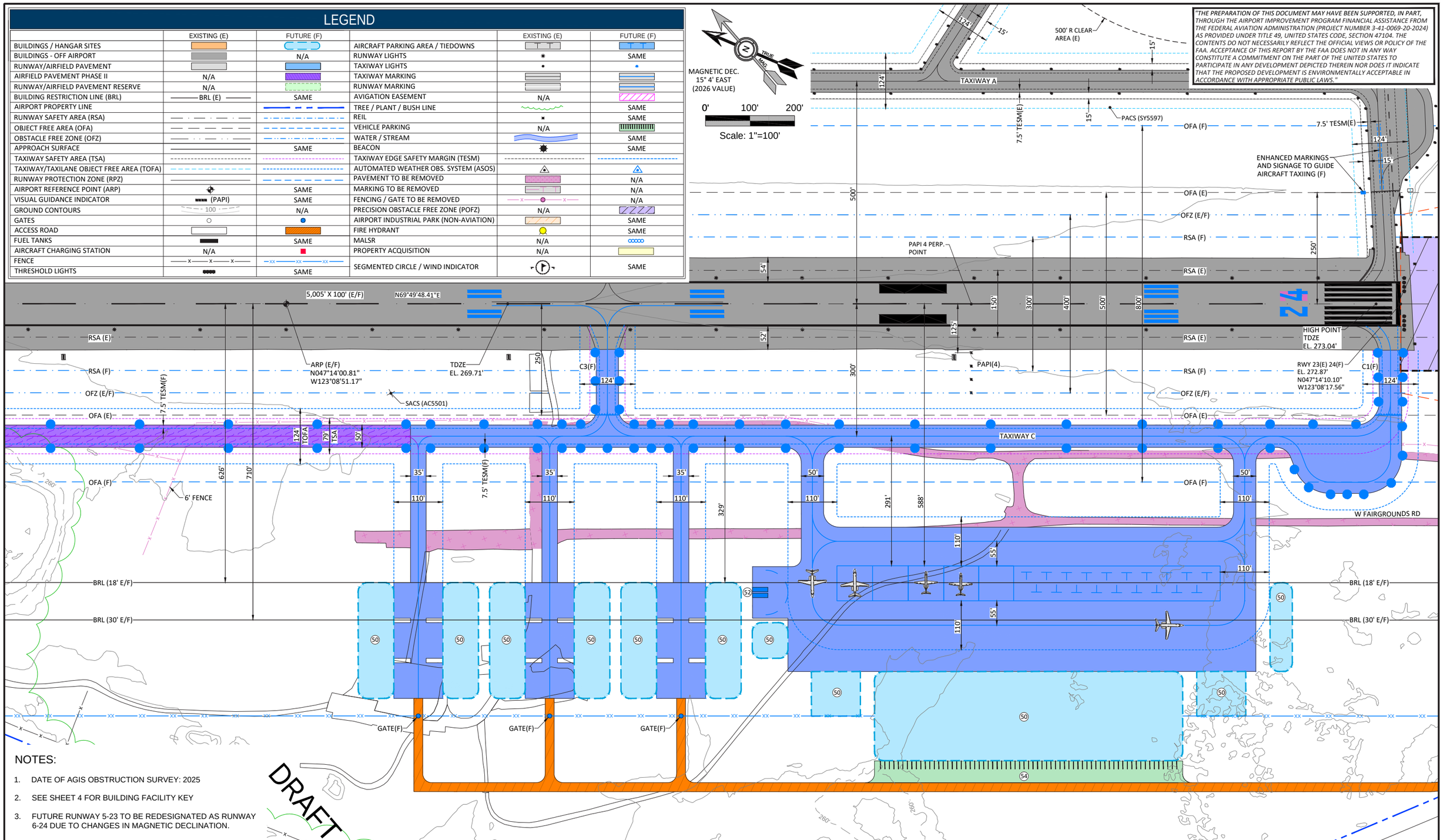
TERMINAL AREA PLAN - NORTH

FIGURE NO.

SHEET NO. 5 OF 22

LEGEND

	EXISTING (E)	FUTURE (F)		EXISTING (E)	FUTURE (F)
BUILDINGS / HANGAR SITES			AIRCRAFT PARKING AREA / TIEDOWNS		
BUILDINGS - OFF AIRPORT		N/A	RUNWAY LIGHTS		SAME
RUNWAY/AIRFIELD PAVEMENT			TAXIWAY LIGHTS		
AIRFIELD PAVEMENT PHASE II	N/A		TAXIWAY MARKING		
RUNWAY/AIRFIELD PAVEMENT RESERVE	N/A		RUNWAY MARKING		
BUILDING RESTRICTION LINE (BRL)	BRL (E)	SAME	AVIGATION EASEMENT	N/A	
AIRPORT PROPERTY LINE			TREE / PLANT / BUSH LINE		SAME
RUNWAY SAFETY AREA (RSA)			REIL		SAME
OBJECT FREE AREA (OFA)			VEHICLE PARKING	N/A	
OBSTACLE FREE ZONE (OFZ)			WATER / STREAM		SAME
APPROACH SURFACE		SAME	BEACON		SAME
TAXIWAY SAFETY AREA (TSA)			TAXIWAY EDGE SAFETY MARGIN (TESM)		
TAXIWAY/TAXILANE OBJECT FREE AREA (TOFA)			AUTOMATED WEATHER OBS. SYSTEM (ASOS)		
RUNWAY PROTECTION ZONE (RPZ)			PAVEMENT TO BE REMOVED		N/A
AIRPORT REFERENCE POINT (ARP)		SAME	MARKING TO BE REMOVED		N/A
VISUAL GUIDANCE INDICATOR	(PAPI)	SAME	FENCING / GATE TO BE REMOVED		N/A
GROUND CONTOURS	100	N/A	PRECISION OBSTACLE FREE ZONE (POFZ)	N/A	
GATES			AIRPORT INDUSTRIAL PARK (NON-AVIATION)		SAME
ACCESS ROAD			FIRE HYDRANT		SAME
FUEL TANKS		SAME	MALSR	N/A	
AIRCRAFT CHARGING STATION	N/A		PROPERTY ACQUISITION	N/A	
FENCE	x x x	xx xx xx	SEGMENTED CIRCLE / WIND INDICATOR		SAME
THRESHOLD LIGHTS		SAME			



NOTES:

1. DATE OF AGIS OBSTRUCTION SURVEY: 2025
2. SEE SHEET 4 FOR BUILDING FACILITY KEY
3. FUTURE RUNWAY 5-23 TO BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.

DRAFT

NO.	DATE	BY	APPR	REVISIONS

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PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING

BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

TERMINAL AREA PLAN - SOUTH

FIGURE NO.

SHEET NO.
6 OF 22

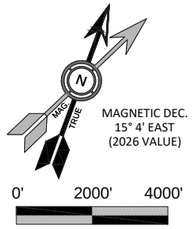
PART 77 DIMENSIONAL STANDARDS

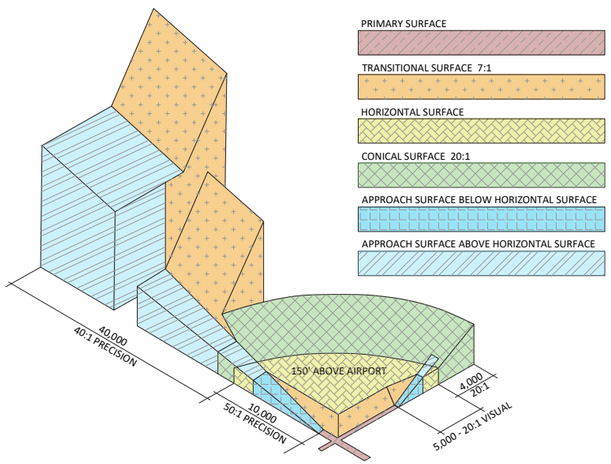
RUNWAY 5(E) 6(F)
LARGER THAN UTILITY NPI (EXISTING/FUTURE)

RUNWAY 23(E) 24(F)
LARGER THAN UTILITY NPI/PIR (EXISTING/FUTURE)
RUNWAY LENGTH (EXISTING/FUTURE) = 5,005' RUNWAY TYPE = B-II
RUNWAY LENGTH (ULTIMATE) = 6,785' RUNWAY TYPE = B-II

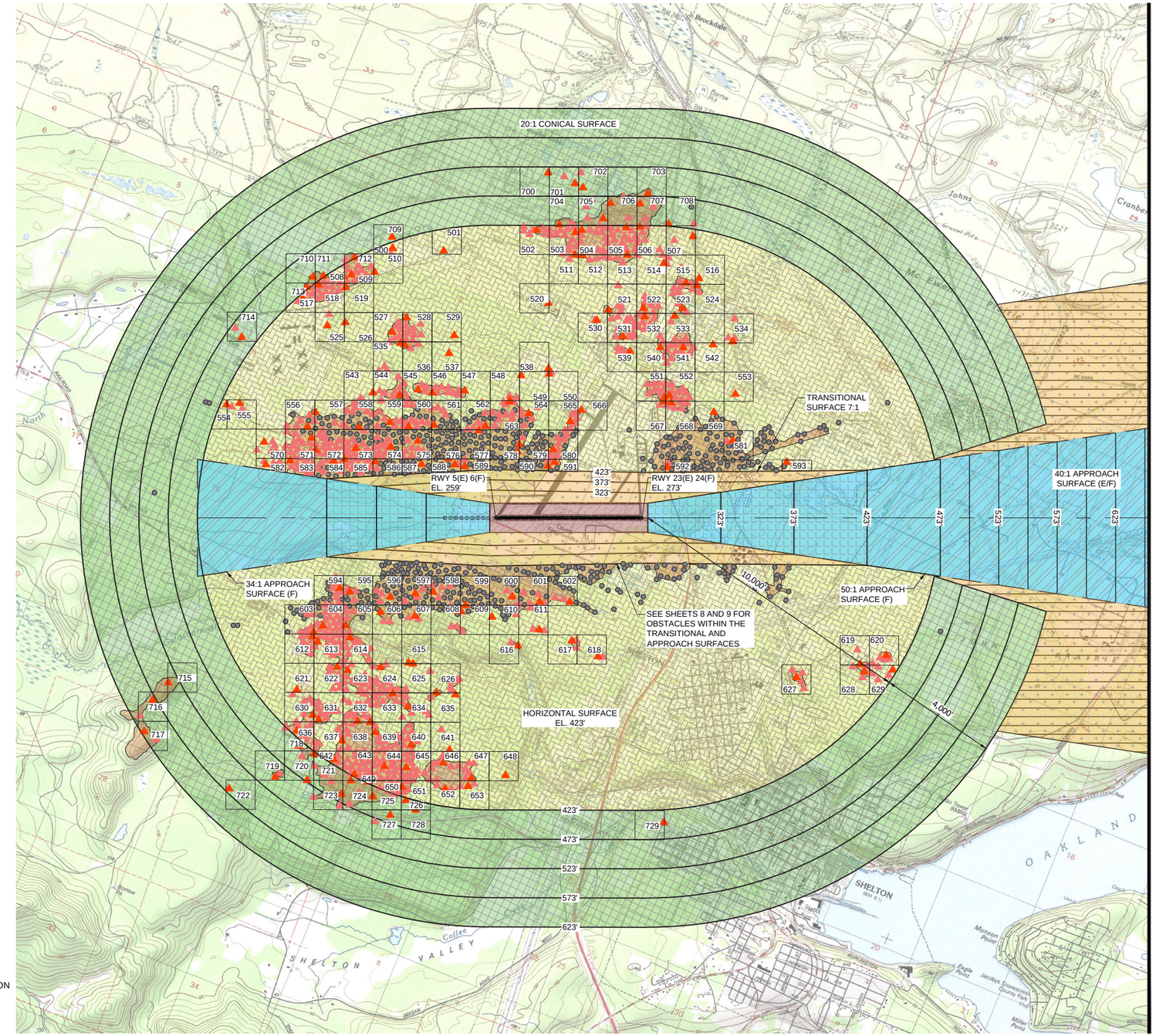
RUNWAY 6(F)
PRIMARY SURFACE WIDTH = 1,000'
APPROACH SURFACE INNER WIDTH = 1,000'
APPROACH SURFACE OUTER WIDTH = 4,000'
APPROACH SURFACE LENGTH = 10,000'
RADIUS OF HORIZONTAL SURFACE = 10,000'
APPROACH SLOPE = 34:1

RUNWAY 24(F)
PRIMARY SURFACE WIDTH = 1,000'
APPROACH SURFACE INNER WIDTH = 1,000'
APPROACH SURFACE OUTER WIDTH = 16,000'
APPROACH SURFACE LENGTH = 50,000'
RADIUS OF HORIZONTAL SURFACE = 10,000'
APPROACH SLOPE = 50:1 / 40:1





TYPICAL ISOMETRIC VIEW OF PART 77 SURFACES
(CUT ON RUNWAY CENTERLINE)



SEE SHEET 9 FOR DETAIL

AREAS OF TERRAIN PENETRATION

LEGEND

- MOST PENETRATING OBSTRUCTION
- GROUPED OBSTRUCTION (NOT LISTED IN TABLE)
- NON-PENETRATING OBSTACLE

PART 77 PLAN VIEW

NOTES:

1. GRID NUMBERS REPRESENT THE HIGHEST PENETRATING OBJECTS WITHIN EACH 1000' X 1000' GRID CELL, HIGHEST OBJECT DEPICTED AS RED TRIANGLE.
2. SEE SHEETS 17 - 22 FOR OBSTRUCTION TABLES.
3. DATE OF AGIS OBSTRUCTION SURVEY : 2025
4. FUTURE RUNWAY 5-23 TO BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.
5. THE CITY OF SHELTON AND MASON COUNTY HAVE ADOPTED AIRPORT OVERLAY ZONING APPLICABLE TO SANDERSON FIELD THROUGH THEIR RESPECTIVE CODES (CITY OF SHELTON, CHAPTER 20.70; MASON COUNTY, CHAPTER 17.60). THESE REGULATIONS ESTABLISH LAND USE COMPATIBILITY STANDARDS, DEVELOPMENT REVIEW REQUIREMENTS, AND AIRSPACE PROTECTION MEASURES INTENDED TO MINIMIZE SAFETY HAZARDS, REDUCE PUBLIC EXPOSURE TO AIRCRAFT NOISE, AND PREVENT INCOMPATIBLE LAND USES WITHIN THE AIRPORT INFLUENCE AREA.

"THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-41-0069-20-2024) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

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SIGNATURE

PORT OF SHELTON APPROVAL
APPROVAL DATE: _____
SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

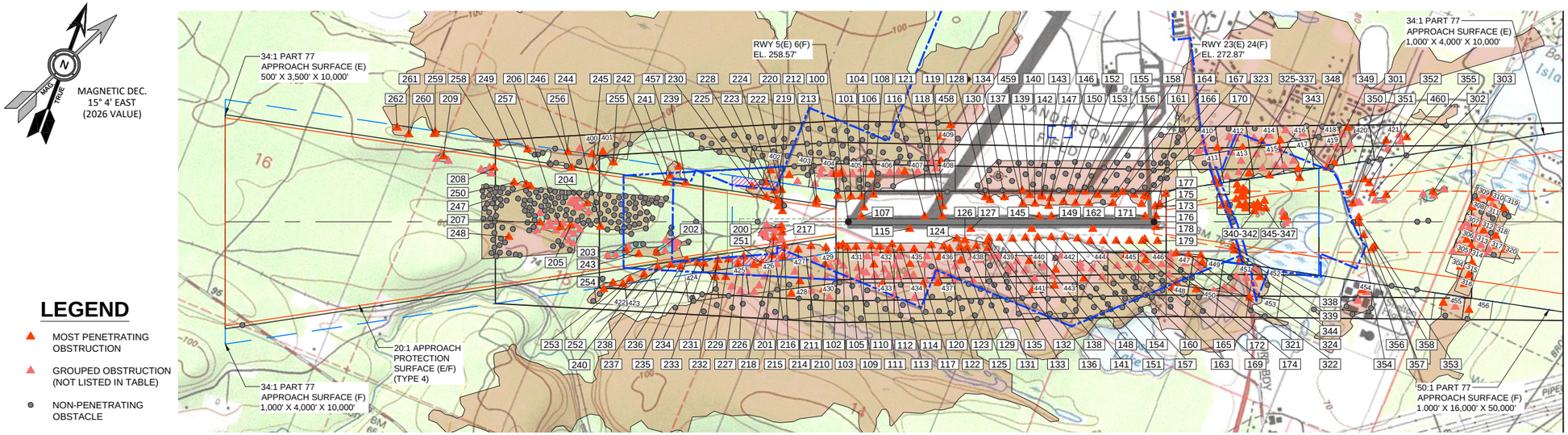
DESIGNED BY: JLS	DRAWN BY: JLS	CHECKED BY: DM	SCALE: AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRPORT AIRSPACE PLAN (PART 77)

FIGURE NO.

SHEET NO. 7 OF 22



MATCH LINE SEE SHEET 9

LEGEND

- MOST PENETRATING OBSTRUCTION
- GROUPED OBSTRUCTION (NOT LISTED IN TABLE)
- NON-PENETRATING OBSTACLE

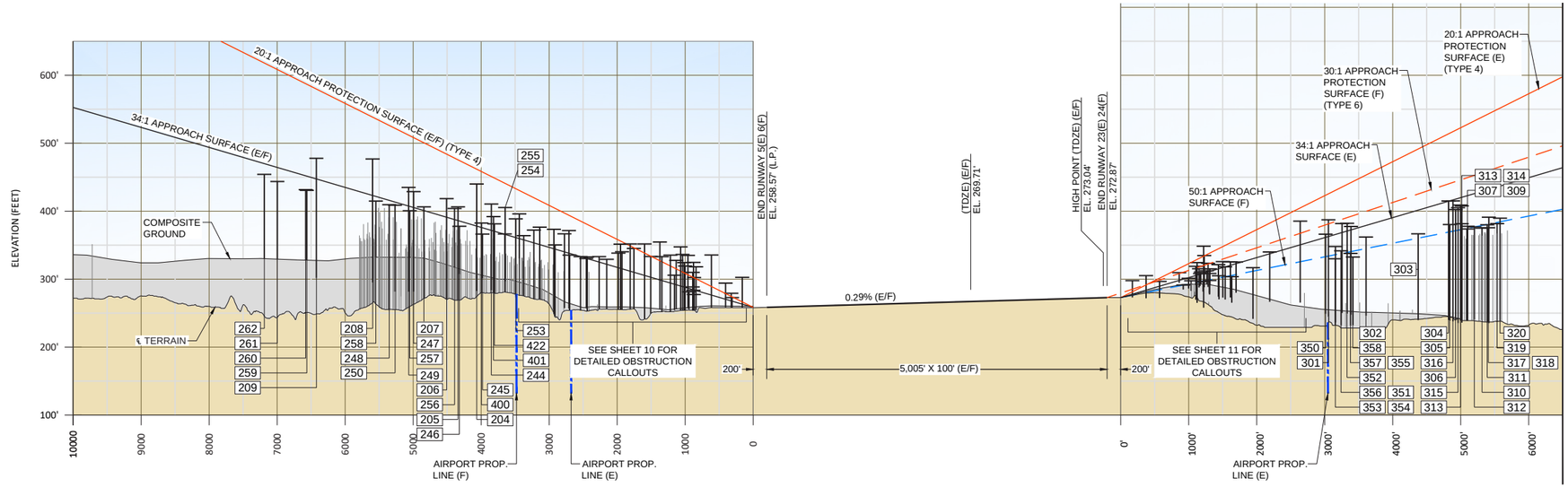
AREAS OF TERRAIN PENETRATION

OBSTRUCTION GROUP

RUNWAY 5(E) 6(F) & INNER 23(E) 24(F) PLAN VIEW

0' 1000' 2000'

SCALE OF FEET
HORIZONTAL SCALE 1"=1000'



MATCH LINE SEE SHEET 9

0' 100' 200'

SCALE OF FEET
VERTICAL SCALE 1"=100'

RUNWAY 5(E) 6(F) & INNER 23(E) 24(F) PROFILE VIEW

0' 1000' 2000'

SCALE OF FEET
HORIZONTAL SCALE 1"=1000'

NOTES:

1. GRID NUMBERS REPRESENT THE HIGHEST PENETRATING OBJECTS WITHIN EACH 1000' X 1000' OR 250' X 250' GRID CELL, HIGHEST OBJECT DEPICTED AS RED TRIANGLE.
2. SEE SHEETS 17-22 FOR OBSTRUCTION TABLES.
3. DATE OF AGIS OBSTRUCTION SURVEY: 2025.
4. FUTURE RUNWAY 5-23 TO BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.
5. APPROACH AND DEPARTURE SURFACES DEFINED BY FAA AC 150/5300-13B CHANGE 1. THESE SURFACES MAY / MAY NOT DUPLICATE THE PART 77 AND TERPS AIRSPACE SURFACES DEFINED FOR THE RUNWAY.

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1020 SW EMKAY DRIVE
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541.322.8962 OFFICE

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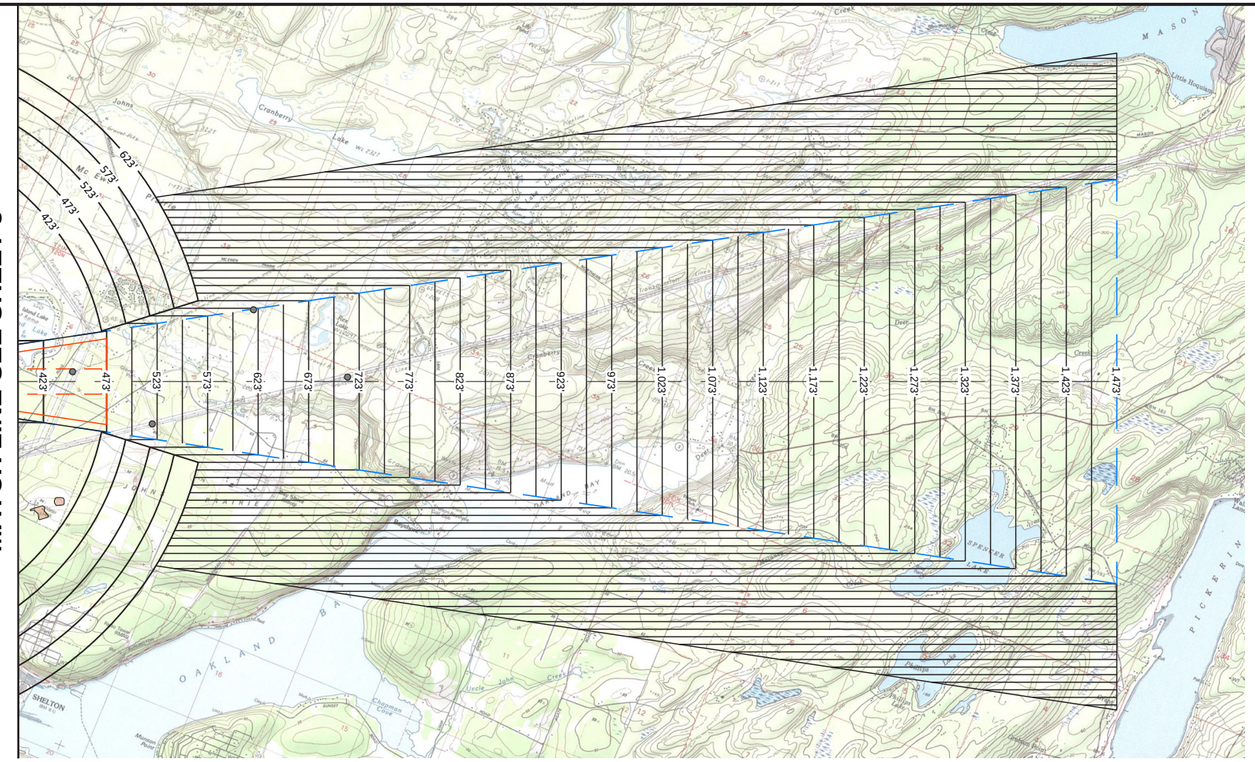
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

RUNWAY 5 APPROACH & RUNWAY 23
INNER APPROACH PLAN & PROFILE

FIGURE NO.

MATCH LINE SEE SHEET 8



MAGNETIC DEC.
15° 4' EAST
(2026 VALUE)

LEGEND

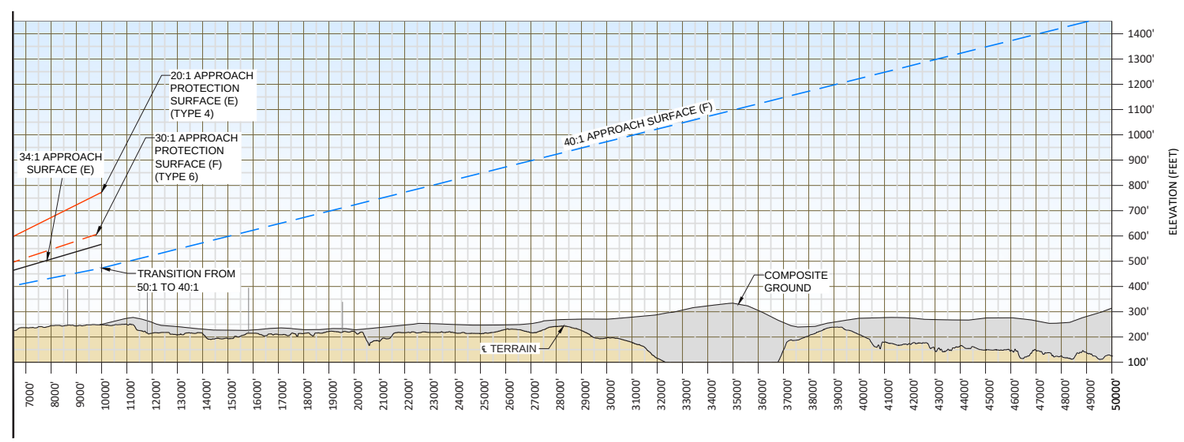
NON-PENETRATING OBSTACLE

AREAS OF TERRAIN PENETRATION

RUNWAY 23(E) 24(F) OUTER PLAN VIEW

0' 3000' 6000'
SCALE 1"=3000'

MATCH LINE SEE SHEET 8



0' 300' 600'
SCALE OF FEET
VERTICAL SCALE 1"=300'

RUNWAY 23(E) 24(F) OUTER PROFILE VIEW

0' 3000' 6000'
SCALE OF FEET
HORIZONTAL SCALE 1"=3000'

NOTES:

1. SEE SHEETS 17-22 FOR OBSTRUCTION TABLES.
2. DATE OF AGIS OBSTRUCTION SURVEY: 2025.
3. FUTURE RUNWAY 5-23 TO BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.
4. APPROACH AND DEPARTURE SURFACES DEFINED BY FAA AC 150/5300-13B CHANGE 1. THESE SURFACES MAY / MAY NOT DUPLICATE THE PART 77 AND TERPS AIRSPACE SURFACES DEFINED FOR THE RUNWAY.

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SIGNATURE

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APPROVAL DATE: _____
SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

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JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

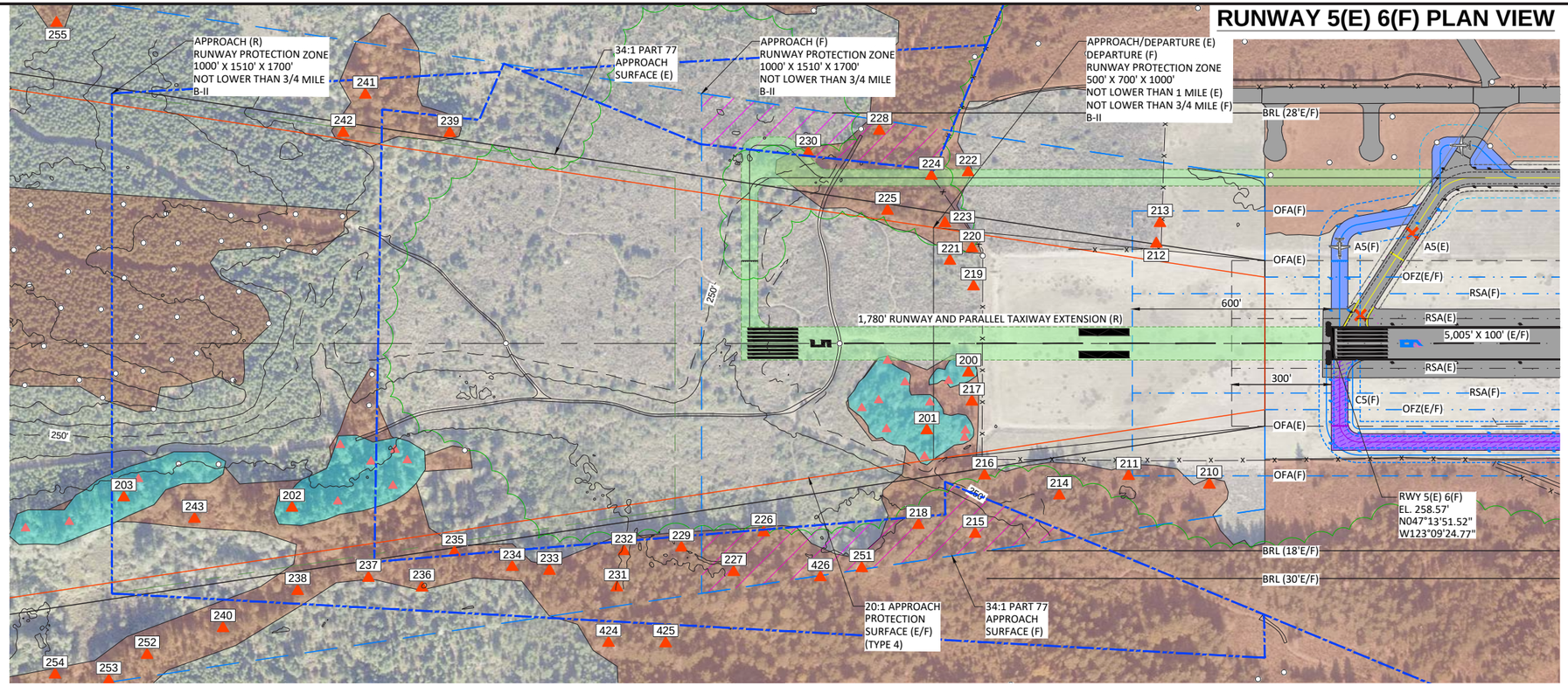
SANDERSON FIELD

RUNWAY 23 OUTER APPROACH PLAN & PROFILE

FIGURE NO.

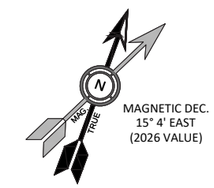
SHEET NO. 9 OF 22

RUNWAY 5(E) 6(F) PLAN VIEW



LEGEND

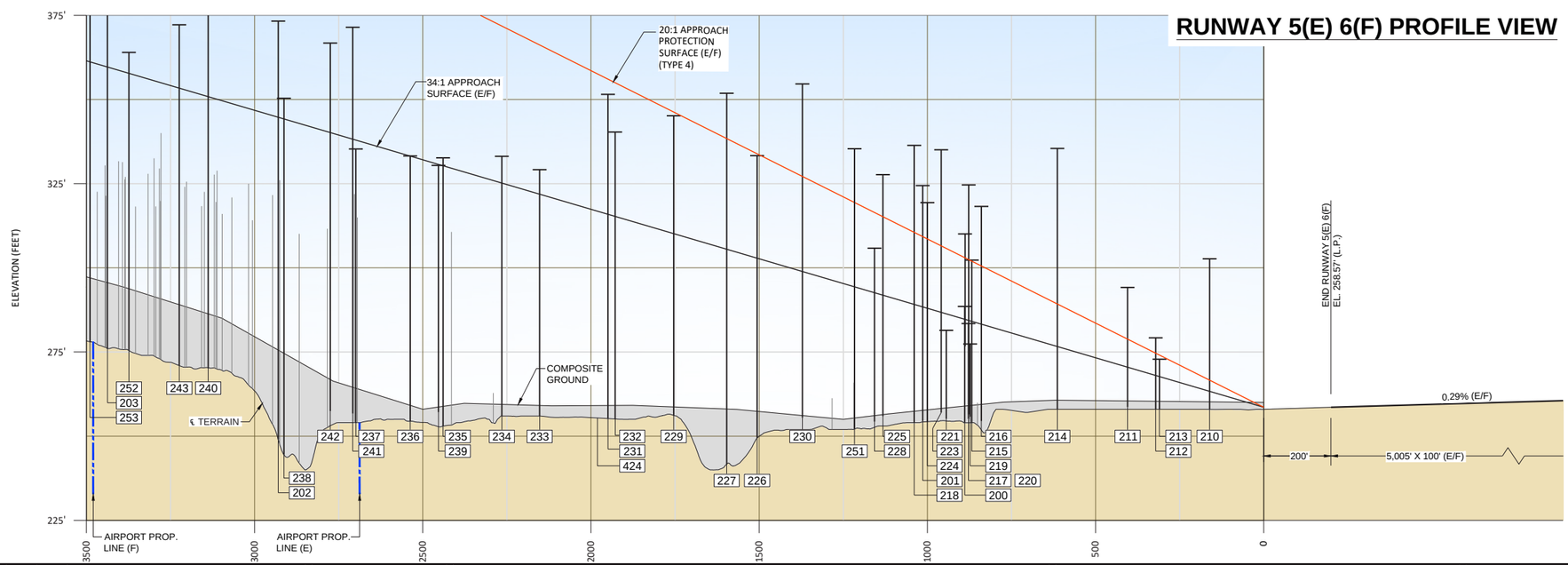
- PENETRATING OBSTRUCTION
- GROUPED OBSTRUCTION (NOT LISTED IN TABLE)
- NON-PENETRATING OBSTACLE
- OBSTRUCTION GROUP
- AREAS OF TERRAIN PENETRATION



MAGNETIC DEC.
15° 4' EAST
(2026 VALUE)

0' 200' 400'
SCALE OF FEET
HORIZONTAL SCALE 1"=200'

RUNWAY 5(E) 6(F) PROFILE VIEW



0' 20' 40'
SCALE OF FEET
VERTICAL SCALE 1"=20'

0' 200' 400'
SCALE OF FEET
HORIZONTAL SCALE 1"=200'

NOTES:

1. SEE SHEET 3 FOR FULL LEGEND.
2. SEE SHEETS 17, 18, 19, 20, 21, AND 22 FOR OBSTRUCTION TABLES.
3. DATE OF AGIS OBSTRUCTION SURVEY : 2025
4. FUTURE RUNWAY 5-23 WILL BE PREDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.

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SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

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JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

INNER PORTION RUNWAY 5
APPROACH SURFACES

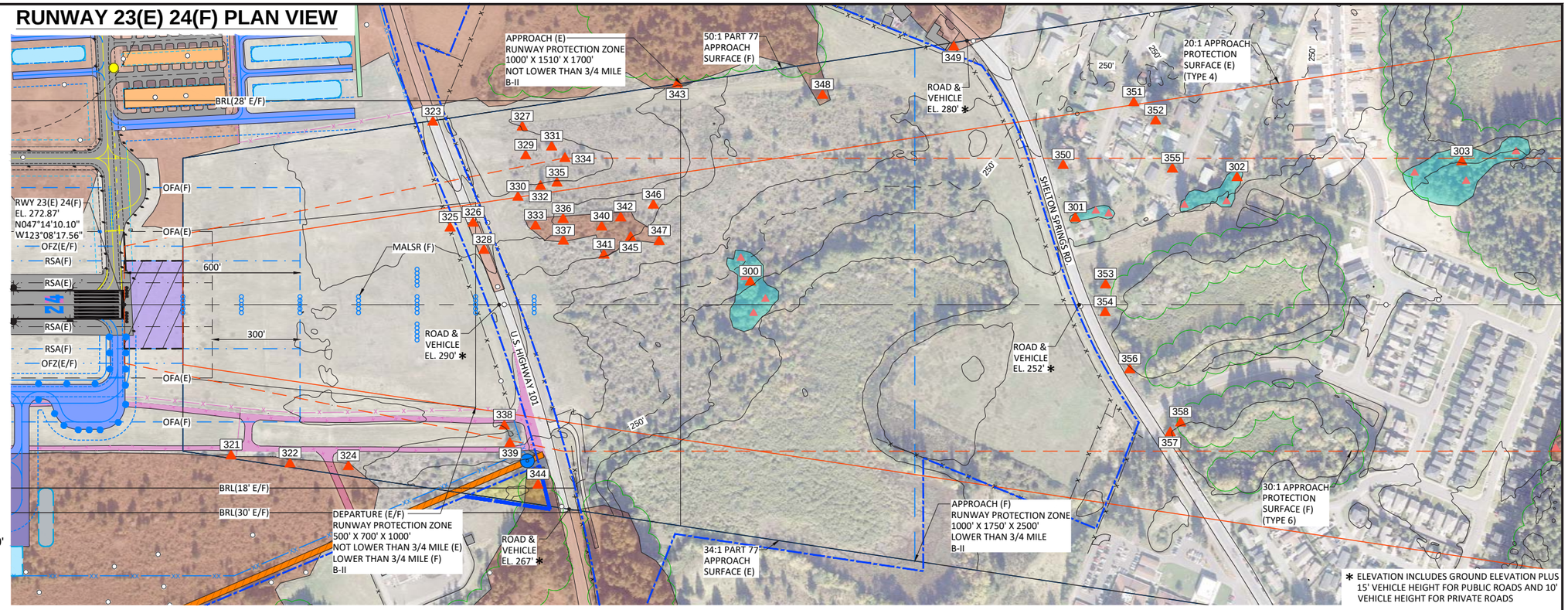
FIGURE NO.

SHEET NO.
10 OF 22

LEGEND

- PENETRATING OBSTRUCTION
- GROUPED OBSTRUCTION (NOT LISTED IN TABLE)
- NON-PENETRATING OBSTACLE
- OBSTRUCTION GROUP
- AREAS OF TERRAIN PENETRATION

RUNWAY 23(E) 24(F) PLAN VIEW

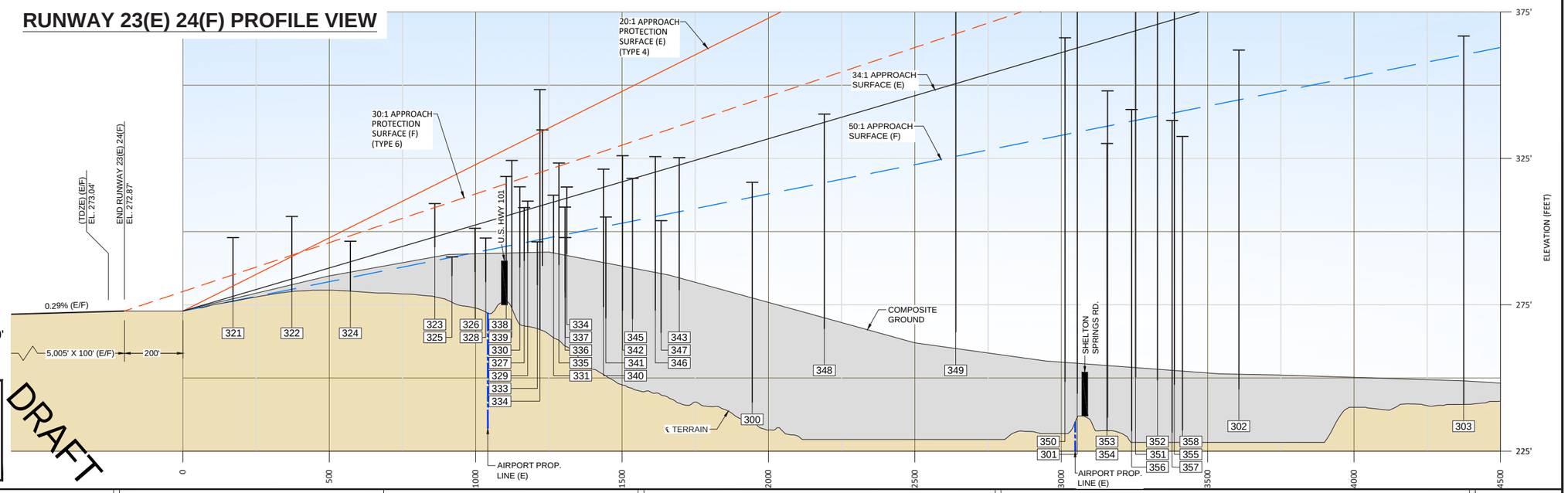


✱ ELEVATION INCLUDES GROUND ELEVATION PLUS 15' VEHICLE HEIGHT FOR PUBLIC ROADS AND 10' VEHICLE HEIGHT FOR PRIVATE ROADS

NOTES:

1. SEE SHEET 3 FOR FULL LEGEND.
2. SEE SHEETS 17, 18, 19, 20, 21, AND 22 FOR OBSTRUCTION TABLES.
3. DATE OF AGIS OBSTRUCTION SURVEY : 2025
4. FUTURE RUNWAY 5-23 WILL BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.

RUNWAY 23(E) 24(F) PROFILE VIEW



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APPROVAL DATE: _____

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1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

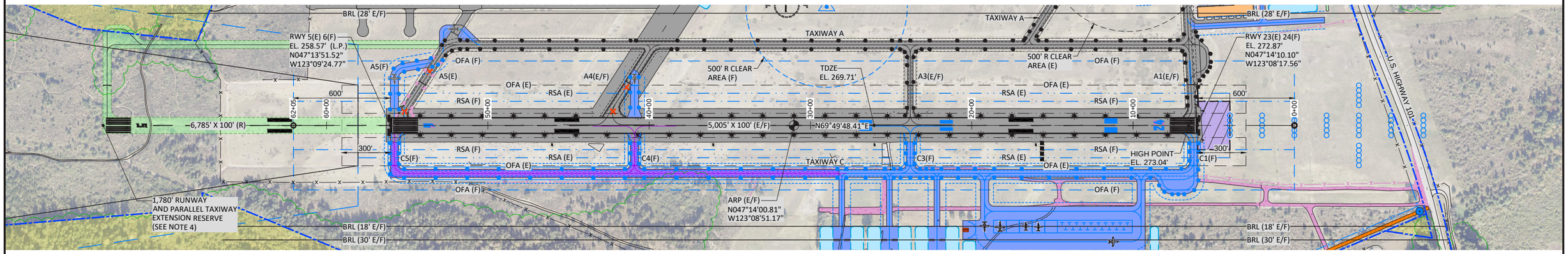
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

INNER PORTION RUNWAY 23
APPROACH SURFACES

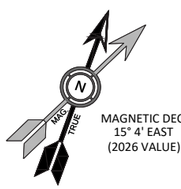
FIGURE NO.

SHEET NO.
11 OF 22

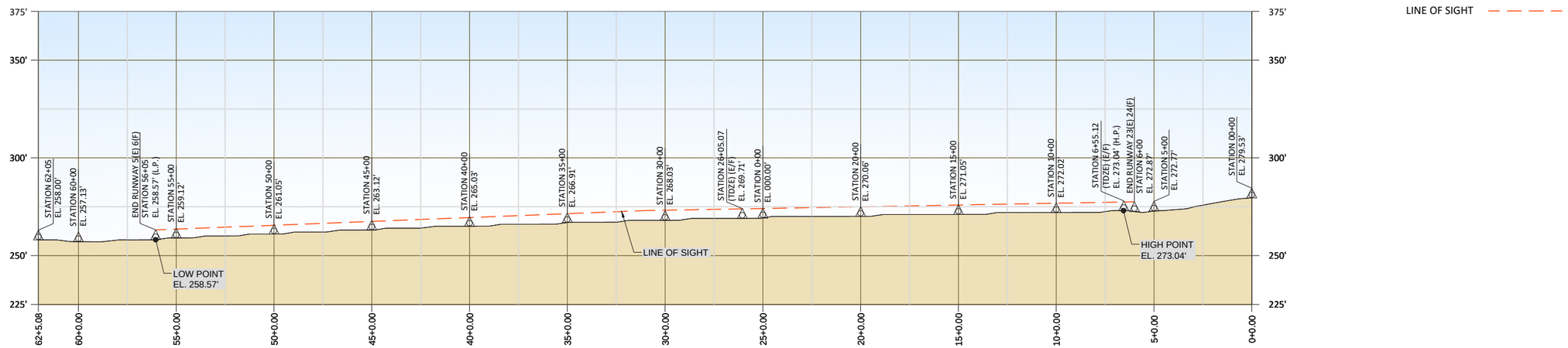


RUNWAY 5-23(E) 6-24(F) PLAN VIEW

0' 300' 600'
SCALE OF FEET



MAGNETIC DEC.
15° 4' EAST
(2026 VALUE)



RUNWAY 5-23(E) 6-24(F) PROFILE VIEW

0' 30' 60'
SCALE OF FEET
VERTICAL SCALE

0' 300' 600'
SCALE OF FEET
HORIZONTAL SCALE

DRAFT

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NOTES:

1. SEE SHEET 4 FOR FULL LENGEND.
2. DATE OF AGIS OBSTRUCTION SURVEY: 2025
3. FUTURE RUNWAY 5-23 TO BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.
4. FUTURE RUNWAY EXTENSION RESERVE DEPICTED FOR REFERENCE ONLY, FOR PURPOSES OF IDENTIFYING FUTURE LAND REQUIREMENTS.

NO.	DATE	BY	APPR	REVISIONS

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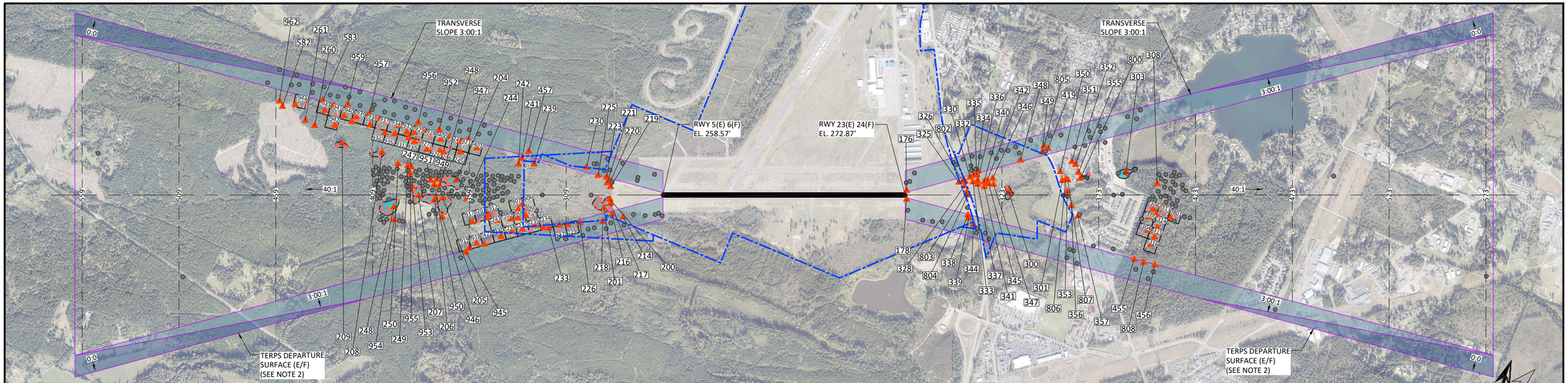
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

RUNWAY CENTERLINE PROFILE

FIGURE NO.

SHEET NO. 12 OF 22



AREAS OF TERRAIN PENETRATION (NON IDENTIFIED)

OBSTRUCTION GROUP

RUNWAY 5-23(E) 6-24(F) PLAN VIEW

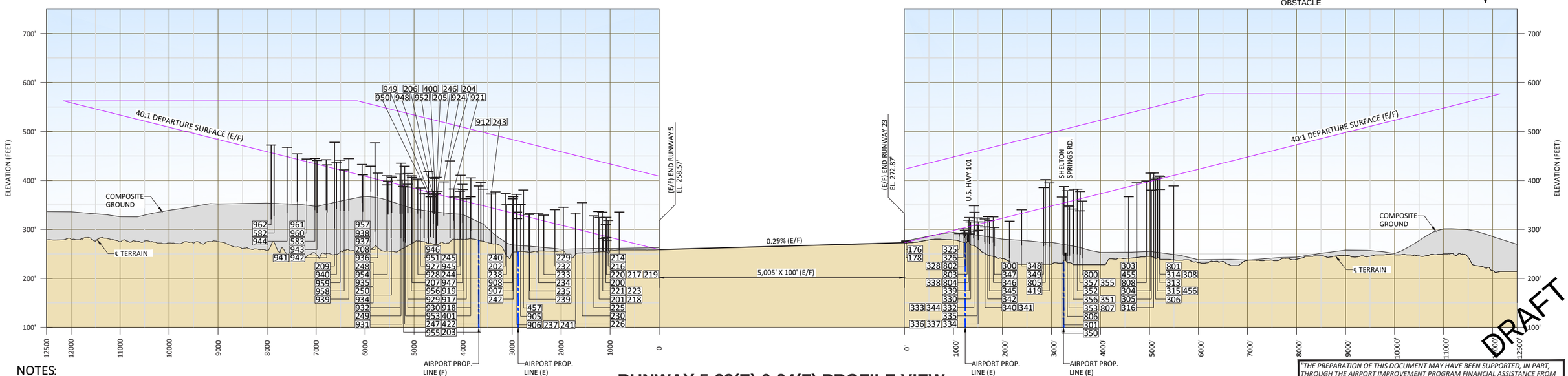
0' 1000' 2000'

SCALE 1"=1000'

LEGEND

- MOST PENETRATING OBSTRUCTION
- GROUPED OBSTRUCTION (NOT LISTED IN TABLE)
- NON-PENETRATING OBSTACLE

MAGNETIC DEC. 15° 4' EAST (2026 VALUE)



RUNWAY 5-23(E) 6-24(F) PROFILE VIEW

0' 100' 200'

SCALE OF FEET
VERTICAL SCALE 1"=100'

0' 1000' 2000'

SCALE OF FEET
HORIZONTAL SCALE 1"=1000'

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NOTES:

1. AGIS SURVEY - 2025, PROVIDED RUNWAY END COORDINATES AND ELEVATIONS.
2. INSTRUMENT DEPARTURE SURFACE (7) PER FAA AC 150/5300-13B CHANGE 1 (TABLE 3-5; FIGURE 3-9) AND FAA ORDER 8260.36 - U.S. STANDARDS FOR TERMINAL INSTRUMENT PROCEDURES (TERPS).
3. GRID NUMBERS REPRESENT THE HIGHEST PENETRATING OBJECTS WITHIN EACH 1000' X 1000' GRID CELL, HIGHEST OBJECT DEPICTED AS A RED TRIANGLE.

NO.	DATE	BY	APPR	REVISIONS

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541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

RUNWAY 5-23 INSTRUMENT DEPARTURE SURFACE

FIGURE NO.

SHEET NO. 13 OF 22

ON AIRPORT LAND USE

- AERONAUTICAL DEVELOPMENT (APPROX. 265.5 ACRES)
- AERONAUTICAL COMPATIBLE NON-AVIATION FACILITIES (APPROX. 18.81 ACRES)
- AIRPORT OPERATIONS PROTECTED AREA (APPROX. 224.4 ACRES)
- RUNWAY PROTECTION ZONE (FUTURE) (APPROX. 127.9 ACRES)
- OPEN SPACE (APPROX. 99.47 ACRES)
- REVENUE SUPPORT (AVIATION) (APPROX. 7.2 ACRES) (SEE NOTE 5)
- REVENUE SUPPORT (NON-AVIATION) (APPROX. 323.72 ACRES)
- FUTURE AVIGATION EASEMENT (APPROX. 5.9 ACRES)

LEGEND

- AIRPORT PROPERTY LINE (EXISTING)
- AIRPORT PROPERTY LINE (FUTURE)

* SEE AIRPORT LAYOUT PLAN (SHEET 4) FOR INFRASTRUCTURE AND SAFETY BOUNDARY LEGEND.

NOTES:

1. ON AIRPORT LAND USE IS FOR PLANNING PURPOSES ONLY AND DOES NOT RELATE TO THE COUNTY DESIGNATED ZONING OF AIRPORT INDUSTRIAL (AI).
2. THE CITY OF SHELTON AND MASON COUNTY HAVE ADOPTED AIRPORT OVERLAY ZONING APPLICABLE TO SANDERSON FIELD THROUGH THEIR RESPECTIVE CODES (CITY OF SHELTON, CHAPTER 20.70; MASON COUNTY, CHAPTER 17.60). THESE REGULATIONS ESTABLISH LAND USE COMPATIBILITY STANDARDS, DEVELOPMENT REVIEW REQUIREMENTS, AND AIRSPACE PROTECTION MEASURES INTENDED TO MINIMIZE SAFETY HAZARDS, REDUCE PUBLIC EXPOSURE TO AIRCRAFT NOISE, AND PREVENT INCOMPATIBLE LAND USES WITHIN THE AIRPORT INFLUENCE AREA.
3. FUTURE RUNWAY 5-23 TO BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.
4. RUNWAY 5(E) 6(F) EXTENSION DEPICTED IS A LONG-TERM RESERVE.
5. REVENUE SUPPORT ACTIVITIES MAY, BUT DO NOT NECESSARILY, REQUIRE AIRCRAFT ACCESS.

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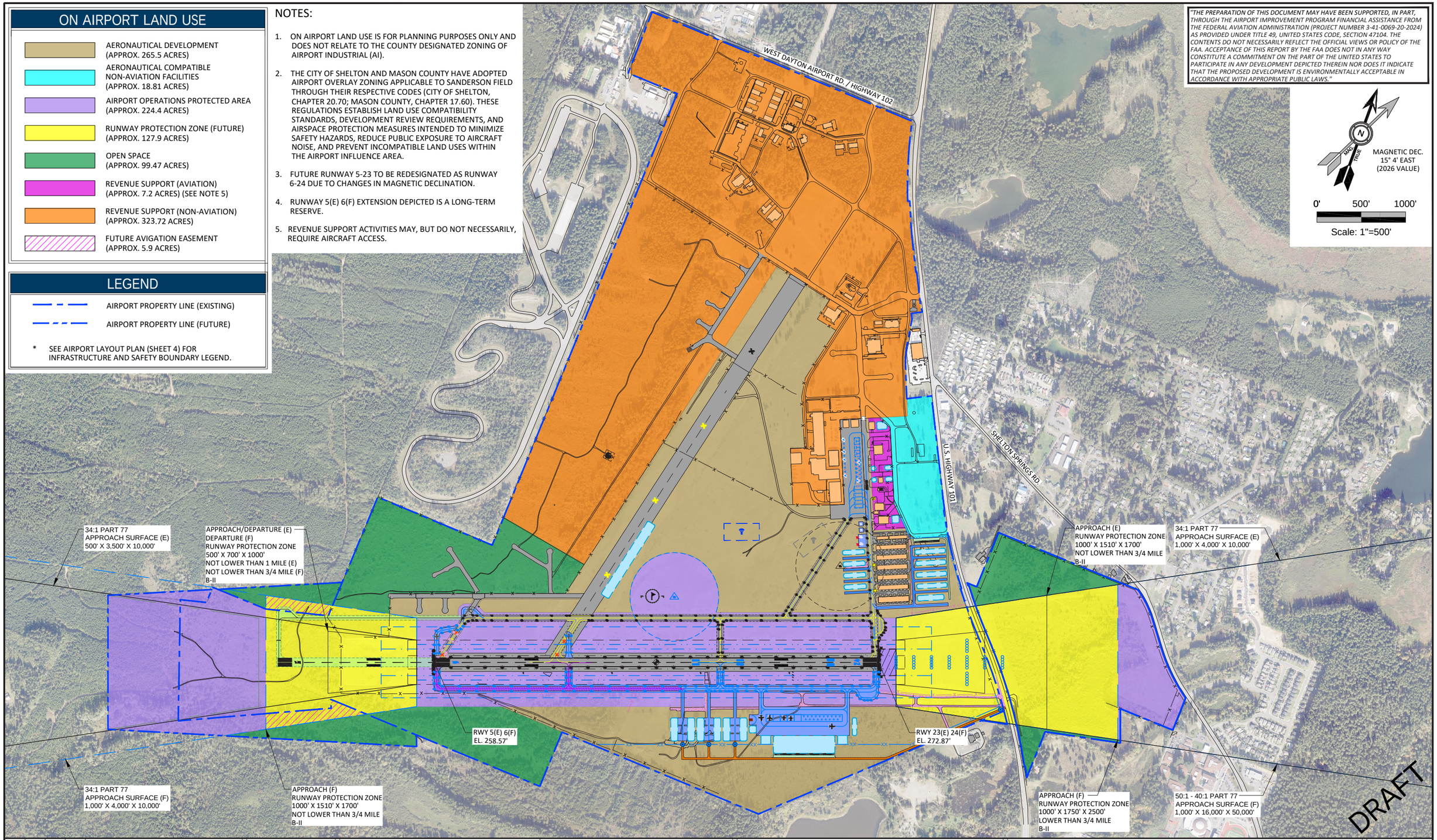

MAGNETIC DEC. 15° 4' EAST (2026 VALUE)

0' 500' 1000'

Scale: 1"=500'

NO.	DATE	BY	APPR	REVISIONS

VERIFY SCALES

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FEDERAL AVIATION ADMINISTRATION APPROVAL

APPROVAL DATE: _____

SIGNATURE

PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

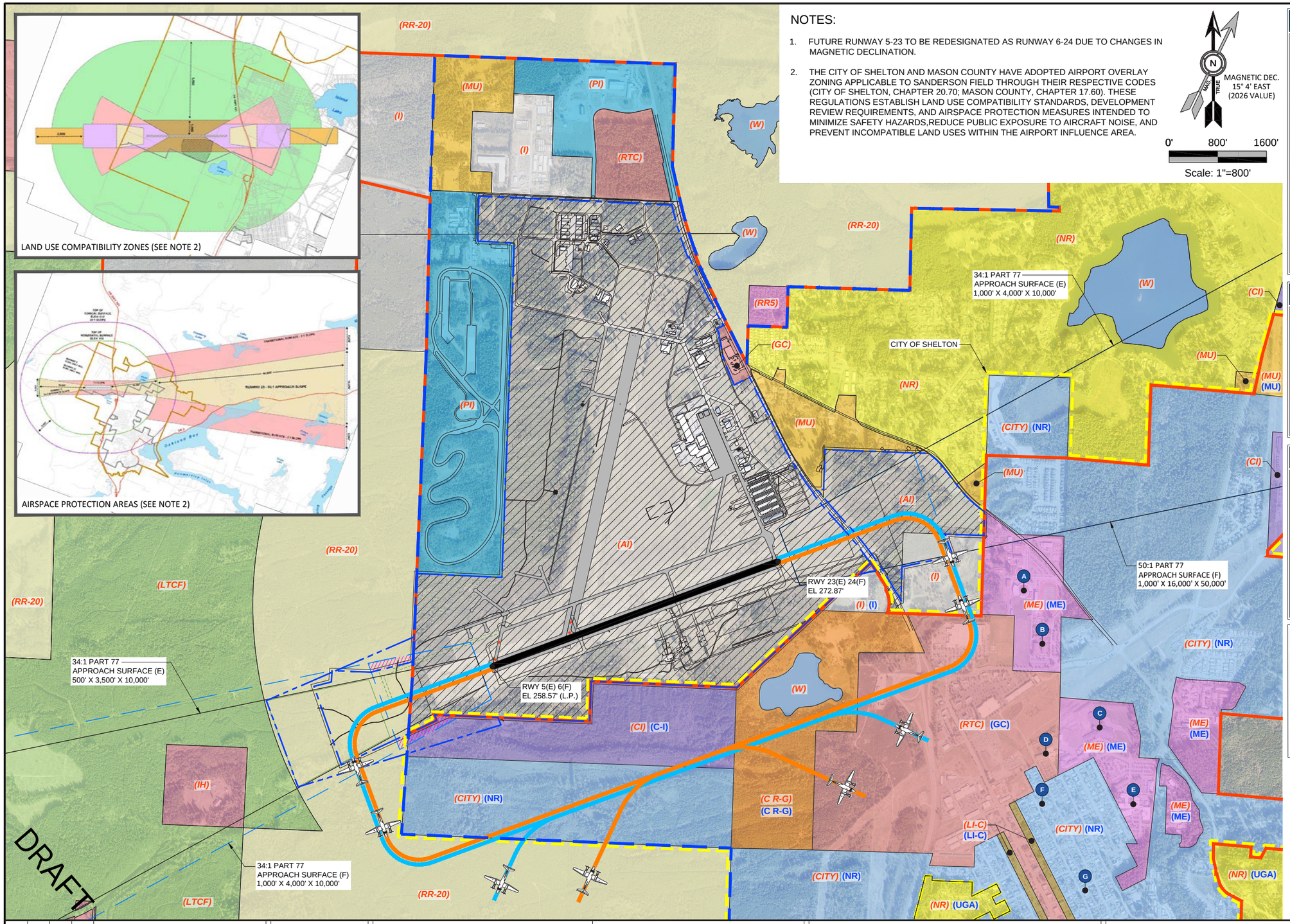
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

ON AIRPORT LAND USE PLAN

FIGURE NO.

SHEET NO. 14 OF 22



NOTES:

1. FUTURE RUNWAY 5-23 TO BE REDESIGNATED AS RUNWAY 6-24 DUE TO CHANGES IN MAGNETIC DECLINATION.
2. THE CITY OF SHELTON AND MASON COUNTY HAVE ADOPTED AIRPORT OVERLAY ZONING APPLICABLE TO SANDERSON FIELD THROUGH THEIR RESPECTIVE CODES (CITY OF SHELTON, CHAPTER 20.70; MASON COUNTY, CHAPTER 17.60). THESE REGULATIONS ESTABLISH LAND USE COMPATIBILITY STANDARDS, DEVELOPMENT REVIEW REQUIREMENTS, AND AIRSPACE PROTECTION MEASURES INTENDED TO MINIMIZE SAFETY HAZARDS,REDUCE PUBLIC EXPOSURE TO AIRCRAFT NOISE, AND PREVENT INCOMPATIBLE LAND USES WITHIN THE AIRPORT INFLUENCE AREA.

N
MAG
TRUE
MAGNETIC DEC.
15° 4' EAST
(2026 VALUE)

0' 800' 1600'
Scale: 1"=800'

MASON COUNTY ZONING

- AIRPORT / INDUSTRIAL *(AI)*
- PUBLIC / INSTITUTIONAL *(PI)*
- NEIGHBORHOOD RESIDENTIAL *(NR)*
- COMMERCIAL / INDUSTRIAL *(CI)*
- COMMERCIAL / RESIDENTIAL - GOOSE LAKE *(C R-G)*
- INDUSTRIAL *(I)*
- GENERAL COMMERCIAL *(GC)*
- MEDICAL / EDUCATIONAL *(ME)*
- LOW INTENSITY COMMERCIAL *(LI-C)*
- LOW INTENSITY MIXED USE *(MU)*
- CITY *(CITY)*
- RURAL RESIDENTIAL 5 ACRES *(RR5)*
- RURAL RESIDENTIAL 20 ACRES *(RR20)*
- INHOLDING LANDS *(IH)*
- WATER *(W)*
- LONG TERM COMMERCIAL FOREST *(LTCF)*
- RURAL TOURIST CAMPGROUND *(RTC)*

CITY OF SHELTON ZONING

- NEIGHBORHOOD RESIDENTIAL **(NR)**
- COMMERCIAL/INDUSTRIAL **(C-I)**
- COMMERCIAL/RESIDENTIAL - GOOSE LAKE **(C R-G)**
- INDUSTRIAL **(I)**
- GENERAL COMMERCIAL **(GC)**
- MEDICAL/EDUCATIONAL **(ME)**
- URBAN GROWTH AREA **(UGA)**
- LOW INTENSITY COMMERCIAL **(LI-C)**
- LOW INTENSITY MIXED USE **(MU)**

LEGEND

- EXISTING AIRPORT PROPERTY LINE
- FUTURE AIRPORT PROPERTY LINE
- SHELTON URBAN GROWTH BOUNDARY (UGB)
- SHELTON URBAN GROWTH AREA (UGA)
- CITY OF SHELTON BOUNDARY
- ZONING BOUNDARY
- RUNWAY 5(E) 6(F) FIXED WING AIRPORT TRAFFIC PATTERN
- RUNWAY 23(E) 24(F) FIXED WING AIRPORT TRAFFIC PATTERN

PUBLIC FACILITY KEY

A	SHELTON HIGH SCHOOL
B	OAKLAND BAY JUNIOR HIGH SCHOOL
C	OLYMPIC MIDDLE SCHOOL
D	MOUNTAIN VIEW ELEMENTARY SCHOOL
E	MASON HEALTH - MASON GENERAL HOSPITAL
F	MOUNTAIN VIEW ALLIANCE CHURCH
G	NEW HORIZONS CHURCH OF GOD

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PORT OF SHELTON APPROVAL
APPROVAL DATE: _____
SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD AIRPORT

OFF AIRPORT LAND USE PLAN

FIGURE NO.

SHEET NO.
15 OF 22

OWNERSHIP DATA TABLE

PARCEL	LAND OWNER	ACRES	REC. INFO. VOL., PAGE	INTEREST	PREVIOUS OWNER	ACQ. YEAR	PURPOSE	CONVEYANCE INSTRUMENT	GRANT NO.	FEDERAL AGREEMENT
A	PORT OF SHELTON	883.02±	179, 275	FEE SIMPLE	UNITED STATES OF AMERICA	JUNE 1957	AIRPORT PROPERTY	QUITCLAIM DEED	N/A	N/A
B	PORT OF SHELTON	1.27±	N/A	FEE SIMPLE	UNITED STATES OF AMERICA	MAY 1986	RPZ / APPROACH PROTECTION	WARRANTY DEED	N/A	AIP NO. -01
C	PORT OF SHELTON	2.50±	N/A	FEE SIMPLE	SIMPSON TIMBER CO. INC.	MAY 1986	RPZ / APPROACH PROTECTION	WARRANTY DEED	N/A	AIP NO. -01
D	PORT OF SHELTON	40.8±	N/A	N/A	JOHN C. KNEELAND	MAY 1986	RPZ / APPROACH PROTECTION	WARRANTY DEED	N/A	AIP NO. -01
E	PORT OF SHELTON	48.05±	N/A	FEE SIMPLE	N/A	JAN. 1992	N/A	N/A	N/A	AIP NO. -03
F	PORT OF SHELTON	28.4±	495, 1060	FEE SIMPLE	DAVID JOHN GUSSECK PAULA RAE DAVIDSON	JUNE 1991	AIRPORT EXPANSION	WARRANTY DEED	N/A	AIP NO. -03
G	PORT OF SHELTON	0.20±	492, 497	FEE SIMPLE	RUSSELL DEFOREST JOAN LACLAIR LOIS JANET ROCKEY	AUG. 1991	N/A	WARRANTY DEED	N/A	N/A
H	GREEN DIAMOND RESOURCE	7.5±	N/A	TO BE ACQUIRED	N/A	(FUTURE)	RPZ / APPROACH PROTECTION	N/A	N/A	N/A
I	GREEN DIAMOND RESOURCE	26.8±	N/A	TO BE ACQUIRED	N/A	(FUTURE)	(RESERVE) RPZ / APPROACH PROT.	N/A	N/A	N/A
J	SHELTON HILLS INVESTORS LLC	11.4±	N/A	TO BE ACQUIRED	N/A	(FUTURE)	RPZ / APPROACH PROTECTION	N/A	N/A	N/A
K	CITY OF SHELTON	.47±	N/A	TO BE ACQUIRED	N/A	(FUTURE)	RPZ / APPROACH PROTECTION	N/A	N/A	N/A
L	WASHINGTON STATE PATROL	162.9±	N/A	PARCEL SOLD	PORT OF SHELTON	JUNE 1997	N/A	WARRANTY DEED	N/A	N/A
M	CITY OF SHELTON	27.0±	N/A	PARCEL SOLD	PORT OF SHELTON	NOV. 1968	N/A	WARRANTY DEED	N/A	N/A
N	PORT OF SHELTON	8.2±	N/A	FEE SIMPLE	SAM S. TSAI	AUG. 2015	RPZ / APPROACH PROTECTION	WARRANTY DEED	N/A	N/A
O	SHELTON HILLS INVESTORS LLC	8.6±	N/A	TO BE ACQUIRED	N/A	(FUTURE)	RPZ / APPROACH PROTECTION	N/A	N/A	N/A
TOTAL EXISTING ACREAGE (PARCELS A- G & N)		1,012±								

EASEMENT DATA TABLE

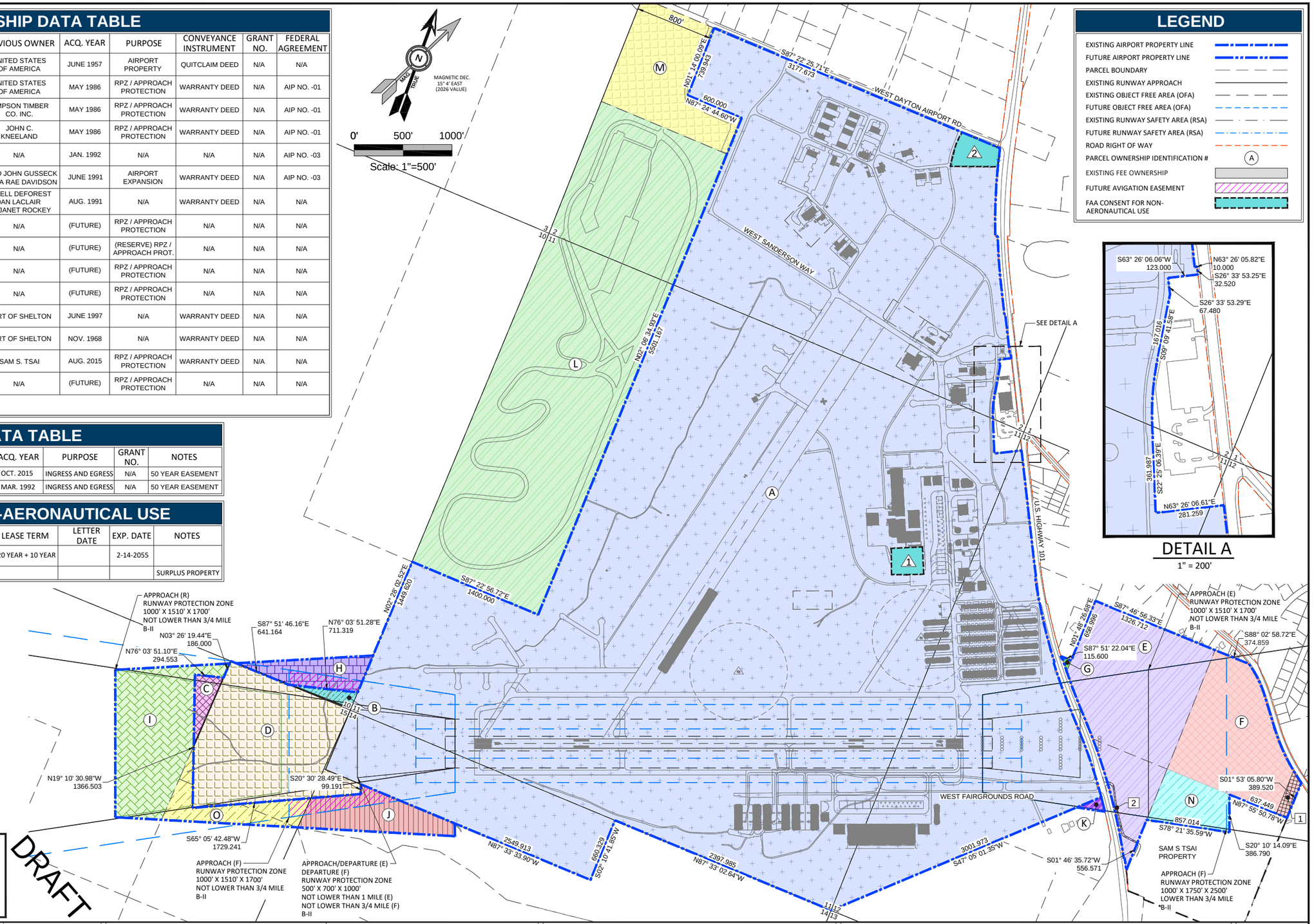
PARCEL	EASEMENT OWNER	REC. INFO. VOL., PAGE	INTEREST	EASEMENT TYPE	ACQ. YEAR	PURPOSE	GRANT NO.	NOTES
1	SAM S TSAI	40, 185	FEE SIMPLE	ACCESS	OCT. 2015	INGRESS AND EGRESS	N/A	50 YEAR EASEMENT
2	SAM S TSAI	516, 113	FEE SIMPLE	ACCESS	MAR. 1992	INGRESS AND EGRESS	N/A	50 YEAR EASEMENT

FAA CONSENT FOR NON-AERONAUTICAL USE

PARCEL	ACRES	OWNER	TENANT	LAND USE DESIGNATION	LEASE TERM	LETTER DATE	EXP. DATE	NOTES
1	2.05	PORT OF SHELTON	-	INDUSTRIAL (NON-AERO)	20 YEAR + 10 YEAR		2-14-2055	
2	3.00	PORT OF SHELTON	-	COMMERCIAL				SURPLUS PROPERTY

NOTES:

1. PROPERTY OWNERSHIP DATA OBTAINED FROM PORT OF SHELTON, OR PARCEL MAPPING. UPDATED PROPERTY DATA PROVIDED BY PORT OF SHELTON.
2. PHYSICAL FEATURES OF THE AIRPORT ARE DEPICTED USING THE 2025 AGIS SURVEY.
3. SEE SHEET 3 FOR FULL LEGEND.



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JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

EXHIBIT A - AIRPORT PROPERTY INVENTORY MAP

FIGURE NO.

SHEET NO. 16 OF 22

PART 77 PRIMARY SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
100	GROUND	9/30/2024	PRIMARY	259.61	0.00	259.61	258.50	1.11	TO BE GRADED	N/A
101	GROUND	9/30/2024	PRIMARY	259.53	0.00	259.53	258.84	0.69	TO BE GRADED	N/A
102	TREE	9/30/2024	PRIMARY	254.69	20.95	275.64	258.53	17.11	TO BE REMOVED	N/A
103	TREE	9/30/2024	PRIMARY	254.10	57.41	311.51	258.63	52.88	TO BE REMOVED	N/A
104	SIGN	9/30/2024	PRIMARY	259.36	3.29	262.65	259.83	2.82	FIXED BY FUNCTION	N/A
105	TREE	9/30/2024	PRIMARY	256.73	32.72	289.45	258.76	30.69	TO BE REMOVED	N/A
106	SIGN	9/30/2024	PRIMARY	257.73	3.91	261.64	260.01	1.63	FIXED BY FUNCTION	N/A
107	SIGN	9/30/2024	PRIMARY	258.51	3.01	261.52	259.79	1.73	FIXED BY FUNCTION	N/A
108	SIGN	9/30/2024	PRIMARY	261.42	3.30	264.72	260.67	4.05	FIXED BY FUNCTION	N/A
109	TREE	9/30/2024	PRIMARY	256.85	40.31	297.16	259.36	37.80	TO BE REMOVED	N/A
110	TREE	9/30/2024	PRIMARY	259.00	28.60	287.60	260.51	27.09	TO BE REMOVED	N/A
111	TREE	9/30/2024	PRIMARY	259.31	29.78	289.09	261.15	27.94	TO BE REMOVED	N/A
112	TREE	9/30/2024	PRIMARY	259.22	39.73	298.95	261.70	37.25	TO BE REMOVED	N/A
113	TREE	9/30/2024	PRIMARY	258.81	35.98	294.79	262.03	32.76	TO BE REMOVED	N/A
114	TREE	9/30/2024	PRIMARY	261.18	34.06	295.24	262.62	32.62	TO BE REMOVED	N/A
115	SIGN	9/30/2024	PRIMARY	262.10	4.42	266.52	263.27	3.25	FIXED BY FUNCTION	N/A
116	SIGN	9/30/2024	PRIMARY	262.99	2.65	265.64	264.34	1.30	FIXED BY FUNCTION	N/A
117	TREE	9/30/2024	PRIMARY	259.59	25.91	285.50	263.59	21.91	TO BE REMOVED	N/A
118	SIGN	9/30/2024	PRIMARY	264.40	3.46	267.85	265.20	2.65	FIXED BY FUNCTION	N/A
119	SIGN	9/30/2024	PRIMARY	264.00	2.76	266.76	265.34	1.42	FIXED BY FUNCTION	N/A
120	TREE	9/30/2024	PRIMARY	259.10	45.92	305.02	264.77	40.25	TO BE REMOVED	N/A
121	SIGN	9/30/2024	PRIMARY	264.01	2.83	266.84	265.31	1.53	FIXED BY FUNCTION	N/A
122	TREE	9/30/2024	PRIMARY	259.48	79.53	339.01	265.39	73.62	TO BE REMOVED	N/A
123	TREE	9/30/2024	PRIMARY	247.48	34.04	281.52	265.66	15.86	TO BE REMOVED	N/A
124	TREE	9/30/2024	PRIMARY	262.93	51.16	314.09	266.04	48.05	TO BE REMOVED	N/A
125	TREE	9/30/2024	PRIMARY	250.49	34.72	285.21	266.21	19.00	TO BE REMOVED	N/A
126	TREE	9/30/2024	PRIMARY	263.23	53.34	316.57	266.42	50.15	TO BE REMOVED	N/A
127	SIGN	9/30/2024	PRIMARY	265.40	4.95	270.35	266.68	3.67	FIXED BY FUNCTION	N/A
128	GROUND	9/30/2024	PRIMARY	267.58	0.00	267.58	267.42	0.16	TO BE GRADED	N/A
129	TREE	9/30/2024	PRIMARY	249.12	73.45	322.57	266.52	56.05	TO BE REMOVED	N/A
130	GROUND	9/30/2024	PRIMARY	268.03	0.00	268.03	267.68	0.35	TO BE GRADED	N/A
131	TREE	9/30/2024	PRIMARY	263.34	61.52	324.86	266.95	57.91	TO BE REMOVED	N/A
132	FENCE	9/30/2024	PRIMARY	264.53	6.34	270.87	267.61	3.26	TO BE REMOVED	N/A
133	TREE	9/30/2024	PRIMARY	264.20	38.84	303.04	267.53	35.51	TO BE REMOVED	N/A
134	GROUND	9/30/2024	PRIMARY	269.12	0.00	269.12	268.44	0.68	TO BE GRADED	N/A
135	TREE	9/30/2024	PRIMARY	265.57	42.79	308.36	267.57	40.79	TO BE REMOVED	N/A
136	FENCE	9/30/2024	PRIMARY	263.87	7.63	271.50	268.17	3.33	TO BE REMOVED	N/A
137	GROUND	9/30/2024	PRIMARY	270.06	0.00	270.06	269.33	0.73	TO BE GRADED	N/A
138	TREE	9/30/2024	PRIMARY	266.04	40.58	306.62	268.83	37.79	TO BE REMOVED	N/A
139	GROUND	9/30/2024	PRIMARY	272.37	0.00	272.37	269.64	2.73	TO BE GRADED	N/A
140	GROUND	9/30/2024	PRIMARY	270.06	0.00	270.06	269.84	0.22	TO BE GRADED	N/A
141	FENCE	9/30/2024	PRIMARY	266.31	6.12	272.43	269.44	2.99	TO BE REMOVED	N/A
142	GROUND	9/30/2024	PRIMARY	272.62	0.00	272.62	270.02	2.60	TO BE GRADED	N/A
143	SIGN	9/30/2024	PRIMARY	272.56	2.96	275.52	270.04	5.48	FIXED BY FUNCTION	N/A
144	SIGN	9/30/2024	PRIMARY	268.29	4.76	273.05	269.72	3.33	FIXED BY FUNCTION	N/A
145	SIGN	9/30/2024	PRIMARY	268.73	2.77	271.50	269.96	1.54	FIXED BY FUNCTION	N/A
146	GROUND	9/30/2024	PRIMARY	271.51	0.00	271.51	270.34	1.17	TO BE GRADED	N/A
147	SIGN	9/30/2024	PRIMARY	268.44	3.45	271.89	270.27	1.62	FIXED BY FUNCTION	N/A
148	FENCE	9/30/2024	PRIMARY	267.60	6.69	274.29	269.93	4.36	TO BE REMOVED	N/A
149	SIGN	9/30/2024	PRIMARY	268.98	3.18	272.16	270.37	1.79	FIXED BY FUNCTION	N/A
150	GROUND	9/30/2024	PRIMARY	272.37	0.00	272.37	270.71	1.66	TO BE GRADED	N/A
151	FENCE	9/30/2024	PRIMARY	267.87	5.54	273.41	270.37	3.04	TO BE REMOVED	N/A
152	GROUND	9/30/2024	PRIMARY	272.20	0.00	272.20	270.92	1.28	TO BE GRADED	N/A
153	GROUND	9/30/2024	PRIMARY	272.97	0.00	272.97	271.00	1.97	TO BE GRADED	N/A
154	FENCE	9/30/2024	PRIMARY	268.13	5.52	273.65	270.75	2.90	TO BE REMOVED	N/A
155	GROUND	9/30/2024	PRIMARY	272.63	0.00	272.63	271.30	1.33	TO BE GRADED	N/A

PART 77 PRIMARY SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
156	GROUND	9/30/2024	PRIMARY	272.37	0.00	272.37	271.38	0.99	TO BE GRADED	N/A
157	FENCE	9/30/2024	PRIMARY	268.62	5.61	274.23	271.07	3.16	TO BE REMOVED	N/A
158	SIGN	9/30/2024	PRIMARY	272.02	2.94	274.96	271.62	3.34	FIXED BY FUNCTION	N/A
159	SIGN	9/30/2024	PRIMARY	270.02	5.15	275.17	271.49	3.68	FIXED BY FUNCTION	N/A
160	FENCE	9/30/2024	PRIMARY	266.95	6.57	273.52	271.42	2.10	TO BE REMOVED	N/A
161	GROUND	9/30/2024	PRIMARY	273.22	0.00	273.22	272.10	1.12	TO BE GRADED	N/A
162	GROUND	9/30/2024	PRIMARY	272.71	0.00	272.71	272.05	0.66	TO BE GRADED	N/A
163	FENCE	9/30/2024	PRIMARY	267.77	5.88	273.65	271.77	1.88	TO BE REMOVED	N/A
164	GROUND	9/30/2024	PRIMARY	272.71	0.00	272.71	272.33	0.38	TO BE GRADED	N/A
165	FENCE	9/30/2024	PRIMARY	269.38	5.42	274.80	272.15	2.65	TO BE REMOVED	N/A
166	GROUND	9/30/2024	PRIMARY	273.31	0.00	273.31	272.62	0.69	TO BE GRADED	N/A
167	GROUND	9/30/2024	PRIMARY	273.77	0.00	273.77	272.78	0.99	TO BE GRADED	N/A
168	GROUND	9/30/2024	PRIMARY	273.22	0.00	273.22	272.77	0.45	TO BE GRADED	N/A
169	FENCE	9/30/2024	PRIMARY	268.67	6.33	275.00	272.52	2.48	TO BE REMOVED	N/A
170	SIGN	9/30/2024	PRIMARY	273.27	3.41	276.68	272.82	3.86	FIXED BY FUNCTION	N/A
171	SIGN	9/30/2024	PRIMARY	271.70	2.97	274.67	272.85	1.82	FIXED BY FUNCTION	N/A
172	FENCE	9/30/2024	PRIMARY	272.02	6.94	278.96	272.87	6.09	TO BE REMOVED	N/A
173	SIGN	9/30/2024	PRIMARY	271.60	3.63	275.23	272.88	2.35	FIXED BY FUNCTION	N/A
174	GROUND	9/30/2024	PRIMARY	273.32	0.00	273.32	272.91	0.41	TO BE GRADED	N/A
175	GROUND	9/30/2024	PRIMARY	273.57	0.00	273.57	272.88	0.69	TO BE GRADED	N/A
176	SIGN	9/30/2024	PRIMARY	272.18	3.27	275.45	272.88	2.57	FIXED BY FUNCTION	N/A
177	GROUND	9/30/2024	PRIMARY	276.13	0.00	276.13	272.88	3.25	TO BE GRADED	N/A
178	SIGN	9/30/2024	PRIMARY	271.91	4.73	276.64	272.88	3.76	FIXED BY FUNCTION	N/A
179	FENCE	9/30/2024	PRIMARY	273.23	5.12	278.35	272.88	5.47	TO BE REMOVED	N/A

PART 77 RUNWAY 5 APPROACH SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
200	TREE	9/30/2024	5 APPROACH	254.91	55.18	310.09	284.83	25.26	TO BE REMOVED	N/A
201	TREE	9/30/2024	5 APPROACH	254.42	70.03	324.45	288.50	35.95	TO BE REMOVED	N/A
202	TREE	9/30/2024	5 APPROACH	226.77	146.54	373.31	344.87	28.44	TO BE REMOVED	N/A
203	TREE	9/30/2024	5 APPROACH	224.97	171.15	396.12	359.78	36.34	TO BE REMOVED	N/A
204	TREE	9/30/2024	5 APPROACH	282.32	157.67	439.99	378.31	61.68	TO BE REMOVED	N/A
205	TREE	9/30/2024	5 APPROACH	272.17	134.19	406.36	386.36	20.00	TO BE REMOVED	N/A
206	TREE	9/30/2024	5 APPROACH	266.01	152.50	418.51	391.29	27.22	TO BE REMOVED	N/A
207	TREE	9/30/2024	5 APPROACH	271.10	135.33	406.43	401.11	5.32	TO BE REMOVED	N/A
208	TREE	9/30/2024	5 APPROACH	295.09	181.73	476.82	423.26	53.56	TO BE REMOVED	N/A
210	TREE	9/30/2024	5 APPROACH	254.34	48.35	302.68	263.39	39.29	TO BE REMOVED	N/A
211	TREE	9/30/2024	5 APPROACH	258.62	35.57	294.19	270.62	23.57	TO BE REMOVED	N/A
212	TREE	9/30/2024	5 APPROACH	257.62	21.61	279.23	268.13	11.10	TO BE REMOVED	N/A
213	TREE	9/30/2024	5 APPROACH	257.86	15.00	272.86	267.82	5.04	TO BE REMOVED	N/A
214	TREE	9/30/2024	5 APPROACH	253.53	81.95	335.48	276.70	58.78	TO BE REMOVED	N/A
215	TREE	9/30/2024	5 APPROACH	233.03	69.29	302.32	284.26	18.06	TO BE REMOVED	N/A
216	TREE	9/30/2024	5 APPROACH	254.44	63.79	318.23	283.38	34.85	TO BE REMOVED	N/A
217	TREE	9/30/2024	5 APPROACH	255.09	28.38	283.46	284.55	-1.09	NO OBSTRUCTION	N/A
218	TREE	9/30/2024	5 APPROACH	233.47	102.90	336.37	289.23	47.14	TO BE REMOVED	N/A
219	TREE	9/30/2024	5 APPROACH	255.76	21.62	277.38	284.35	-6.97	NO OBSTRUCTION	N/A
220	TREE	9/30/2024	5 APPROACH	256.49	68.15	324.64	284.52	40.12	TO BE REMOVED	N/A
221	TREE	9/30/2024	5 APPROACH	255.19	26.25	281.44	286.43	-4.99	NO OBSTRUCTION	N/A
222	TREE	9/30/2024	5 APPROACH	255.11	33.42	288.53	284.88	3.65	TO BE REMOVED	N/A
223	TREE	9/30/2024	5 APPROACH	256.98	78.10	335.08	286.91	48.17	TO BE REMOVED	N/A
224	TREE	9/30/2024	5 APPROACH	254.21	65.17	319.38	288.10	31.28	TO BE REMOVED	N/A

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"THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-41-0069-20-2024) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NO.	DATE	BY	APPR	REVISIONS

VERIFY SCALES

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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

FEDERAL AVIATION ADMINISTRATION APPROVAL

APPROVAL DATE: _____

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PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRSPACE OBSTRUCTION DATA TABLES

FIGURE NO.

SHEET NO. 17 OF 22

PART 77 RUNWAY 5 APPROACH SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
225	TREE	9/30/2024	5 APPROACH	255.90	71.78	327.68	291.96	35.72	TO BE REMOVED	N/A
226	TREE	9/30/2024	5 APPROACH	233.50	99.85	333.35	303.01	30.34	TO BE REMOVED	N/A
227	TREE	9/30/2024	5 APPROACH	230.59	121.30	351.89	305.63	46.26	TO BE REMOVED	N/A
228	TREE	9/30/2024	5 APPROACH	254.33	51.51	305.84	292.72	13.12	TO BE REMOVED	N/A
229	TREE	9/30/2024	5 APPROACH	230.64	114.55	345.19	310.29	34.90	TO BE REMOVED	N/A
230	TREE	9/30/2024	5 APPROACH	255.44	99.20	354.64	299.01	55.63	TO BE REMOVED	N/A
231	TREE	9/30/2024	5 APPROACH	231.79	119.74	351.53	316.00	35.53	TO BE REMOVED	N/A
232	TREE	9/30/2024	5 APPROACH	231.63	108.72	340.35	315.38	24.97	TO BE REMOVED	N/A
233	TREE	9/30/2024	5 APPROACH	227.80	101.40	329.20	322.01	7.19	TO BE REMOVED	N/A
234	TREE	9/30/2024	5 APPROACH	228.24	104.91	333.15	325.30	7.85	TO BE REMOVED	N/A
235	TREE	9/30/2024	5 APPROACH	227.69	105.01	332.70	330.45	2.25	TO BE REMOVED	N/A
236	TREE	9/30/2024	5 APPROACH	230.10	103.14	333.24	333.28	-0.04	NO OBSTRUCTION	N/A
237	TREE	9/30/2024	5 APPROACH	229.31	105.99	335.30	338.06	-2.76	NO OBSTRUCTION	N/A
238	TREE	9/30/2024	5 APPROACH	226.55	123.84	350.39	344.40	5.99	TO BE REMOVED	N/A
239	TREE	9/30/2024	5 APPROACH	257.11	73.34	330.45	330.86	-0.41	NO OBSTRUCTION	N/A
240	TREE	9/30/2024	5 APPROACH	225.06	151.52	376.58	350.98	25.60	TO BE REMOVED	N/A
241	TREE	9/30/2024	5 APPROACH	256.73	114.76	371.49	338.35	33.14	TO BE REMOVED	N/A
242	TREE	9/30/2024	5 APPROACH	257.42	109.37	366.79	340.35	26.44	TO BE REMOVED	N/A
243	TREE	9/30/2024	5 APPROACH	224.42	147.79	372.21	353.50	18.71	TO BE REMOVED	N/A
244	TREE	9/30/2024	5 APPROACH	283.50	127.07	410.57	371.89	38.68	TO BE REMOVED	N/A
245	TREE	9/30/2024	5 APPROACH	301.20	65.10	366.30	375.80	-9.50	NO OBSTRUCTION	N/A
246	TREE	9/30/2024	5 APPROACH	306.97	70.84	377.81	385.77	-7.96	NO OBSTRUCTION	N/A
247	TREE	9/30/2024	5 APPROACH	281.76	147.16	428.92	405.58	23.34	TO BE REMOVED	N/A
248	TREE	9/30/2024	5 APPROACH	253.82	155.73	409.55	416.09	-6.54	NO OBSTRUCTION	N/A
249	TREE	9/30/2024	5 APPROACH	281.39	153.74	435.13	407.71	27.42	TO BE REMOVED	N/A
250	TREE	9/30/2024	5 APPROACH	281.77	127.08	408.85	413.62	-4.77	NO OBSTRUCTION	N/A

PART 77 RUNWAY 23 APPROACH SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
333	TREE	9/30/2024	23 APPROACH	281.65	14.85	296.50	296.97	-0.47	NO OBSTRUCTION	PRECISION APPR
334	TREE	9/30/2024	23 APPROACH	292.19	23.02	315.21	298.97	16.24	TO BE REMOVED	N/A
335	TREE	9/30/2024	23 APPROACH	288.56	34.87	323.43	298.43	25.00	TO BE REMOVED	N/A
336	TREE	9/30/2024	23 APPROACH	279.22	29.14	308.36	298.84	9.52	TO BE REMOVED	N/A
337	TREE	9/30/2024	23 APPROACH	277.41	20.57	297.98	298.88	-0.90	NO OBSTRUCTION	PRECISION APPR
338	TREE	9/30/2024	23 APPROACH	269.72	49.10	318.82	294.83	23.99	TO BE REMOVED	N/A
339	TREE	9/30/2024	23 APPROACH	265.15	59.14	324.29	295.21	29.08	TO BE REMOVED	N/A
340	TREE	9/30/2024	23 APPROACH	274.21	47.11	321.32	301.47	19.85	TO BE REMOVED	N/A
341	TREE	9/30/2024	23 APPROACH	270.33	34.65	304.98	301.66	3.32	TO BE REMOVED	PRECISION APPR
342	TREE	9/30/2024	23 APPROACH	272.93	53.00	325.93	302.80	23.13	TO BE REMOVED	N/A
343	TREE	9/30/2024	23 APPROACH	280.01	45.23	325.24	306.67	18.57	TO BE REMOVED	N/A
344	TREE	9/30/2024	23 APPROACH	258.06	90.43	348.49	297.12	51.37	TO BE REMOVED	N/A
345	TREE	9/30/2024	23 APPROACH	270.06	48.12	318.18	303.46	14.72	TO BE REMOVED	N/A
346	TREE	9/30/2024	23 APPROACH	273.00	52.59	325.59	305.02	20.57	TO BE REMOVED	N/A
347	TREE	9/30/2024	23 APPROACH	265.45	38.28	303.73	305.39	-1.66	NO OBSTRUCTION	PRECISION APPR
348	TREE	9/30/2024	23 APPROACH	266.74	73.37	340.11	316.60	23.51	TO BE REMOVED	N/A
349	TREE	9/30/2024	23 APPROACH	265.61	119.69	385.30	325.55	59.75	TO BE REMOVED	N/A
350	TREE	9/30/2024	23 APPROACH	248.64	117.54	366.18	332.99	33.19	TO BE REMOVED	N/A
351	TREE	9/30/2024	23 APPROACH	250.13	131.70	381.83	337.83	44.00	TO BE REMOVED	N/A
352	TREE	9/30/2024	23 APPROACH	249.17	133.11	382.28	339.35	42.93	TO BE REMOVED	N/A
353	TREE	9/30/2024	23 APPROACH	236.44	111.63	348.07	335.93	12.14	TO BE REMOVED	PRECISION APPR
354	TREE	9/30/2024	23 APPROACH	231.88	98.21	330.09	335.89	-5.80	NO OBSTRUCTION	PRECISION APPR
355	TREE	9/30/2024	23 APPROACH	247.69	129.78	377.47	340.50	36.97	TO BE REMOVED	N/A
356	TREE	9/30/2024	23 APPROACH	231.84	109.84	341.68	337.58	4.10	TO BE REMOVED	PRECISION APPR
357	TREE	9/30/2024	23 APPROACH	231.36	106.59	337.95	340.35	-2.40	NO OBSTRUCTION	PRECISION APPR
358	TREE	9/30/2024	23 APPROACH	232.00	100.49	332.49	341.04	-8.55	NO OBSTRUCTION	PRECISION APPR

PART 77 RUNWAY 23 APPROACH SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
300	TREE	9/30/2024	23 APPROACH	241.59	75.23	316.82	311.66	5.16	TO BE REMOVED	PRECISION APPR
301	TREE	9/30/2024	23 APPROACH	244.59	142.80	387.39	333.85	53.54	TO BE REMOVED	N/A
302	TREE	9/30/2024	23 APPROACH	246.09	115.88	361.97	344.91	17.06	TO BE REMOVED	PRECISION APPR
303	TREE	9/30/2024	23 APPROACH	239.74	127.05	366.79	360.26	6.53	TO BE REMOVED	PRECISION APPR
304	TREE	9/30/2024	23 APPROACH	240.03	174.97	415.00	369.16	45.84	TO BE REMOVED	N/A
305	TREE	9/30/2024	23 APPROACH	238.91	141.42	380.33	369.53	10.80	TO BE REMOVED	PRECISION APPR
306	TREE	9/30/2024	23 APPROACH	240.81	161.61	402.42	371.23	31.19	TO BE REMOVED	PRECISION APPR
307	TREE	9/30/2024	23 APPROACH	238.85	134.98	373.83	374.55	-0.72	NO OBSTRUCTION	PRECISION APPR
308	TREE	9/30/2024	23 APPROACH	238.96	142.65	381.61	373.01	8.60	TO BE REMOVED	PRECISION APPR
309	TREE	9/30/2024	23 APPROACH	238.91	139.00	377.91	374.74	3.17	TO BE REMOVED	PRECISION APPR
310	TREE	9/30/2024	23 APPROACH	239.54	135.51	375.05	378.99	-3.94	NO OBSTRUCTION	PRECISION APPR
311	TREE	9/30/2024	23 APPROACH	236.06	144.05	380.11	380.53	-0.42	NO OBSTRUCTION	PRECISION APPR
312	TREE	9/30/2024	23 APPROACH	240.29	136.57	376.86	376.80	0.06	TO BE REMOVED	PRECISION APPR
313	TREE	9/30/2024	23 APPROACH	239.03	169.98	409.01	372.74	36.27	TO BE REMOVED	PRECISION APPR
314	TREE	9/30/2024	23 APPROACH	236.03	171.87	407.90	373.09	34.81	TO BE REMOVED	PRECISION APPR
315	TREE	9/30/2024	23 APPROACH	235.13	170.07	405.20	371.98	33.22	TO BE REMOVED	PRECISION APPR
316	TREE	9/30/2024	23 APPROACH	237.94	177.21	415.15	370.47	44.68	TO BE REMOVED	N/A
317	TREE	9/30/2024	23 APPROACH	235.33	155.93	391.26	381.01	10.25	TO BE REMOVED	PRECISION APPR
318	TREE	9/30/2024	23 APPROACH	237.02	138.63	375.65	380.80	-5.15	NO OBSTRUCTION	PRECISION APPR
319	TREE	9/30/2024	23 APPROACH	236.73	144.97	381.70	383.47	-1.77	NO OBSTRUCTION	PRECISION APPR
320	TREE	9/30/2024	23 APPROACH	238.06	151.70	389.76	384.34	5.42	TO BE REMOVED	PRECISION APPR
321	TREE	9/30/2024	23 APPROACH	273.09	24.83	297.92	276.19	21.73	TO BE REMOVED	N/A
322	TREE	9/30/2024	23 APPROACH	271.89	33.26	305.15	280.19	24.96	TO BE REMOVED	N/A
323	LOCAL ROAD	9/30/2024	23 APPROACH	294.56	15.00	309.56	289.97	19.59	TO BE LIGHTED	N/A
324	TREE	9/30/2024	23 APPROACH	272.17	24.52	296.69	284.21	12.48	TO BE REMOVED	N/A
325	FENCE	9/30/2024	23 APPROACH	284.73	6.65	291.38	291.16	0.22	TO BE REMOVED	PRECISION APPR
326	LOCAL ROAD	9/30/2024	23 APPROACH	286.13	15.00	301.13	292.69	8.44	TO BE LIGHTED	PRECISION APPR
327	TREE	9/30/2024	23 APPROACH	289.95	18.24	308.19	296.06	12.13	TO BE REMOVED	N/A
328	LOCAL ROAD	9/30/2024	23 APPROACH	282.78	15.00	297.78	293.41	4.37	TO BE LIGHTED	PRECISION APPR
329	TREE	9/30/2024	23 APPROACH	292.94	17.44	310.38	296.30	14.08	TO BE REMOVED	N/A
330	TREE	9/30/2024	23 APPROACH	287.74	27.57	315.31	295.76	19.55	TO BE REMOVED	N/A
331	TREE	9/30/2024	23 APPROACH	292.50	19.94	312.44	298.05	14.39	TO BE REMOVED	N/A
332	TREE	9/30/2024	23 APPROACH	288.26	46.46	334.72	297.32	37.40	TO BE REMOVED	N/A

PART 77 TRANSITIONAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
400	TREE	9/30/2024	TRANSITIONAL	317.69	64.93	382.62	376.20	6.42	TO BE REMOVED	N/A
401	TREE	9/30/2024	TRANSITIONAL	312.90	79.13	392.03	380.53	11.50	TO BE REMOVED	N/A
402	TREE	9/30/2024	TRANSITIONAL	262.17	85.44	347.61	315.63	31.98	TO BE REMOVED	N/A
403	TREE	9/30/2024	TRANSITIONAL	261.47	55.18	316.65	304.39	12.26	TO BE REMOVED	N/A
404	TREE	9/30/2024	TRANSITIONAL	261.72	44.99	306.71	297.93	8.78	TO BE REMOVED	N/A
405	TREE	9/30/2024	TRANSITIONAL	260.35	51.07	311.42	299.88	11.54	TO BE REMOVED	N/A
406	TREE	9/30/2024	TRANSITIONAL	263.11	52.19	315.30	298.91	16.39	TO BE REMOVED	N/A
407	TREE	9/30/2024	TRANSITIONAL	265.96	43.33	309.29	308.02	1.27	TO BE REMOVED	N/A
408	TREE	9/30/2024	TRANSITIONAL	264.67	62.01	326.68	334.49	-7.81	NO OBSTRUCTION	N/A
409	TREE	9/30/2024	TRANSITIONAL	284.13	141.66	425.79	392.24	33.55	TO BE REMOVED	N/A
410	TREE	9/30/2024	TRANSITIONAL	299.47	133.01	432.48	372.73	59.75	TO BE REMOVED	N/A
411	SIGN	9/30/2024	TRANSITIONAL	290.85	20.85	311.70	297.16	14.54	TO BE REMOVED	N/A
412	TREE	9/30/2024	TRANSITIONAL	326.69	62.68	389.37	372.24	17.13	TO BE REMOVED	N/A
413	TREE	9/30/2024	TRANSITIONAL	290.61	61.50	352.11	312.00	40.11	TO BE REMOVED	N/A
414	TREE	9/30/2024	TRANSITIONAL	287.12	114.08	401.20	386.99	14.21	TO BE REMOVED	N/A
415	TREE	9/30/2024	TRANSITIONAL	269.62	135.60	405.22	367.29	37.93	TO BE REMOVED	N/A
416	TREE	9/30/2024	TRANSITIONAL	268.92	143.23	412.15	388.35	23.80	TO BE REMOVED	N/A
417	TREE	9/30/2024	TRANSITIONAL	265.64	70.83	336.47	322.00	14.47	TO BE REMOVED	N/A
419	TREE	9/30/2024	TRANSITIONAL	264.59	130.16	394.75	333.92	60.83	TO BE REMOVED	N/A
420	TREE	9/30/2024	TRANSITIONAL	255.15	161.99	417.14	415.78	1.36	TO BE REMOVED	N/A
421	TREE	9/30/2024	TRANSITIONAL	253.68	145.36	399.04	385.59	13.45	TO BE REMOVED	PRECISION APPR
422	TREE	9/30/2024	TRANSITIONAL	220.02	160.98	381.00	375.19	6.20	TO BE REMOVED	N/A
423	TREE	9/30/2024	TRANSITIONAL	224.79	139.24	364.03	360.30	3.73	TO BE REMOVED	N/A
424	TREE	9/30/2024	TRANSITIONAL	230.94	107.46	338.40	332.17	6.23	NO OBSTRUCTION	N/A
425	TREE	9/30/2024	TRANSITIONAL	229.80	122.05	351.85	330.73	21.12	TO BE REMOVED	N/A
426	TREE	9/30/2024	TRANSITIONAL	234.03	99.14	333.17	298.52	34.65	TO BE REMOVED	N/A

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NO.	DATE	BY	APPR	REVISIONS

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING.
0" 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

FEDERAL AVIATION ADMINISTRATION APPROVAL

APPROVAL DATE: _____

SIGNATURE

PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRSPACE OBSTRUCTION DATA TABLES

FIGURE NO.

SHEET NO. 18 OF 22

PART 77 TRANSITIONAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
427	TREE	9/30/2024	TRANSITIONAL	233.26	121.23	354.49	333.54	20.95	TO BE REMOVED	N/A
428	TREE	9/30/2024	TRANSITIONAL	234.23	124.38	358.61	364.26	-5.65	NO OBSTRUCTION	N/A
429	TREE	9/30/2024	TRANSITIONAL	258.15	110.79	368.94	288.68	80.26	TO BE REMOVED	N/A
430	TREE	9/30/2024	TRANSITIONAL	238.67	116.58	355.25	347.56	7.69	TO BE REMOVED	N/A
431	TREE	9/30/2024	TRANSITIONAL	254.14	96.08	350.22	271.28	78.94	TO BE REMOVED	N/A
432	TREE	9/30/2024	TRANSITIONAL	260.64	91.39	352.03	289.68	62.35	TO BE REMOVED	N/A
433	TREE	9/30/2024	TRANSITIONAL	260.21	89.69	349.90	335.90	14.00	TO BE REMOVED	N/A
434	TREE	9/30/2024	TRANSITIONAL	263.92	100.82	364.74	338.54	26.20	TO BE REMOVED	N/A
435	TREE	9/30/2024	TRANSITIONAL	255.91	99.25	355.16	291.06	64.10	TO BE REMOVED	N/A
436	TREE	9/30/2024	TRANSITIONAL	260.39	86.54	346.93	276.56	70.37	TO BE REMOVED	N/A
437	TREE	9/30/2024	TRANSITIONAL	269.06	83.79	352.85	337.26	15.59	TO BE REMOVED	N/A
438	TREE	9/30/2024	TRANSITIONAL	247.45	83.07	330.52	285.64	44.88	TO BE REMOVED	N/A
439	TREE	9/30/2024	TRANSITIONAL	266.54	80.85	347.39	279.02	68.37	TO BE REMOVED	N/A
440	TREE	9/30/2024	TRANSITIONAL	266.27	94.87	361.14	289.81	71.33	TO BE REMOVED	N/A
441	TREE	9/30/2024	TRANSITIONAL	266.09	97.53	363.62	358.20	5.42	TO BE REMOVED	N/A
442	TREE	9/30/2024	TRANSITIONAL	266.26	97.83	364.09	311.41	52.68	TO BE REMOVED	N/A
443	TREE	9/30/2024	TRANSITIONAL	266.93	92.43	359.36	348.55	10.81	TO BE REMOVED	N/A
444	TREE	9/30/2024	TRANSITIONAL	264.42	104.86	369.28	333.14	36.14	TO BE REMOVED	N/A
445	TREE	9/30/2024	TRANSITIONAL	269.81	41.76	311.57	278.70	32.87	TO BE REMOVED	N/A
446	TREE	9/30/2024	TRANSITIONAL	275.25	48.62	323.87	291.48	32.39	TO BE REMOVED	N/A
447	TREE	9/30/2024	TRANSITIONAL	268.33	100.33	368.66	343.39	25.27	TO BE REMOVED	N/A
448	TREE	9/30/2024	TRANSITIONAL	270.72	102.74	373.46	355.94	17.52	TO BE REMOVED	N/A
449	TREE	9/30/2024	TRANSITIONAL	271.51	39.02	310.53	296.08	14.45	TO BE REMOVED	N/A
450	TREE	9/30/2024	TRANSITIONAL	268.68	83.50	352.18	358.56	-6.38	NO OBSTRUCTION	PRECISION APPR
451	TREE	9/30/2024	TRANSITIONAL	246.01	124.08	370.09	311.20	58.89	TO BE REMOVED	N/A
452	TREE	9/30/2024	TRANSITIONAL	243.95	140.12	384.07	328.49	55.58	TO BE REMOVED	N/A
453	TREE	9/30/2024	TRANSITIONAL	244.54	127.88	372.42	377.49	-5.07	NO OBSTRUCTION	PRECISION APPR
454	TREE	9/30/2024	TRANSITIONAL	233.38	132.75	366.13	357.20	8.93	TO BE REMOVED	PRECISION APPR
455	TREE	9/30/2024	TRANSITIONAL	238.09	156.97	395.06	384.51	10.55	TO BE REMOVED	PRECISION APPR
456	TREE	9/30/2024	TRANSITIONAL	238.84	165.95	404.79	400.80	3.99	TO BE REMOVED	PRECISION APPR
457	TREE	9/30/2024	TRANSITIONAL	258.16	122.30	380.46	344.57	35.89	TO BE REMOVED	N/A
458	TREE	9/30/2024	TRANSITIONAL	290.52	144.63	435.15	419.15	16.00	TO BE REMOVED	N/A
459	GROUND	9/30/2024	TRANSITIONAL	270.69	0.00	270.69	270.67	0.02	TO BE GRADED	N/A
460	TREE	9/30/2024	TRANSITIONAL	253.52	129.93	383.45	392.86	-9.41	NO OBSTRUCTION	PRECISION APPR

PART 77 HORIZONTAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
208	TREE	9/30/2024	HORIZONTAL	295.09	181.73	476.82	423.04	53.78	TO BE REMOVED	N/A
209	TREE	9/30/2024	HORIZONTAL	301.64	176.26	477.90	447.59	30.31	TO BE REMOVED	N/A
209	TREE	9/30/2024	HORIZONTAL	301.64	176.26	477.90	423.04	54.86	TO BE REMOVED	N/A
500	TREE	9/30/2024	HORIZONTAL	309.02	125.30	434.32	423.04	11.28	TO BE REMOVED	N/A
501	TREE	9/30/2024	HORIZONTAL	302.53	129.65	432.18	423.04	9.14	TO BE REMOVED	N/A
502	TREE	9/30/2024	HORIZONTAL	353.59	86.29	439.88	423.04	16.84	TO BE REMOVED	N/A
503	TREE	9/30/2024	HORIZONTAL	335.49	158.86	494.35	423.04	71.31	TO BE REMOVED	N/A
504	TREE	9/30/2024	HORIZONTAL	338.29	155.46	493.75	423.04	70.71	TO BE REMOVED	N/A
505	TREE	9/30/2024	HORIZONTAL	356.86	124.32	481.18	423.04	58.14	TO BE REMOVED	N/A
506	TREE	9/30/2024	HORIZONTAL	356.72	121.84	478.56	423.04	55.52	TO BE REMOVED	N/A
507	TREE	9/30/2024	HORIZONTAL	319.67	130.55	450.22	423.04	27.18	TO BE REMOVED	N/A
508	TREE	9/30/2024	HORIZONTAL	307.17	131.94	439.11	423.04	16.07	TO BE REMOVED	N/A
509	TREE	9/30/2024	HORIZONTAL	310.50	142.89	453.39	423.04	30.35	TO BE REMOVED	N/A
510	TREE	9/30/2024	HORIZONTAL	306.35	126.00	432.35	423.04	9.31	TO BE REMOVED	N/A
511	TREE	9/30/2024	HORIZONTAL	333.25	105.94	439.19	423.04	16.15	TO BE REMOVED	N/A
512	TREE	9/30/2024	HORIZONTAL	339.72	117.26	456.98	423.04	33.94	TO BE REMOVED	N/A
513	TREE	9/30/2024	HORIZONTAL	357.38	120.72	478.10	423.04	55.06	TO BE REMOVED	N/A
514	TREE	9/30/2024	HORIZONTAL	316.43	142.94	459.37	423.04	36.33	TO BE REMOVED	N/A
515	TREE	9/30/2024	HORIZONTAL	310.11	147.13	457.24	423.04	34.20	TO BE REMOVED	N/A
516	TREE	9/30/2024	HORIZONTAL	289.24	135.76	425.00	423.04	1.96	TO BE REMOVED	N/A
517	TREE	9/30/2024	HORIZONTAL	308.56	128.67	437.23	423.04	14.19	TO BE REMOVED	N/A
518	TREE	9/30/2024	HORIZONTAL	309.62	146.25	455.87	423.04	32.83	TO BE REMOVED	N/A
519	TREE	9/30/2024	HORIZONTAL	308.52	117.76	426.28	423.04	3.24	TO BE REMOVED	N/A
520	TREE	9/30/2024	HORIZONTAL	296.77	128.23	425.00	423.04	1.96	TO BE REMOVED	N/A
521	TREE	9/30/2024	HORIZONTAL	304.81	155.33	460.14	423.04	37.10	TO BE REMOVED	N/A

PART 77 HORIZONTAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
522	TREE	9/30/2024	HORIZONTAL	305.59	141.13	446.72	423.04	23.68	TO BE REMOVED	N/A
523	TREE	9/30/2024	HORIZONTAL	294.43	153.49	447.92	423.04	24.88	TO BE REMOVED	N/A
524	TREE	9/30/2024	HORIZONTAL	300.61	137.47	438.08	423.04	15.04	TO BE REMOVED	N/A
525	TREE	9/30/2024	HORIZONTAL	279.13	153.14	432.27	423.04	9.23	TO BE REMOVED	N/A
526	TREE	9/30/2024	HORIZONTAL	278.23	145.23	423.46	423.04	0.42	TO BE REMOVED	N/A
527	TREE	9/30/2024	HORIZONTAL	359.70	88.13	447.83	423.04	24.79	TO BE REMOVED	N/A
528	TREE	9/30/2024	HORIZONTAL	323.49	145.03	468.52	423.04	45.48	TO BE REMOVED	N/A
529	TREE	9/30/2024	HORIZONTAL	290.40	137.68	428.08	423.04	5.04	TO BE REMOVED	N/A
530	WATER TOWER	9/30/2024	HORIZONTAL	300.68	163.95	464.63	423.04	41.59	LIGHTED	N/A
531	TREE	9/30/2024	HORIZONTAL	293.11	162.24	455.35	423.04	32.31	TO BE REMOVED	N/A
532	TREE	9/30/2024	HORIZONTAL	304.83	143.17	448.00	423.04	24.96	TO BE REMOVED	N/A
533	TREE	9/30/2024	HORIZONTAL	302.94	145.32	448.26	423.04	25.22	TO BE REMOVED	N/A
534	TREE	9/30/2024	HORIZONTAL	292.08	147.63	439.71	423.04	16.67	TO BE REMOVED	N/A
535	TREE	9/30/2024	HORIZONTAL	352.68	81.90	434.58	423.04	11.54	TO BE REMOVED	N/A
536	TREE	9/30/2024	HORIZONTAL	350.10	88.84	438.94	423.04	15.90	TO BE REMOVED	N/A
537	TREE	9/30/2024	HORIZONTAL	294.89	133.10	427.99	423.04	4.95	TO BE REMOVED	N/A
538	TREE	9/30/2024	HORIZONTAL	300.53	124.90	425.43	423.04	2.39	TO BE REMOVED	N/A
539	TREE	9/30/2024	HORIZONTAL	300.79	133.27	434.06	423.04	11.02	TO BE REMOVED	N/A
540	TREE	9/30/2024	HORIZONTAL	292.95	142.57	435.52	423.04	12.48	TO BE REMOVED	N/A
541	TREE	9/30/2024	HORIZONTAL	293.15	159.98	453.13	423.04	30.09	TO BE REMOVED	N/A
542	TREE	9/30/2024	HORIZONTAL	293.97	138.64	432.61	423.04	9.57	TO BE REMOVED	N/A
543	TREE	9/30/2024	HORIZONTAL	330.56	100.08	430.64	423.04	7.60	TO BE REMOVED	N/A
544	TREE	9/30/2024	HORIZONTAL	337.76	154.70	492.46	423.04	69.42	TO BE REMOVED	N/A
545	TREE	9/30/2024	HORIZONTAL	336.59	182.89	519.48	423.04	96.44	TO BE REMOVED	N/A
546	TREE	9/30/2024	HORIZONTAL	340.01	172.54	512.55	423.04	89.51	TO BE REMOVED	N/A
547	TREE	9/30/2024	HORIZONTAL	344.28	109.71	453.99	423.04	30.95	TO BE REMOVED	N/A
548	TREE	9/30/2024	HORIZONTAL	345.51	94.71	440.22	423.04	17.18	TO BE REMOVED	N/A
549	TREE	9/30/2024	HORIZONTAL	311.16	120.08	431.24	423.04	8.20	TO BE REMOVED	N/A
550	TREE	9/30/2024	HORIZONTAL	299.40	135.26	434.66	423.04	11.62	TO BE REMOVED	N/A
551	TREE	9/30/2024	HORIZONTAL	286.85	192.09	478.94	423.04	55.90	TO BE REMOVED	N/A
552	TREE	9/30/2024	HORIZONTAL	287.33	206.77	494.10	423.04	71.06	TO BE REMOVED	N/A
553	TREE	9/30/2024	HORIZONTAL	294.13	131.21	425.34	423.04	2.30	TO BE REMOVED	N/A
554	TREE	9/30/2024	HORIZONTAL	345.75	80.33	426.08	423.04	3.04	TO BE REMOVED	N/A
555	TREE	9/30/2024	HORIZONTAL	334.09	100.67	434.76	423.04	11.72	TO BE REMOVED	N/A
556	TREE	9/30/2024	HORIZONTAL	313.38	170.54	483.92	423.04	60.88	TO BE REMOVED	N/A
557	TREE	9/30/2024	HORIZONTAL	288.95	157.34	446.28	423.04	23.24	TO BE REMOVED	N/A
558	TREE	9/30/2024	HORIZONTAL	357.76	86.78	444.54	423.04	21.50	TO BE REMOVED	N/A
559	TREE	9/30/2024	HORIZONTAL	361.16	150.87	512.03	423.04	88.99	TO BE REMOVED	N/A
560	TREE	9/30/2024	HORIZONTAL	352.16	122.04	474.20	423.04	51.16	TO BE REMOVED	N/A
561	TREE	9/30/2024	HORIZONTAL	359.86	94.60	454.46	423.04	31.42	TO BE REMOVED	N/A
562	TREE	9/30/2024	HORIZONTAL	309.93	140.64	450.57	423.04	27.53	TO BE REMOVED	N/A
563	TREE	9/30/2024	HORIZONTAL	349.63	94.09	443.72	423.04	20.68	TO BE REMOVED	N/A
564	TREE	9/30/2024	HORIZONTAL	341.17	110.37	451.54	423.04	28.50	TO BE REMOVED	N/A
565	TREE	9/30/2024	HORIZONTAL	329.16	124.59	453.75	423.04	30.71	TO BE REMOVED	N/A
566	TREE	9/30/2024	HORIZONTAL	277.32	136.81	414.13	423.04	-8.91	NO OBSTRUCTION	N/A
567	TREE	9/30/2024	HORIZONTAL	287.27	199.85	487.12	423.04	64.08	TO BE REMOVED	N/A
568	TREE	9/30/2024	HORIZONTAL	285.13	165.90	451.03	423.04	27.99	TO BE REMOVED	N/A
569	TREE	9/30/2024	HORIZONTAL	282.01	135.35	417.36	423.04	-5.68	NO OBSTRUCTION	N/A
570	TREE	9/30/2024	HORIZONTAL	347.80	123.84	471.64	423.04	48.60	TO BE REMOVED	N/A
571	TREE	9/30/2024	HORIZONTAL	374.82	126.78	501.60	423.04	78.56	TO BE REMOVED	N/A
572	TREE	9/30/2024	HORIZONTAL	392.65	133.21	525.86	423.04	102.82	TO BE REMOVED	N/A
573	TREE	9/30/2024	HORIZONTAL	362.06	115.56	477.62	423.04	54.58	TO BE REMOVED	N/A
574	TREE	9/30/2024	HORIZONTAL	362.15	96.18	458.33	423.04	35.29	TO BE REMOVED	N/A
575	TREE	9/30/2024	HORIZONTAL	333.99	94.69	428.68	423.04	5.64	TO BE REMOVED	N/A
576	TREE	9/30/2024	HORIZONTAL	308.45	143.04	451.49	423.04	28.45	TO BE REMOVED	N/A
577	TREE	9/30/2024	HORIZONTAL	308.30	109.73	418.03	423.04	-5.01	NO OBSTRUCTION	N/A
578	TREE	9/30/2024	HORIZONTAL	316.66	99.00	415.66	423.04	-7.38	NO OBSTRUCTION	N/A

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"THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-41-0069-20-2024) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

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1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

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JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRSPACE OBSTRUCTION DATA TABLES

FIGURE NO.

PART 77 HORIZONTAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
579	TREE	9/30/2024	HORIZONTAL	332.47	91.15	423.62	423.04	0.58	TO BE REMOVED	N/A
580	WATER TOWER	9/30/2024	HORIZONTAL	338.43	131.24	469.67	423.04	46.63	LIGHTED	N/A
581	TREE	9/30/2024	HORIZONTAL	279.57	142.83	422.40	423.04	-0.64	NO OBSTRUCTION	N/A
582	TREE	9/30/2024	HORIZONTAL	327.46	145.67	473.13	423.04	50.09	TO BE REMOVED	N/A
583	TREE	9/30/2024	HORIZONTAL	338.94	105.79	444.73	423.04	21.69	TO BE REMOVED	N/A
584	TREE	9/30/2024	HORIZONTAL	341.09	98.61	439.70	423.04	16.66	TO BE REMOVED	N/A
585	TREE	9/30/2024	HORIZONTAL	346.58	93.43	440.01	423.04	16.97	TO BE REMOVED	N/A
586	TREE	9/30/2024	HORIZONTAL	336.69	88.67	425.36	423.04	2.32	TO BE REMOVED	N/A
587	TREE	9/30/2024	HORIZONTAL	307.19	150.86	458.05	423.04	35.01	TO BE REMOVED	N/A
588	TREE	9/30/2024	HORIZONTAL	296.39	157.27	453.66	423.04	30.62	TO BE REMOVED	N/A
589	TREE	9/30/2024	HORIZONTAL	291.04	135.28	426.32	423.04	3.28	TO BE REMOVED	N/A
590	TREE	9/30/2024	HORIZONTAL	301.53	130.16	431.69	423.04	8.65	TO BE REMOVED	N/A
591	TREE	9/30/2024	HORIZONTAL	273.22	142.68	415.90	423.04	-7.14	NO OBSTRUCTION	N/A
592	TREE	9/30/2024	HORIZONTAL	280.89	139.79	420.68	423.04	-2.36	NO OBSTRUCTION	N/A
593	TREE	9/30/2024	HORIZONTAL	256.17	159.39	415.56	423.04	-7.48	NO OBSTRUCTION	N/A
594	TREE	9/30/2024	HORIZONTAL	339.96	162.36	502.32	423.04	79.28	TO BE REMOVED	N/A
595	TREE	9/30/2024	HORIZONTAL	309.67	191.56	501.23	423.04	78.19	TO BE REMOVED	N/A
596	TREE	9/30/2024	HORIZONTAL	340.95	114.40	455.35	423.04	32.31	TO BE REMOVED	N/A
597	TREE	9/30/2024	HORIZONTAL	326.73	123.68	450.41	423.04	27.37	TO BE REMOVED	N/A
598	TREE	9/30/2024	HORIZONTAL	311.72	140.80	452.52	423.04	29.48	TO BE REMOVED	N/A
599	TREE	9/30/2024	HORIZONTAL	342.21	113.37	455.58	423.04	32.54	TO BE REMOVED	N/A
600	TREE	9/30/2024	HORIZONTAL	260.01	164.11	424.12	423.04	1.08	TO BE REMOVED	N/A
601	TREE	9/30/2024	HORIZONTAL	272.48	172.71	445.19	423.04	22.15	TO BE REMOVED	N/A
602	TREE	9/30/2024	HORIZONTAL	256.67	162.48	419.15	423.04	-3.89	NO OBSTRUCTION	N/A
603	TREE	9/30/2024	HORIZONTAL	319.27	165.53	484.80	423.04	61.76	TO BE REMOVED	N/A
604	TREE	9/30/2024	HORIZONTAL	354.88	141.91	496.79	423.04	73.75	TO BE REMOVED	N/A
605	TREE	9/30/2024	HORIZONTAL	345.40	174.54	519.94	423.04	96.90	TO BE REMOVED	N/A
606	TREE	9/30/2024	HORIZONTAL	291.45	158.24	449.69	423.04	26.65	TO BE REMOVED	N/A
607	TREE	9/30/2024	HORIZONTAL	284.46	160.78	445.24	423.04	22.20	TO BE REMOVED	N/A
608	TREE	9/30/2024	HORIZONTAL	340.78	114.60	455.38	423.04	32.34	TO BE REMOVED	N/A
609	TREE	9/30/2024	HORIZONTAL	342.27	105.51	447.78	423.04	24.74	TO BE REMOVED	N/A
610	TREE	9/30/2024	HORIZONTAL	337.10	94.64	431.74	423.04	8.70	TO BE REMOVED	N/A
611	TREE	9/30/2024	HORIZONTAL	282.92	156.40	439.32	423.04	16.28	TO BE REMOVED	N/A
612	TREE	9/30/2024	HORIZONTAL	318.62	173.41	492.03	423.04	68.99	TO BE REMOVED	N/A
613	TREE	9/30/2024	HORIZONTAL	346.89	136.08	482.97	423.04	59.93	TO BE REMOVED	N/A
614	TREE	9/30/2024	HORIZONTAL	358.53	127.09	485.62	423.04	62.58	TO BE REMOVED	N/A
615	TREE	9/30/2024	HORIZONTAL	262.57	182.44	445.01	423.04	21.97	TO BE REMOVED	N/A
616	TREE	9/30/2024	HORIZONTAL	301.20	146.12	447.32	423.04	24.28	TO BE REMOVED	N/A
617	TREE	9/30/2024	HORIZONTAL	310.67	161.70	472.37	423.04	49.33	TO BE REMOVED	N/A
618	TREE	9/30/2024	HORIZONTAL	269.71	173.93	443.64	423.04	20.60	TO BE REMOVED	N/A
619	TREE	9/30/2024	HORIZONTAL	304.76	126.06	430.82	423.04	7.78	TO BE REMOVED	N/A
620	TREE	9/30/2024	HORIZONTAL	303.07	146.81	449.88	423.04	26.84	TO BE REMOVED	N/A
621	TREE	9/30/2024	HORIZONTAL	299.16	134.65	433.81	423.04	10.77	TO BE REMOVED	N/A
622	TREE	9/30/2024	HORIZONTAL	429.96	42.84	472.80	423.04	49.76	TO BE REMOVED	N/A
623	TREE	9/30/2024	HORIZONTAL	380.25	122.30	502.55	423.04	79.51	TO BE REMOVED	N/A
624	TREE	9/30/2024	HORIZONTAL	332.01	147.80	479.81	423.04	56.77	TO BE REMOVED	N/A
625	TREE	9/30/2024	HORIZONTAL	291.72	157.14	448.86	423.04	25.82	TO BE REMOVED	N/A
626	TREE	9/30/2024	HORIZONTAL	325.81	110.99	436.80	423.04	13.76	TO BE REMOVED	N/A
627	TREE	9/30/2024	HORIZONTAL	279.64	152.30	431.93	423.04	8.89	TO BE REMOVED	N/A
628	TREE	9/30/2024	HORIZONTAL	295.36	151.62	446.98	423.04	23.94	TO BE REMOVED	N/A
629	TREE	9/30/2024	HORIZONTAL	304.25	132.38	436.63	423.04	13.59	TO BE REMOVED	N/A
630	TREE	9/30/2024	HORIZONTAL	320.43	145.87	466.30	423.04	43.26	TO BE REMOVED	N/A
631	TREE	9/30/2024	HORIZONTAL	329.76	124.40	454.16	423.04	31.12	TO BE REMOVED	N/A
632	TREE	9/30/2024	HORIZONTAL	345.61	144.54	490.15	423.04	67.11	TO BE REMOVED	N/A
633	TREE	9/30/2024	HORIZONTAL	388.01	102.57	490.58	423.04	67.54	TO BE REMOVED	N/A
634	TREE	9/30/2024	HORIZONTAL	372.20	79.73	451.93	423.04	28.89	TO BE REMOVED	N/A
635	TREE	9/30/2024	HORIZONTAL	319.54	104.61	424.15	423.04	1.11	TO BE REMOVED	N/A
636	TREE	9/30/2024	HORIZONTAL	329.47	154.70	484.17	423.04	61.13	TO BE REMOVED	N/A
637	TREE	9/30/2024	HORIZONTAL	345.89	148.86	494.75	423.04	71.71	TO BE REMOVED	N/A
638	TREE	9/30/2024	HORIZONTAL	347.14	149.34	496.48	423.04	73.44	TO BE REMOVED	N/A
639	TREE	9/30/2024	HORIZONTAL	349.51	158.77	508.28	423.04	85.24	TO BE REMOVED	N/A
640	TREE	9/30/2024	HORIZONTAL	369.68	96.53	466.21	423.04	43.17	TO BE REMOVED	N/A
641	TREE	9/30/2024	HORIZONTAL	290.26	142.61	432.87	423.04	9.83	TO BE REMOVED	N/A
642	TREE	9/30/2024	HORIZONTAL	387.99	145.34	533.33	423.04	110.29	TO BE REMOVED	N/A

PART 77 HORIZONTAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
643	TREE	9/30/2024	HORIZONTAL	400.37	132.11	532.48	423.04	109.44	TO BE REMOVED	N/A
644	TREE	9/30/2024	HORIZONTAL	397.11	124.73	521.84	423.04	98.80	TO BE REMOVED	N/A
645	TREE	9/30/2024	HORIZONTAL	380.63	87.29	467.92	423.04	44.88	TO BE REMOVED	N/A
646	TREE	9/30/2024	HORIZONTAL	307.63	156.27	463.90	423.04	40.86	TO BE REMOVED	N/A
647	TREE	9/30/2024	HORIZONTAL	313.99	161.20	475.19	423.04	52.15	TO BE REMOVED	N/A
648	TREE	9/30/2024	HORIZONTAL	307.53	128.67	436.20	423.04	13.16	TO BE REMOVED	N/A
649	TREE	9/30/2024	HORIZONTAL	403.88	75.72	479.60	423.04	56.56	TO BE REMOVED	N/A
650	TREE	9/30/2024	HORIZONTAL	382.34	130.73	513.07	423.04	90.03	TO BE REMOVED	N/A
651	TREE	9/30/2024	HORIZONTAL	368.03	132.64	500.67	423.04	77.63	TO BE REMOVED	N/A
652	TREE	9/30/2024	HORIZONTAL	325.19	142.30	467.49	423.04	44.45	TO BE REMOVED	N/A
653	TREE	9/30/2024	HORIZONTAL	311.01	146.31	457.32	423.04	34.28	TO BE REMOVED	N/A

CONICAL

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
700	TREE	9/30/2024	CONICAL	373.42	141.58	515.00	513.10	1.90	TO BE REMOVED	N/A
701	TREE	9/30/2024	CONICAL	367.90	147.04	514.94	494.77	20.17	TO BE REMOVED	N/A
702	TREE	9/30/2024	CONICAL	359.85	142.00	501.85	487.85	14.00	TO BE REMOVED	N/A
703	TREE	9/30/2024	CONICAL	363.29	134.12	497.41	477.72	19.69	TO BE REMOVED	N/A
704	TREE	9/30/2024	CONICAL	343.76	98.90	442.66	424.39	18.27	TO BE REMOVED	N/A
705	TREE	9/30/2024	CONICAL	351.02	135.39	486.41	434.82	51.59	TO BE REMOVED	N/A
706	TREE	9/30/2024	CONICAL	370.65	138.89	509.54	460.90	48.64	TO BE REMOVED	N/A
707	TREE	9/30/2024	CONICAL	377.37	130.65	508.02	460.45	47.57	TO BE REMOVED	N/A
708	TREE	9/30/2024	CONICAL	304.58	140.02	444.60	426.74	17.86	TO BE REMOVED	N/A
709	TREE	9/30/2024	CONICAL	308.77	124.28	433.05	431.45	1.60	TO BE REMOVED	N/A
710	TREE	9/30/2024	CONICAL	313.17	134.73	447.90	434.20	13.70	TO BE REMOVED	N/A
711	TREE	9/30/2024	CONICAL	312.46	136.31	448.77	425.06	23.71	TO BE REMOVED	N/A
712	TREE	9/30/2024	CONICAL	308.96	146.37	455.33	424.31	31.02	TO BE REMOVED	N/A
713	TREE	9/30/2024	CONICAL	309.64	126.81	436.45	426.50	9.95	TO BE REMOVED	N/A
714	WATER TOWER	9/30/2024	CONICAL	290.43	175.88	466.31	447.54	18.77	LIGHTED	N/A
715	TREE	9/30/2024	CONICAL	540.55	65.34	605.89	541.03	64.86	TO BE REMOVED	N/A
716	TREE	9/30/2024	CONICAL	535.49	78.74	614.23	578.69	35.54	TO BE REMOVED	N/A
717	TREE	9/30/2024	CONICAL	611.86	73.57	685.43	618.25	67.18	TO BE REMOVED	N/A
718	TREE	9/30/2024	CONICAL	323.84	130.16	454.00	432.58	21.42	TO BE REMOVED	N/A
719	TREE	9/30/2024	CONICAL	425.45	147.28	572.73	498.26	74.47	TO BE REMOVED	N/A
720	TREE	9/30/2024	CONICAL	347.62	145.51	493.13	470.00	23.13	TO BE REMOVED	N/A
721	TREE	9/30/2024	CONICAL	344.40	134.08	478.48	426.53	51.95	TO BE REMOVED	N/A
722	TREE	9/30/2024	CONICAL	478.77	88.65	567.42	566.13	1.29	TO BE REMOVED	N/A
723	TREE	9/30/2024	CONICAL	408.28	114.65	522.93	459.61	63.32	TO BE REMOVED	N/A
724	TREE	9/30/2024	CONICAL	403.76	144.02	547.78	431.44	116.34	TO BE REMOVED	N/A
725	TREE	9/30/2024	CONICAL	417.67	92.71	510.38	439.86	70.52	TO BE REMOVED	N/A
726	TREE	9/30/2024	CONICAL	318.22	141.36	459.58	427.26	32.32	TO BE REMOVED	N/A
727	TREE	9/30/2024	CONICAL	341.31	146.18	487.49	459.27	28.22	TO BE REMOVED	N/A
728	TREE	9/30/2024	CONICAL	344.06	128.29	472.35	438.42	33.93	TO BE REMOVED	N/A
729	TREE	9/30/2024	CONICAL	313.75	141.87	455.62	444.56	11.06	TO BE REMOVED	N/A

DRAFT

"THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-41-0069-20-2024) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NO.	DATE	BY	APPR	REVISIONS

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING.
0" 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

FEDERAL AVIATION ADMINISTRATION APPROVAL

APPROVAL DATE: _____

SIGNATURE

PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY: JLS	DRAWN BY: JLS	CHECKED BY: DM	SCALE: AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRSPACE OBSTRUCTION DATA TABLES

FIGURE NO.

SHEET NO. 20 OF 22

RUNWAY 5 DEPARTURE SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
176	SIGN	9/30/2024	5 DEPARTURE	272.18	3.27	275.45	269.73	5.72	FIXED BY FUNCTION	N/A
178	SIGN	9/30/2024	5 DEPARTURE	271.91	4.73	276.64	268.99	7.65	FIXED BY FUNCTION	N/A
300	TREE	9/30/2024	5 DEPARTURE	241.59	75.23	316.82	311.95	4.87	TO BE REMOVED	N/A
301	TREE	9/30/2024	5 DEPARTURE	244.59	142.80	387.39	339.68	47.71	TO BE REMOVED	N/A
303	TREE	9/30/2024	5 DEPARTURE	239.74	127.05	366.79	372.68	-5.89	NO OBSTRUCTION	N/A
304	TREE	9/30/2024	5 DEPARTURE	240.03	174.97	415.00	383.81	31.19	TO BE REMOVED	N/A
305	TREE	9/30/2024	5 DEPARTURE	238.91	141.42	380.33	384.35	-4.02	NO OBSTRUCTION	N/A
306	TREE	9/30/2024	5 DEPARTURE	240.81	161.61	402.42	386.46	15.96	TO BE REMOVED	N/A
308	TREE	9/30/2024	5 DEPARTURE	238.96	142.65	381.61	388.69	-7.08	NO OBSTRUCTION	N/A
313	TREE	9/30/2024	5 DEPARTURE	239.03	169.98	409.01	388.29	20.72	TO BE REMOVED	N/A
314	TREE	9/30/2024	5 DEPARTURE	236.03	171.87	407.90	388.72	19.18	TO BE REMOVED	N/A
315	TREE	9/30/2024	5 DEPARTURE	235.13	170.07	405.20	387.33	17.87	TO BE REMOVED	N/A
316	TREE	9/30/2024	5 DEPARTURE	237.94	177.21	415.15	385.42	29.73	TO BE REMOVED	N/A
325	FENCE	9/30/2024	5 DEPARTURE	284.73	6.65	291.38	286.32	5.06	TO BE REMOVED	N/A
326	LOCAL ROAD	9/30/2024	5 DEPARTURE	286.13	15.00	301.13	288.30	12.83	TO BE LIGHTED	N/A
328	LOCAL ROAD	9/30/2024	5 DEPARTURE	282.78	15.00	297.78	289.21	8.57	TO BE LIGHTED	N/A
330	TREE	9/30/2024	5 DEPARTURE	287.74	27.57	315.31	292.07	23.24	TO BE REMOVED	N/A
332	TREE	9/30/2024	5 DEPARTURE	288.26	46.46	334.72	294.02	40.70	TO BE REMOVED	N/A
333	TREE	9/30/2024	5 DEPARTURE	281.65	14.85	296.50	293.56	2.94	TO BE REMOVED	N/A
334	TREE	9/30/2024	5 DEPARTURE	292.19	23.02	315.21	310.86	4.35	TO BE REMOVED	N/A
335	TREE	9/30/2024	5 DEPARTURE	288.56	34.87	323.43	295.41	28.02	TO BE REMOVED	N/A
336	TREE	9/30/2024	5 DEPARTURE	279.22	29.14	308.36	295.93	12.43	TO BE REMOVED	N/A
337	TREE	9/30/2024	5 DEPARTURE	277.41	20.57	297.98	295.97	2.01	TO BE REMOVED	N/A
338	TREE	9/30/2024	5 DEPARTURE	269.72	49.10	318.82	295.80	23.02	TO BE REMOVED	N/A
339	TREE	9/30/2024	5 DEPARTURE	265.15	59.14	324.29	314.36	9.93	TO BE REMOVED	N/A
340	TREE	9/30/2024	5 DEPARTURE	274.21	47.11	321.32	299.21	22.11	TO BE REMOVED	N/A
341	TREE	9/30/2024	5 DEPARTURE	270.33	34.65	304.98	299.44	5.54	TO BE REMOVED	N/A
342	TREE	9/30/2024	5 DEPARTURE	272.93	53.00	325.93	300.87	25.06	TO BE REMOVED	N/A
344	TREE	9/30/2024	5 DEPARTURE	258.06	90.43	348.49	353.88	-5.39	NO OBSTRUCTION	N/A
345	TREE	9/30/2024	5 DEPARTURE	270.06	48.12	318.18	301.77	16.41	TO BE REMOVED	N/A
346	TREE	9/30/2024	5 DEPARTURE	273.00	52.59	325.59	303.65	21.94	TO BE REMOVED	N/A
347	TREE	9/30/2024	5 DEPARTURE	265.45	38.28	303.73	304.17	-0.44	NO OBSTRUCTION	N/A
348	TREE	9/30/2024	5 DEPARTURE	266.74	73.37	340.11	326.47	13.64	TO BE REMOVED	N/A
349	TREE	9/30/2024	5 DEPARTURE	265.61	119.69	385.30	352.15	33.15	TO BE REMOVED	N/A
350	TREE	9/30/2024	5 DEPARTURE	248.64	117.54	366.18	338.68	27.50	TO BE REMOVED	N/A
351	TREE	9/30/2024	5 DEPARTURE	250.13	131.70	381.83	344.65	37.18	TO BE REMOVED	N/A
352	TREE	9/30/2024	5 DEPARTURE	249.17	133.11	382.28	346.55	35.73	TO BE REMOVED	N/A
353	TREE	9/30/2024	5 DEPARTURE	236.44	111.63	348.07	342.28	5.79	TO BE REMOVED	N/A
355	TREE	9/30/2024	5 DEPARTURE	247.69	129.78	377.47	347.99	29.48	TO BE REMOVED	N/A
356	TREE	9/30/2024	5 DEPARTURE	231.84	109.84	341.68	344.34	-2.66	NO OBSTRUCTION	N/A
357	TREE	9/30/2024	5 DEPARTURE	231.36	106.59	337.95	347.81	-9.86	NO OBSTRUCTION	N/A
419	TREE	9/30/2024	5 DEPARTURE	264.59	130.16	394.75	369.19	25.56	TO BE REMOVED	N/A
455	TREE	9/30/2024	5 DEPARTURE	238.09	156.97	395.06	380.58	14.48	TO BE REMOVED	N/A
456	TREE	9/30/2024	5 DEPARTURE	238.84	165.95	404.79	392.37	12.42	TO BE REMOVED	N/A
800	TREE	9/30/2024	5 DEPARTURE	240.44	117.35	357.79	349.04	8.75	TO BE REMOVED	N/A
801	TREE	9/30/2024	5 DEPARTURE	230.01	158.70	388.71	395.61	-6.90	NO OBSTRUCTION	N/A
802	FENCE	9/30/2024	5 DEPARTURE	286.08	6.87	292.95	289.52	3.43	TO BE REMOVED	N/A
803	LOCAL ROAD	9/30/2024	5 DEPARTURE	278.10	15.00	293.10	290.39	2.71	TO BE LIGHTED	N/A
804	LOCAL ROAD	9/30/2024	5 DEPARTURE	275.99	15.00	290.99	290.94	0.05	TO BE LIGHTED	N/A
805	TREE	9/30/2024	5 DEPARTURE	267.16	134.66	401.82	389.91	11.91	TO BE REMOVED	N/A
806	TREE	9/30/2024	5 DEPARTURE	245.82	133.28	379.10	341.41	37.69	TO BE REMOVED	N/A
807	TREE	9/30/2024	5 DEPARTURE	246.24	99.72	345.96	342.54	3.42	TO BE REMOVED	N/A
808	TREE	9/30/2024	5 DEPARTURE	236.37	162.45	398.82	388.74	10.08	TO BE REMOVED	N/A

RUNWAY 23 DEPARTURE SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
200	TREE	9/30/2024	23 DEPARTURE	254.91	55.18	310.09	285.86	24.23	TO BE REMOVED	N/A
201	TREE	9/30/2024	23 DEPARTURE	254.42	70.03	324.45	288.98	35.47	TO BE REMOVED	N/A
202	TREE	9/30/2024	23 DEPARTURE	226.77	146.54	373.31	336.89	36.42	TO BE REMOVED	N/A
203	TREE	9/30/2024	23 DEPARTURE	224.97	171.15	396.12	349.63	46.49	TO BE REMOVED	N/A
204	TREE	9/30/2024	23 DEPARTURE	282.32	157.67	439.99	365.30	74.69	TO BE REMOVED	N/A
205	TREE	9/30/2024	23 DEPARTURE	272.17	134.19	406.36	372.15	34.21	TO BE REMOVED	N/A
206	TREE	9/30/2024	23 DEPARTURE	266.01	152.50	418.51	376.34	42.17	TO BE REMOVED	N/A
207	TREE	9/30/2024	23 DEPARTURE	271.10	135.33	406.43	384.68	21.75	TO BE REMOVED	N/A
208	TREE	9/30/2024	23 DEPARTURE	295.09	181.73	476.82	403.54	73.28	TO BE REMOVED	N/A
209	TREE	9/30/2024	23 DEPARTURE	301.64	176.26	477.90	424.22	53.68	TO BE REMOVED	N/A
214	TREE	9/30/2024	23 DEPARTURE	253.53	81.95	335.48	339.77	-4.29	NO OBSTRUCTION	N/A
216	TREE	9/30/2024	23 DEPARTURE	254.44	63.79	318.23	306.76	11.47	TO BE REMOVED	N/A
217	TREE	9/30/2024	23 DEPARTURE	255.09	28.38	283.46	285.62	-2.16	NO OBSTRUCTION	N/A
218	TREE	9/30/2024	23 DEPARTURE	233.47	102.90	336.37	342.52	-6.15	NO OBSTRUCTION	N/A
219	TREE	9/30/2024	23 DEPARTURE	255.76	21.62	277.38	285.45	-8.07	NO OBSTRUCTION	N/A
220	TREE	9/30/2024	23 DEPARTURE	256.49	68.15	324.64	285.60	39.04	TO BE REMOVED	N/A
221	TREE	9/30/2024	23 DEPARTURE	255.19	26.25	281.44	287.22	-5.78	NO OBSTRUCTION	N/A
223	TREE	9/30/2024	23 DEPARTURE	256.98	78.10	335.08	287.63	47.45	TO BE REMOVED	N/A
225	TREE	9/30/2024	23 DEPARTURE	255.90	71.78	327.68	291.99	35.69	TO BE REMOVED	N/A
226	TREE	9/30/2024	23 DEPARTURE	233.50	99.85	333.35	321.68	11.67	TO BE REMOVED	N/A
229	TREE	9/30/2024	23 DEPARTURE	230.64	114.55	345.19	321.03	24.16	TO BE REMOVED	N/A
230	TREE	9/30/2024	23 DEPARTURE	255.44	99.20	354.64	330.41	24.23	TO BE REMOVED	N/A
232	TREE	9/30/2024	23 DEPARTURE	231.63	108.72	340.35	313.63	26.72	TO BE REMOVED	N/A
233	TREE	9/30/2024	23 DEPARTURE	227.80	101.40	329.20	318.88	10.32	TO BE REMOVED	N/A
234	TREE	9/30/2024	23 DEPARTURE	228.24	104.91	333.15	320.33	12.82	TO BE REMOVED	N/A
235	TREE	9/30/2024	23 DEPARTURE	227.69	105.01	332.70	324.63	8.07	TO BE REMOVED	N/A
237	TREE	9/30/2024	23 DEPARTURE	229.31	105.99	335.30	331.17	4.13	TO BE REMOVED	N/A
238	TREE	9/30/2024	23 DEPARTURE	226.55	123.84	350.39	336.49	13.90	TO BE REMOVED	N/A
239	TREE	9/30/2024	23 DEPARTURE	257.11	73.34	330.45	324.98	5.47	TO BE REMOVED	N/A
240	TREE	9/30/2024	23 DEPARTURE	225.06	151.52	376.58	342.15	34.43	TO BE REMOVED	N/A
241	TREE	9/30/2024	23 DEPARTURE	256.73	114.76	371.49	331.34	40.15	TO BE REMOVED	N/A
242	TREE	9/30/2024	23 DEPARTURE	257.42	109.37	366.79	333.04	33.75	TO BE REMOVED	N/A
243	TREE	9/30/2024	23 DEPARTURE	224.42	147.79	372.21	344.22	27.99	TO BE REMOVED	N/A
244	TREE	9/30/2024	23 DEPARTURE	283.50	127.07	410.57	359.92	50.65	TO BE REMOVED	N/A
245	TREE	9/30/2024	23 DEPARTURE	301.20	65.10	366.30	363.17	3.13	TO BE REMOVED	N/A
246	TREE	9/30/2024	23 DEPARTURE	306.97	70.84	377.81	371.65	6.16	TO BE REMOVED	N/A
247	TREE	9/30/2024	23 DEPARTURE	281.76	147.16	428.92	388.49	40.43	TO BE REMOVED	N/A
248	TREE	9/30/2024	23 DEPARTURE	253.82	155.73	409.55	397.48	12.07	TO BE REMOVED	N/A
249	TREE	9/30/2024	23 DEPARTURE	281.39	153.74	435.13	390.29	44.84	TO BE REMOVED	N/A
250	TREE	9/30/2024	23 DEPARTURE	281.77	127.08	408.85	395.32	13.53	TO BE REMOVED	N/A
400	TREE	9/30/2024	23 DEPARTURE	331.63	72.41	404.04	373.28	30.76	TO BE REMOVED	N/A
401	TREE	9/30/2024	23 DEPARTURE	296.85	108.49	405.34	354.67	50.67	TO BE REMOVED	N/A
422	TREE	9/30/2024	23 DEPARTURE	225.79	162.87	388.66	350.71	37.95	TO BE REMOVED	N/A
457	TREE	9/30/2024	23 DEPARTURE	258.16	122.30	380.46	360.47	19.99	TO BE REMOVED	N/A
457	TREE	9/30/2024	23 DEPARTURE	258.16	122.30	380.46	360.47	19.99	TO BE REMOVED	N/A
582	TREE	9/30/2024	23 DEPARTURE	327.46	145.67	473.13	455.06	18.07	TO BE REMOVED	N/A
583	TREE	9/30/2024	23 DEPARTURE	338.94	105.79	444.73	440.43	4.30	TO BE REMOVED	N/A
905	TREE	9/30/2024	23 DEPARTURE	227.28	123.61	350.89	329.32	21.57	TO BE REMOVED	N/A
906	TREE	9/30/2024	23 DEPARTURE	238.60	83.33	321.93	331.08	-9.15	NO OBSTRUCTION	N/A
907	TREE	9/30/2024	23 DEPARTURE	232.97	129.39	362.36	333.24	29.12	TO BE REMOVED	N/A
908	TREE	9/30/2024	23 DEPARTURE	228.90	121.77	350.67	333.44	17.23	TO BE REMOVED	N/A
912	TREE	9/30/2024	23 DEPARTURE	226.71	155.63	382.34	348.47	33.87	TO BE REMOVED	N/A
917	TREE	9/30/2024	23 DEPARTURE	224.76	137.85	362.61	357.03	5.58	TO BE REMOVED	N/A
918	TREE	9/30/2024	23 DEPARTURE	222.66	143.88	366.54	354.78	11.76	TO BE REMOVED	N/A
919	TREE	9/30/2024	23 DEPARTURE	220.41	160.98	381.39	358.61	22.78	TO BE REMOVED	N/A
921	TREE	9/30/2024	23 DEPARTURE	317.69	64.93	382.62	363.37	19.25	TO BE REMOVED	N/A
924	TREE	9/30/2024	23 DEPARTURE	328.14	69.04	397.18	368.42	28.76	TO BE REMOVED	N/A

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NO.	DATE	BY	APPR	REVISIONS

VERIFY SCALES

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0" 1"
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APPROVAL DATE: _____

SIGNATURE

PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRSPACE OBSTRUCTION DATA TABLES

FIGURE NO.

SHEET NO. 21 OF 22

RUNWAY 23 DEPARTURE SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	SURVEY DATE	SURFACE	GROUND ELEVATION (FT)	AGL (FT)	TOP HEIGHT (FT)	SURFACE HEIGHT (FT)	PENETRATION (FT)	DISPOSITION	TRIGGERING EVENT
926	TREE	9/30/2024	23 DEPARTURE	311.26	66.67	377.93	373.81	4.12	TO BE REMOVED	N/A
927	TREE	9/30/2024	23 DEPARTURE	322.00	62.62	384.62	380.36	4.26	TO BE REMOVED	N/A
928	TREE	9/30/2024	23 DEPARTURE	331.91	70.94	402.85	381.79	21.06	TO BE REMOVED	N/A
929	TREE	9/30/2024	23 DEPARTURE	334.10	79.85	413.95	386.86	27.09	TO BE REMOVED	N/A
930	TREE	9/30/2024	23 DEPARTURE	332.82	59.50	392.32	386.88	5.44	TO BE REMOVED	N/A
931	TREE	9/30/2024	23 DEPARTURE	331.79	68.98	400.77	389.74	11.03	TO BE REMOVED	N/A
932	TREE	9/30/2024	23 DEPARTURE	331.67	81.51	413.18	390.81	22.37	TO BE REMOVED	N/A
934	TREE	9/30/2024	23 DEPARTURE	333.35	72.67	406.02	395.05	10.97	TO BE REMOVED	N/A
935	TREE	9/30/2024	23 DEPARTURE	330.13	68.33	398.46	396.91	1.55	TO BE REMOVED	N/A
936	TREE	9/30/2024	23 DEPARTURE	367.73	47.20	414.93	402.21	12.72	TO BE REMOVED	N/A
937	TREE	9/30/2024	23 DEPARTURE	376.93	52.20	429.13	405.74	23.39	TO BE REMOVED	N/A
938	TREE	9/30/2024	23 DEPARTURE	335.90	75.53	411.43	409.82	1.61	TO BE REMOVED	N/A
939	TREE	9/30/2024	23 DEPARTURE	337.28	107.10	444.38	416.91	27.47	TO BE REMOVED	N/A
940	TREE	9/30/2024	23 DEPARTURE	341.68	95.68	437.36	423.25	14.11	TO BE REMOVED	N/A
941	TREE	9/30/2024	23 DEPARTURE	339.25	103.09	442.34	428.50	13.84	TO BE REMOVED	N/A
942	TREE	9/30/2024	23 DEPARTURE	334.73	97.01	431.74	428.00	3.74	TO BE REMOVED	N/A
943	TREE	9/30/2024	23 DEPARTURE	333.16	107.68	440.84	433.11	7.73	TO BE REMOVED	N/A
944	TREE	9/30/2024	23 DEPARTURE	332.91	134.79	467.70	448.46	19.24	TO BE REMOVED	N/A
945	TREE	9/30/2024	23 DEPARTURE	220.31	157.70	378.01	372.69	5.32	TO BE REMOVED	N/A
946	TREE	9/30/2024	23 DEPARTURE	236.63	136.27	372.90	372.50	0.40	TO BE REMOVED	N/A
947	TREE	9/30/2024	23 DEPARTURE	312.90	79.13	392.03	363.57	28.46	TO BE REMOVED	N/A
948	TREE	9/30/2024	23 DEPARTURE	282.07	88.98	371.05	373.85	-2.80	NO OBSTRUCTION	N/A
949	TREE	9/30/2024	23 DEPARTURE	284.05	82.55	366.60	375.25	-8.65	NO OBSTRUCTION	N/A
950	TREE	9/30/2024	23 DEPARTURE	281.70	91.02	372.72	376.57	-3.85	NO OBSTRUCTION	N/A
951	TREE	9/30/2024	23 DEPARTURE	282.33	90.06	372.39	378.51	-6.12	NO OBSTRUCTION	N/A
952	TREE	9/30/2024	23 DEPARTURE	332.87	73.02	405.89	390.95	14.94	TO BE REMOVED	N/A
953	TREE	9/30/2024	23 DEPARTURE	272.40	114.26	386.66	388.10	-1.44	NO OBSTRUCTION	N/A
954	TREE	9/30/2024	23 DEPARTURE	239.31	151.70	391.01	397.35	-6.34	NO OBSTRUCTION	N/A
955	TREE	9/30/2024	23 DEPARTURE	275.31	112.58	387.89	389.12	-1.23	NO OBSTRUCTION	N/A
956	TREE	9/30/2024	23 DEPARTURE	334.09	75.36	409.45	412.58	-3.13	NO OBSTRUCTION	N/A
957	TREE	9/30/2024	23 DEPARTURE	353.89	78.74	432.63	410.11	22.52	TO BE REMOVED	N/A
958	TREE	9/30/2024	23 DEPARTURE	337.06	84.47	421.53	419.33	2.20	TO BE REMOVED	N/A
959	TREE	9/30/2024	23 DEPARTURE	337.24	104.24	441.48	444.98	-3.50	NO OBSTRUCTION	N/A
960	TREE	9/30/2024	23 DEPARTURE	357.65	86.06	443.71	438.42	5.29	TO BE REMOVED	N/A
961	TREE	9/30/2024	23 DEPARTURE	356.78	97.46	454.24	443.22	11.02	TO BE REMOVED	N/A
962	TREE	9/30/2024	23 DEPARTURE	320.46	151.86	472.32	456.54	15.78	TO BE REMOVED	N/A

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PORT OF SHELTON APPROVAL

APPROVAL DATE: _____

SIGNATURE

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE
SUITE #100
BEND, OR 97702
541.322.8962 OFFICE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
JLS	JLS	DM	AS SHOWN
DATE: JUNE 2026		PROJECT NO: 41411.014.01	

SANDERSON FIELD

AIRSPACE OBSTRUCTION DATA TABLES

FIGURE NO.

SHEET NO. 22 OF 22

Appendix A

Cultural Resources Survey

CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: _____

Authors: Tara Seaver, Olivia Gagnon, and Jason A. Cowan

Title of Report: Sanderson Field Airport Mason County, Washington, Cultural Resource Review

Date of Report: January 10, 2025

County: Mason Sections: 2, 10, 11, 12, 14, 15 Township: 20 North Range: 4 West

Quads: *Shelton, WA*, 7.5-minute, 2017
Skokomish Valley, WA, 7.5-minute, 2017

Acres: 1,011

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

Were Human Remains Found? ☐ Yes DAHP Case # ☒ No

DAHP Archaeological Site #:

Archaeological Investigations Northwest, Inc.

3510 N.E. 122nd Ave. • Portland, Oregon 97230
Phone (503) 761-6605 • Fax (503) 761-6620

Vancouver Phone (360) 696-7473
E-mail: ainw@ainw.com
Web: www.ainw.com

MEMO

Date: January 10, 2025

To: Samantha Peterson C.M., ACE, Sr. Aviation Planner/Project Manager, Century West Engineering

From: Tara Seaver, M.S., Architectural Historian
Olivia Gagnon, B.A., Staff Archaeologist
Jason A. Cowan, M.A., R.P.A., Senior Archaeologist

Re: Sanderson Field Airport
Mason County, Washington
Cultural Resource Review
AINW Report No. 5329

Introduction

The Port of Shelton is developing an Airport Master Plan for the Sanderson Field Airport, which will provide a 20-year planning horizon for airport improvements. Sanderson Field Airport (study area) is in Sections 2, 10, 11, 12, 14, and 15 of Township 20 North, Range 4 West, Willamette Meridian, in Mason County, Washington (Figure 1). The Port of Shelton retained Century West to complete the Airport Master Plan. Century West contracted with Archaeological Investigations Northwest, Inc. (AINW), to conduct a cultural resources review of the 1011-acre study area, which will be used to provide information and recommendations that can be incorporated into the Airport Master Plan.

Records examined during this background review indicate that the airport became operational in 1927, and that there are 10 historic resources within the study area that were built more than 50 years ago. The 10 pre-1950 historic resources are: a 1943 Quonset hangar, the 1943 warming apron, two 1943 runways, 1943 taxiways and bomber standings, two 1943 buildings north of the runway, a circa 1962 building, a circa 1968 building, and a circa 1952 water tower. Four cultural resource studies have been conducted within the study area. No archaeological resources were found by these studies.

If individual projects are proposed in association with the Airport Master Plan, compliance-level cultural resource investigations are recommended. This includes conducting archaeological surveys where ground disturbance is proposed outside of previously investigated areas, documenting historic resources (i.e., buildings or structures more than 50 years old) on one or more Washington State historic property inventory forms prior to changes to these built resources, and determining cultural resource eligibility for listing in the National Register of Historic Places (NRHP) in consultation with the Federal Aviation Administration (FAA) and the Washington State Department of Archaeological and Historic Preservation (DAHP).

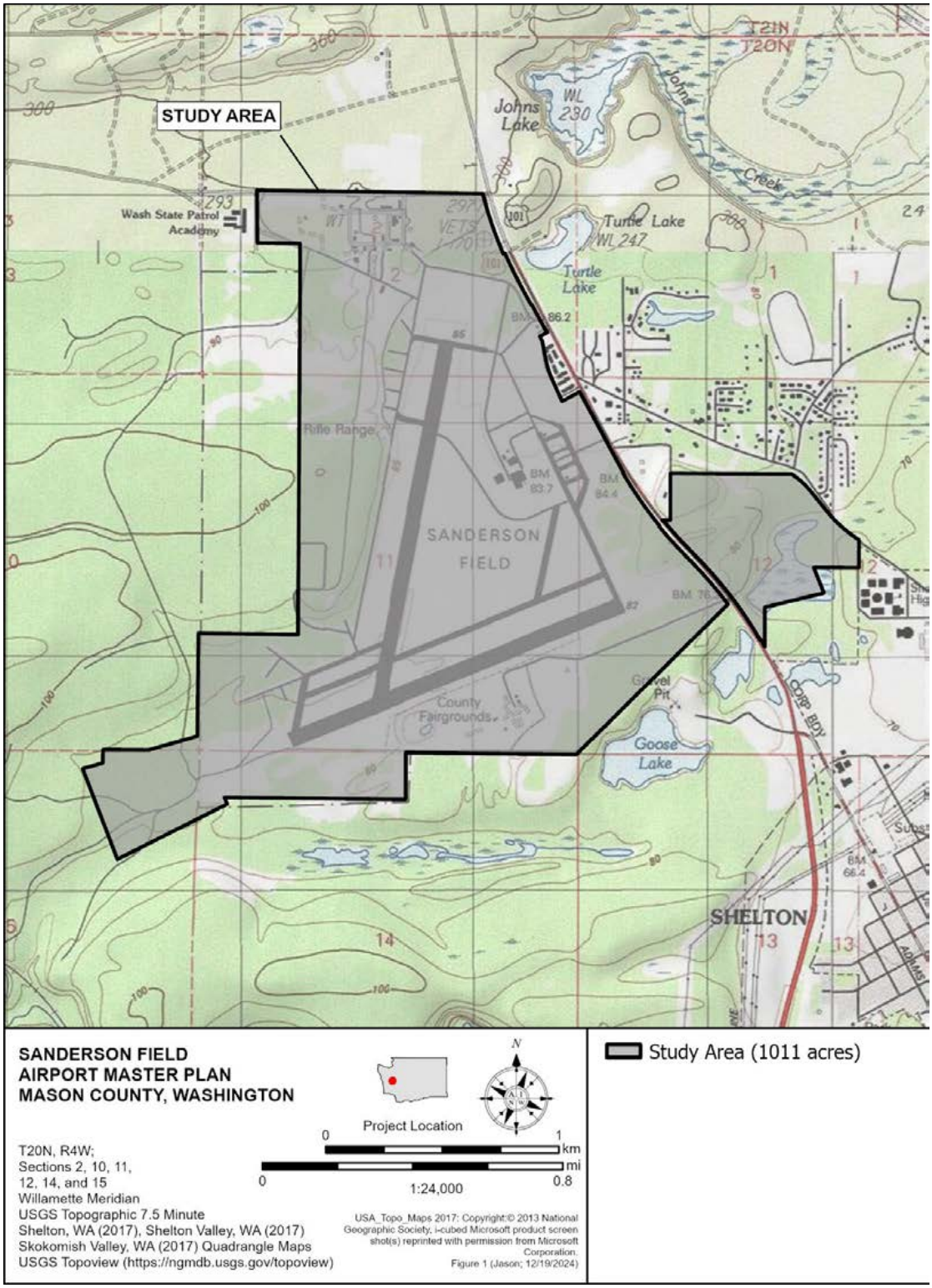

Figure 1. Location of the Sanderson Field Airport study area in Mason County, Washington.

Background Review

AINW reviewed records at DAHP and materials in the AINW library to determine if archaeological resources have been recorded or if archaeological surveys have been completed within or near the study area. The Washington Information System for Architectural and Archaeological Records Data (WISAARD) predictive model depicts the study area as having a low risk for encountering archaeological resources. Historical maps of the area, aerial photography, and primary historical sources were also examined to identify if any historic built environment resources are present in the study area. Historic built environment resources are defined as buildings, structures, sites, objects, and districts at least 50 years in age or older.

Historic Period Maps and Documents

An 1861 General Land Office (GLO) map of Township 20 North, Range 4 West, Willamette Meridian, depicts a historic roadway intersecting the southern portion of the study area across a natural lake, which spans northward from the northern portion of Section 14, across Section 11 and the western portion of Section 12 into the southern portion of Section 2 (GLO 1861). The 1861 GLO map depicts two trails within the study area. One trail spans across the pond in the northern portion of Section 11, and the other crosses the northern portion of Section 14, just south of the historic roadway. The 1861 GLO map depicts a small wetland along the historic roadway in the same vicinity as present-day Goose Lake. Turtle Lake and Johns Lake are also depicted on the map. The 1861 GLO map does not depict any structures within or around the study area (Figure 2).

Sanderson Airfield

On July 27, 1927, Marine Lieutenant Lawson "Sandy" Sanderson—a prominent local athlete who went on to become a Major General in the Marine Corps after World War I—led a group of army and navy officials on an aviation tour from Sand Point Naval Air Station to Scott's Prairie in Shelton, to scout for potential airfield locations (Century West Engineering 2007; Denfeld 2013; *Shelton-Mason County Journal* 1927; Shettle 1997; *The News-Tribune* 1927). The group selected a large natural field, 40 acres of which had been deeded to Mason County one year earlier by Mary Miller and her son Winlock for use as the new county fairgrounds (*Shelton-Mason County Journal* 2013; *The News-Tribune* 1927). The airfield was formally designated on the county-owned portion of Scott's Prairie in December 1927 (Century West Engineering 2007; Shettle 1997; *The Tacoma Daily Ledger* 1927). Over the next decade, the area around the landing field was developed for use as a municipal airport, named Shelton Airport. Development included the construction of a hangar and a short runway (*The Columbian* 1929a, b; *The Daily Olympian* 1929, 1934). In 1934, the hangar was demolished after being damaged by a storm (*The Daily Olympian* 1934).

Nineteenth century maps produced before World War II show roads and trails within and adjacent to the study area (Kroll 1927; Ward 1941; Washington State University 1934). A 1939 U.S. Geological Survey [USGS] map notes the area as Shelton Airport but does not show any runways or other structures (USGS 1939).

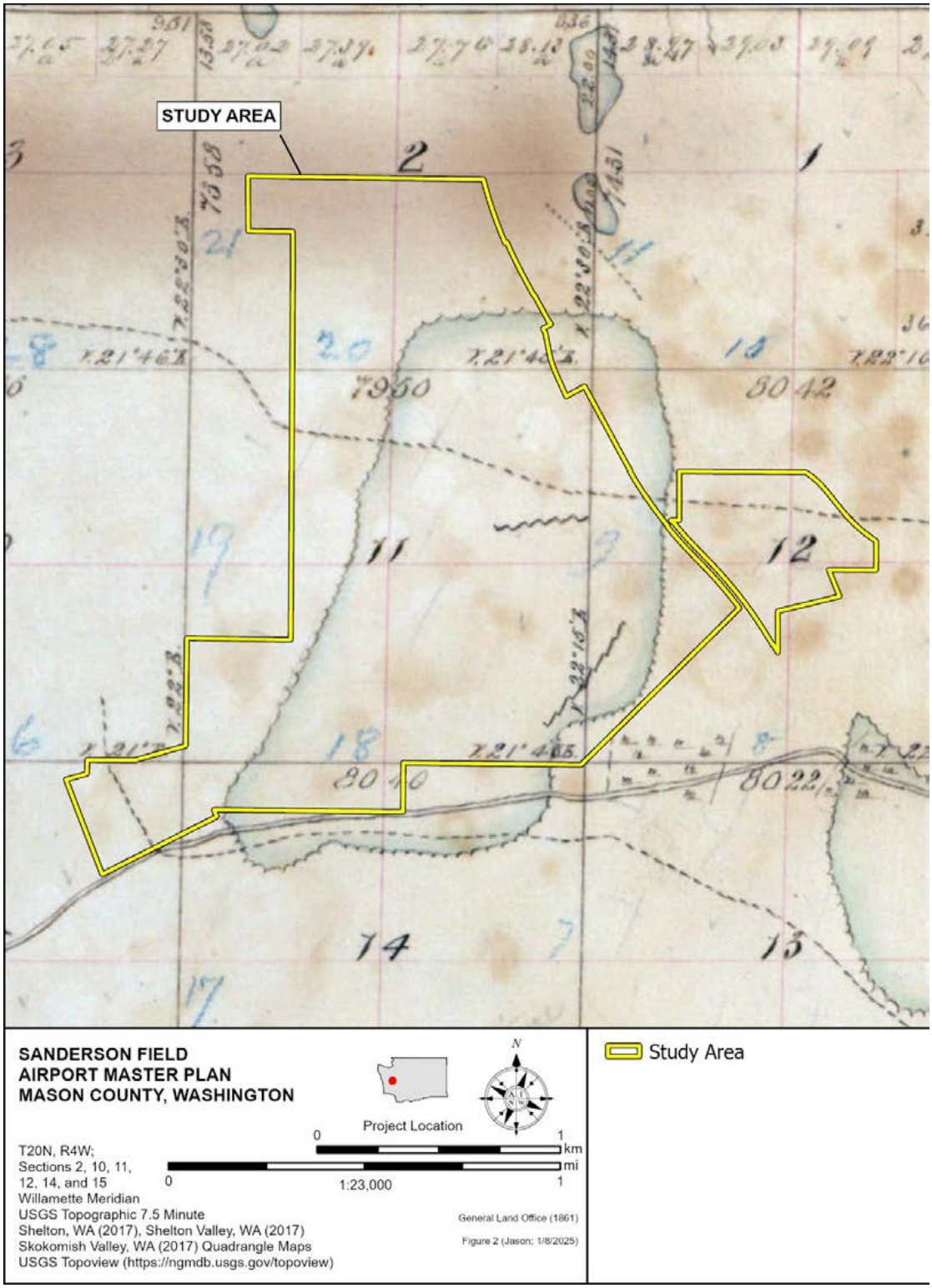

Figure 2. Location of the Sanderson Field Airport study area overlaid on an 1861 GLO map (GLO 1861).

In 1940, the Shelton Airport received $161,832 in federal funds, in the interest of national defense, before the property was purchased outright by the U.S. Navy in 1941 (Century West Engineering 2007; *Shelton-Mason County Journal* 1940, 1941). After the attack on Pearl Harbor that drew the United States into World War II, Sanderson Airfield was selected to become an army interceptor base (*Shelton-Mason County Journal* 1945). The army constructed the existing 5,000-foot runways, 25 hardstands, and barracks for 50 officers and 400 enlisted men (Shettle 1997). However, by the time the airbase was completed in March 1943, it was no longer needed for that purpose, and the airfield was given back to the U.S. Navy for training and services purposes (Denfeld 2012; Gann 2011; Shettle 1997). The U.S. Navy renamed the airfield Naval Air Auxiliary Station (NAAS) Shelton on August 14, 1943 (Century West Engineering 2007; *Shelton-Mason County Journal* 1989). For the remainder of war, NAAS was used for as a base for Navy Utility "VJ" Squadrons (Shettle 2007). NAAS closed on December 15, 1945, and operations ceased in 1947 (Denfeld 2012; Gann 2011; *Shelton-Mason County Journal* 1953).

Beginning in 1947, the airport, now called Mason County Airport, was operated and managed for a period of years by the Civil Air Patrol (Century West Engineering 2007; Gann 2011). Seeking to convert the airport's runway and hangars for industrial use, in 1953 Congressman Russell V. Mack asked Secretary of Defense Charles Wilson to release the airport to Mason County or the recently established Port Commission (*The Shelton-Mason County Journal* 1953). In 1955, the airport was turned over at no cost to Mason County, until May of 1957 when the airport was formally transferred to the Port of Shelton (Century West Engineering 2007; *Peninsula Daily News* 1957; *Shelton-Mason County Journal* 1955). In 1966, the airport was officially renamed Sanderson Field (Century West Engineering 2007).

Between the 1960s and 1980s, the Port of Shelton expanded airport facilities from being able to handle seven aircraft in 1962 to 42 aircraft in 1981, with a forecast for handling nearly 100 aircraft by 2008 (Gann 2011; *Shelton-Mason County Journal* 1981). Today, Sanderson Field operates on 1,200-acres as a general aviation airport and industrial park (Port of Shelton 2024).

<u>Previous Cultural Resource Studies</u>

A review of records in WISAARD shows that four cultural resource studies have been conducted in the study area (Berger 2014; Punke et al. 2008, Schneider and Lockwood 2023; Yamamoto et al. 2019) (Figure 3). An additional four studies have been done within 1.6 kilometers (km) (1.0 miles [mi]) of the study area (Reed and Becker 2022; Simpson 2019; Teoh 2017; Wilt and Roulette 2001). No archaeological resources have been recorded in the study area.

Cultural Surveys within the Study Area

- A cultural resource survey was conducted for the Sanderson Field Master Plan Update project in 2008. This survey is located primarily along or adjacent to active and inactive runways. This study consisted of background literature, and a pedestrian survey. No archaeological resources were encountered or identified during the background review or the pedestrian survey (Punke et al. 2008).

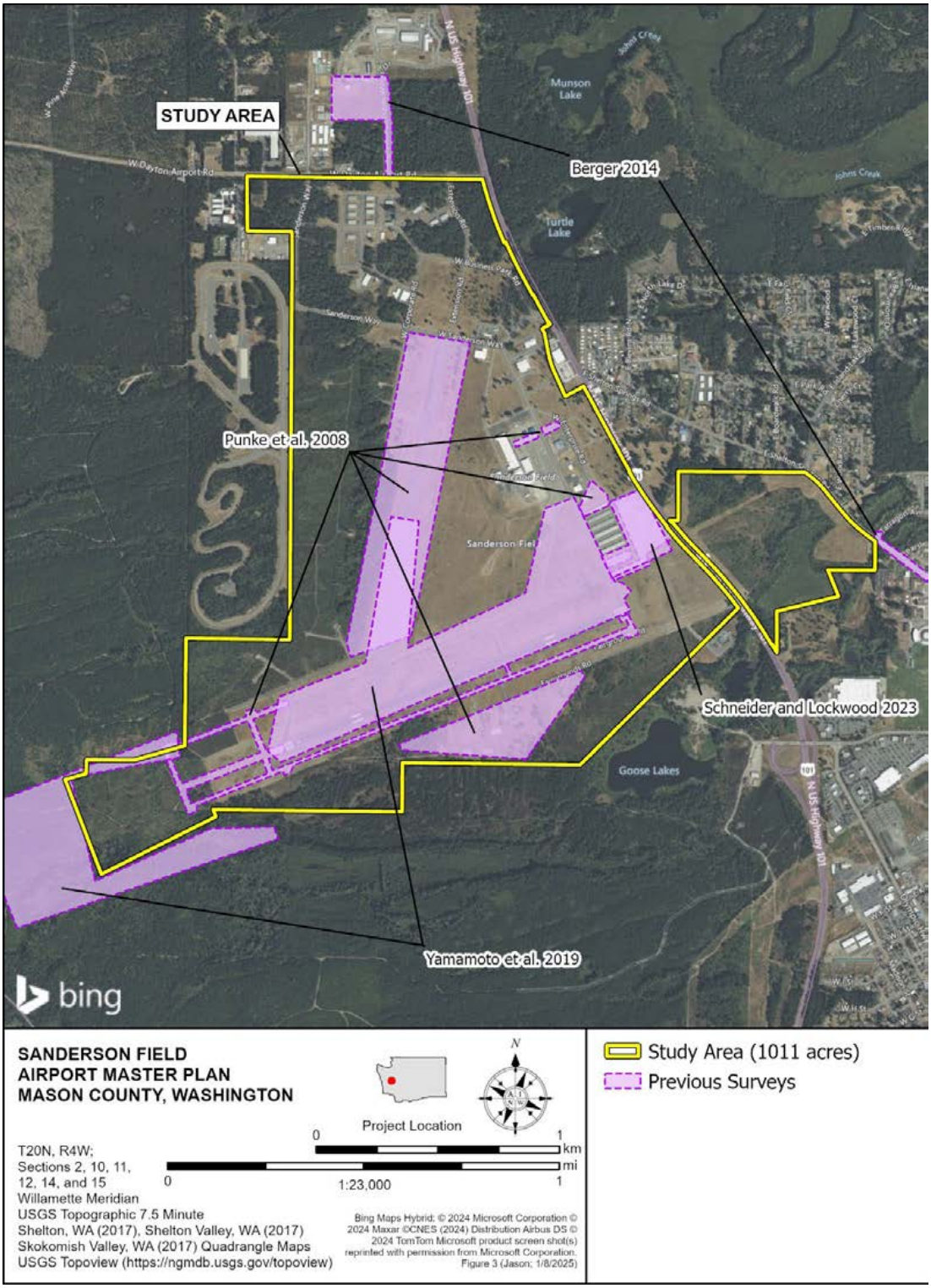

Figure 3. Aerial overview of the Sanderson Field Airport study area showing the locations of previous cultural resource surveys.

- A cultural resource survey was conducted for the City of Shelton Upper Mountain View Pressure Zone water improvements project. A small portion of this survey partially overlaps the study area to the north along W. Dayton Airport Road. The study consisted of a pedestrian survey and 11 subsurface shovel tests. Shovel tests were excavated to depths up to 50 centimeters (cm) (19 inches [in]) below the ground surface. No archaeological resources were encountered identified during the pedestrian survey or shovel testing (Berger 2014).

- A survey was conducted in 2019 prior to proposed airport improvements. The study included a pedestrian survey and the excavation of 31 subsurface shovel tests in the south portion of the study area that overlaps Runway 5/23 (Yamamoto et al. 2019). Shovel tests were excavated to depths between 50 and 88 cm (19 and 34 in) below the ground surface. No pre-contact or historic-period archaeological resources were identified during the pedestrian survey or shovel testing (Yamamoto et. al .2019).

- The most recent investigation was a 2023 cultural resources assessment for the construction of three new hangars, new pavement for taxilanes, and electrical, water, and sewer improvements (Schneider and Lockwood 2023). The 10-acre Area of Potential Effects consisted of one location in the southeast portion of the study area. This study identified a 1943 Quonset hangar 0.4 km (0.5mi) west-northwest of the project Area of Potential Effects; the hangar had been previously determined to be not eligible for listing in the NRHP (DAHP 2024a). Schneider and Lockwood (2023) recommended a finding of "No Historic Properties Affected" for the proposed project.

Cultural Surveys within 1.6 kilometers (km) (1.0 miles [mi]) of the Study Area

- A cultural resource survey for the installation of a telecommunications facility approximately 0.6 km (0.4 mi) to the north of the current study area consisted of a pedestrian survey and four subsurface shovel tests. Shovel tests were excavated up to 90 cm (35 in) below the surface. No archaeological resources were identified during the pedestrian survey or shovel testing (Simpson 2019).

- A cultural resource survey was conducted to replace 35 wood pole structures on Bonneville Power Administration's (BPA's) Chehalis-Olympia No. 1, Olympia-Shelton No. 1 and No. 2, Shelton-Fairmount No. 2, and Port Angeles-Sappho No. 1, transmission lines approximately 1.4 km (0.9 mi) south of the current study area. The survey included pedestrian survey and the excavation of six subsurface shovel tests. Shovel tests were excavated to depths between 35 and 100 cm (13 and 39 in) below the ground surface. No archaeological resources were identified during the pedestrian survey or shovel testing (Reed and Becker 2022).

- A cultural resource survey was conducted to replace 41 wood pole structures on BPA's Fairmount-Port Angeles No. 1, Olympia-South Elma No. 1, Olympia-Shelton No. 1 and No. 2, Port Angeles Sappho No. 1, and Shelton-Fairmount No. 1 and No. 2, transmission lines approximately 1.4 (0.9 mi) south of the current study area. No archaeological resources were identified during the pedestrian survey, and no shovel testing was conducted (Simpson 2019).

- A cultural resource survey was conducted approximately 0.7 km (0.5 mi) southeast of the current study area for BPA's Olympic to Port Angeles Fiber Optic project. The study consisted of background literature, map review, and a pedestrian survey (Wilt and Roulette 2001). One archaeological isolate was identified as a result of the pedestrian survey, but the isolate is more than 1.6 km (1.0 mi) from the current study area.

Archaeological Resources

No archaeological resources have been recorded within 1.6 km (1.0 mi) of the study area. Five archaeological resources were identified during a 2018 US-101/ Coffee Creek Fish Barrier Removal project approximately 2.65 (1.65 mi) south of the study area; these are the closest archaeological resources to the study area (Steinkrauss 2018).

- **Site 45MS00260** is approximately 2.7 km (1.7 mi) southeast of the study area. The site consists of remnants of a bridge or crossing structure over Coffee Creek (Steinkrauss 2018). The site was determined to be not eligible for listing in the NRHP (DAHP 2024b).

- **Site 45MS00261** is approximately 2.7 (1.7 mi) south of the study area. The site is a historic debris scatter within an 18x8.5-m (60x28-ft) area where the site was eroding out of a nearby hillside (Steinkrauss 2018). Artifacts consisted of one cobalt glass bottle, six decolorized glass bottles, a sawcut bone, and six metal objects (Steinkrauss 2018). The site appears to represent domestic refuse from the mid-twentieth century associated with a previous property owner. The site was determined to be not eligible for listing in the NRHP (DAHP 2024c).

- **Site 45MS00262** is approximately2.7 km (1.7 mi) south of the study area. The site is a subsurface historic debris scatter identified in the upper 40 cm (15 in) of two shovel tests. The site appears to represent domestic refuse from the mid-twentieth century associated with a former residence at that location in the 1950s or 1960s (Steinkrauss 2018). The site was determined to be not eligible for listing in the NRHP (DAHP 2024d).

- **Archaeological isolate 45MS00263** is approximately 2.5 km (1.6 mi) south of the study area. The isolate consists of a Cliquot Club beverage bottle identified 3 cm (1 in) below the ground surface in an eroded hillside (Steinkrauss 2018). The isolate was determined to be not eligible for listing in the NRHP (DAHP 2024e).

- **Archaeological isolate 45MS00264** is approximately 2.9 km (1.8 mi) south of the study area. The isolate consists of two thick aqua glass fragments encountered in the upper 60 cm (23 in) of one shovel test (Steinkrauss 2018). Additional radials were not excavated around the isolate due to the possible presence of electrical utilities (Steinkrauss 2018). The isolate was determined to be not eligible for listing in the NRHP (DAHP 2024f).

Built Environment

Sanderson Airfield is a mixture of historic-period and modern buildings and structures that support aviation, and non-aviation uses, under ownership of the Port of Shelton (Punke et al. 2008; Figure 4). The extant runway, taxiways and bomber standings, warming, apron, Quonset hangar, and most access roads were constructed in 1943 when the airport was developed during World War II (Century West Engineering 2007; Holmes 1943; Shettle 1997). The NAAS closed in 1945, and the airport was deeded to Mason County before being sold to the Port of Shelton in 1957 (Denfeld 2012; Gann 2011). Most buildings from the war period have been demolished and replaced since 1957.

One building of an unknown purpose, located in the northeast corner of the study area, appears to be mapped on a 1943 construction plan in an area labeled "Cantonment Area" (Holmes 1943). A second building nearby is not mapped but is present in a 1951 aerial photograph of the study area from 1951; it may have been constructed after 1943 as part of military operations (Historic Aerials 2024a; Holmes 1943). Two additional buildings within the study area are more than 50 years old and were constructed in the 1960s (Historic Aerials 2024a 2024b; USGS 1957, 1968). A water tower dates to circa 1952 (USGS 1952).

The airport was developed extensively by the Port of Shelton beginning in the 1970s. The remaining buildings and structures were constructed between circa 1976 and circa 2022 (Google Earth 1994, 2006, 2016, 2022; Historic Aerials 2024b, 2024c, 2024d, 2024e, 2024f). In the mid-1980s, Runway 5/23, oriented northeast-southwest, was narrowed from its original width of 150 feet to 100 feet, and the former north-south runway, Runway 17/35, was permanently closed (Century West Engineering 2007; Historic Aerials 2024e, 2024f). Some of the original taxiways have been converted to internal access roads (Century West Engineering 2007).

There is one previously recorded historic resource within the study area. The 1943 Quonset hangar, the "Sanderson Field Hangar," was initially documented in 2009 for the Mason County Reconnaissance Survey (Andrews 2009). However, the 2009 documentation did not apply the NRHP Criteria for Evaluation, and they did not assess the seven aspects of integrity within the historic context of the Sanderson Field Airport property. In 2018, the Sanderson Field Hangar was redocumented and a determination of NRHP eligibility was completed (Kahn 2018). The 2018 determination recommended the Sanderson Field Hangar as not eligible for listing in the NRHP due to diminished historical integrity (Khan 2018). The NRHP eligibility of the Sanderson Field Hangar was concurred by DAHP and the FAA in 2019 (DAHP 2024a).

Summary and Recommendations

AINW completed a cultural resource review for the Sanderson Airfield project. The review found that the Airfield was established in 1927 before being developed for National Defense purposes after World War II. There are four buildings (1943 Quonset hangar, two circa 1943 buildings, a circa 1962 building, and a circa 1968 building) and five structures (Runway 5/23, Runway 7/35, a circa 1943 warming apron, circa 1943 taxiways, and a circa 1952 water tower) within the study area that were built more than 50 years ago. Four cultural resource studies have been conducted within, or partially overlap with, the study area, and no archaeological resources have been identified within the study area.

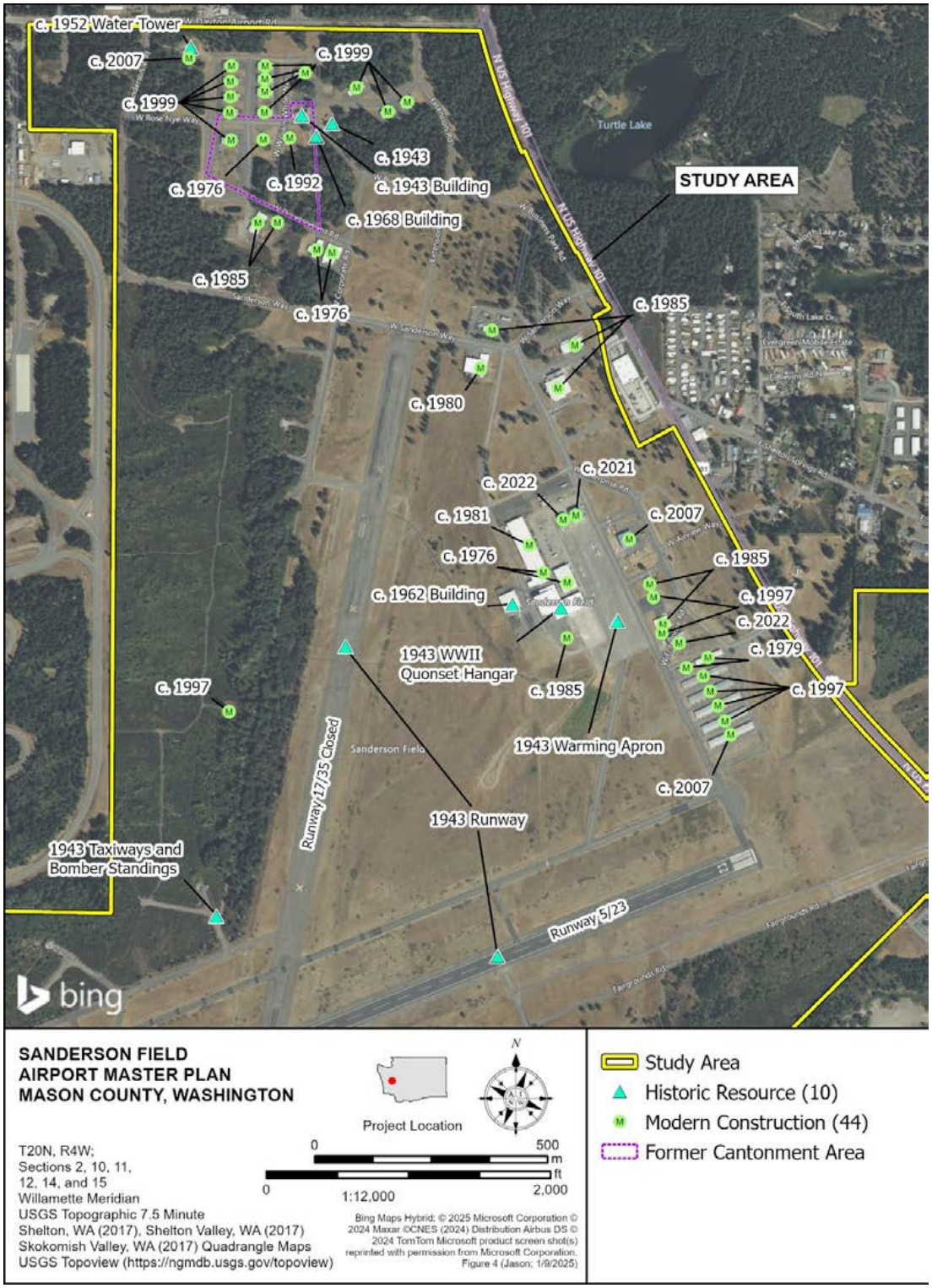

Figure 4. Aerial overview of the Sanderson Field Airport showing the locations and ages of built structures in the study area.

AINW recommends that for projects proposed within the study area, the following cultural resource investigations should be conducted to comply with state law(s) and Section 106 of the National Historic Preservation Act:

1. Conducting archaeological surveys in areas that have not been previously surveyed where ground disturbance is proposed;
2. Determining eligibility of archaeological resources within proposed project footprints for listing in the NRHP; and
3. Documenting and determining NRHP eligibility for any built resources more than 50 years old prior to changes to those resources

All cultural resource investigations and compliance processes should be conducted in consultation with both the FAA and SHPO.

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Appendix B

Environmental Review Memo

DATE:	November 4, 2024	**FROM:**	Valerie Thompson, Environmental Specialist
TO:	Samantha Peterson, Senior Airport Planner	**SUBJECT:**	Sanderson Field - Airport Master Plan Environmental Review

DATE: November 4, 2024

TO: Samantha Peterson, Senior Airport Planner
Century West Engineering
5500 Meadows Road, Suite 250
Lake Oswego, OR 97035

FROM: Valerie Thompson, Environmental Specialist

SUBJECT: Sanderson Field - Airport Master Plan Environmental Review

PROJECT: FAA Project No.: 3-53-0069-20-2024; DEA Project Number CWEX0000-0036
Sanderson Field – Airport Master Plan & AGIS

CC: Enter Names or Emails

Introduction:

Sanderson Field (Airport) is a public airport in unincorporated Mason County, Washington that is owned and operated by the Port of Shelton (Port). The Port has hired Century West Engineering (CWE) to provide planning services in the development of Airport Master Plan (AMP) and Airport Layout Plan (ALP) updates. As a subconsultant to CWE, David Evans and Associates (DEA) has been hired to perform environmental review for the project. The AMP will address and/or update the basic tasks and work elements as outlined in the Federal Aviation Administration (FAA) Advisory Circulars 150/5070-6B, Airport Master Plans and 150/5300-13B Airport Design. This environmental review memorandum has been prepared in compliance with FAA Order 1050.1F - Environmental Impacts: Policies and Procedures, and FAA Order 5050.4B – National Environmental Policy Act (NEPA) Implementing Instruction for Airport Actions for incorporation into the Airport Master Plan.

Environmental Conditions Review:

This existing conditions review includes the applicable NEPA environmental categories listed in the FAA orders mentioned above. It is intended to document the Airport's existing environmental setting and identify key environmental issues that should be considered in the identification and analysis of Airport development alternatives. Environmental categories that are not applicable, such as farmlands and coastal resources, are not included. Information is summarized below from a variety of sources including previous environmental documents and publicly available data (e.g., agency web applications and databases, previous studies, information from the 2013 Airport Master Plan, etc.). This information can be used to form the basis for subsequent environmental review processes.

DEA has performed an existing conditions review of the following FAA review categories per the current version of FAA Order 1050.1, Environmental Impacts: Policies and Procedures**:**

- Air Quality

- Biological Resources (Fish, Wildlife, and Plants)
- Department of Transportation Act, Section 4(f)
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Water Resources (includes Wetlands, Floodplains, Surface Waters, Stormwater and Water Quality, and Wild and Scenic Rivers)

The following FAA Order 1050.1 review categories are not included in this assessment, as these are either being prepared by others or are not applicable (N/A):

- Climate
- Coastal Resources (N/A)
- Farmlands (N/A)
- Historical, Architectural, Archaeological, and Cultural Resources
- Land Use
- Natural Resources and Energy Supply
- Noise and Compatible Land Use
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risk
- Visual Effects (including light emissions)

1. Air Quality

Air quality is regulated by the federal Environmental Protection Agency (EPA) under the Clean Air Act (CAA), which includes the National Ambient Air Quality Standards (NAAQS) for six common air pollutants which may harm human health and the environment, and cause property damage: carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), particulate matter (PM), sulfur dioxide (SO2), and lead (Pb). The EPA regulates these pollutants to permissible levels through human health-based (primary standards) and environmental-based (secondary standards) criteria. Air quality regions that have ambient concentrations of criteria pollutants above the NAAQS, have been designated by the EPA as "nonattainment areas." When a nonattainment area attains the NAAQS, EPA designates the area as a "maintenance area". EPA designates the Washington Department of Ecology (WDOE) as the state agency responsible for implementing the federal air quality and climate change regulations.

WDOE operates an air quality monitoring station for ozone and PM2.5/PM10 on W. Franklin Street in Shelton. The Shelton area meets the clean air standards for PM2.5 and O3 and only experiences an average of 9 days a year with poor air quality conditions (having an Air Quality Index higher than 100). It is not located in a non-attainment or maintenance area.

Any construction projects will need to consider the impacts of soil disturbance (i.e., dust) and vehicle emissions both of which generate particulates such as PM10 on the local environment. In terms of operations, the Airport does not currently generate a significant amount of vehicle or airplane traffic related air emissions (mobile source air toxics), and that is anticipated to continue in the future. Also, there are no "air quality hot spots" for surface transportation facilities in the Airport vicinity.

2. Biological Resources

Biological resources are regulated under the federal Endangered Species Act (ESA), the State of Washington ESA, the Marine Mammal Protection Act, and the Magnuson-Stevens Fishery Conservation and Management Act, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act. Information presented below on sensitive species occurrence was obtained online from US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and Washington Department of Fish and Wildlife (WDFW) inventory data.

2.1. Federally Protected Species, Critical Habitat, and Essential Fish Habitat

Under Section 7 of the ESA, if the FAA determines that an action may affect a threatened or endangered species, the FAA must initiate consultation with USFWS (for terrestrial and freshwater species) or NMFS (for marine and anadromous species), as appropriate, to ensure that any action the FAA authorizes, funds, or carries out is not likely to jeopardize the continued existence of any federally-listed threatened or endangered species, or result in the destruction or adverse modification of critical habitat. Table 1 identifies ESA-listed, candidate, or proposed species that are considered to have potential to occur on the Airport, or to have the potential for downstream stormwater impacts. Other listed species not included in Table 1 include Marbled murrelet (*Eremophila alpestris strigata*; Threatened), yellow-billed cuckoo *(Coccyzus americanus*; Threatened), and Bull trout *(Salvelinus confluentus*; Threatened). Marbled murrelet and yellow-billed cuckoo were reviewed, but there are no documented occurrences or suitable habitat within the vicinity of the Airport. Bull trout were also reviewed, as they are present in Puget Sound, but the watershed in which the Airport is sited is not within the bull trout Puget Sound Management Unit.

Table 1 Federal ESA-Listed Species

Species Common Name (Scientific Name)	Federal ESA Listing and Critical Habitat Status	State ESA Listing Status
USFWS		
Streaked Horned Lark *(Eremophila alpestris strigata)*	**Threatened.** ***The Airport is a known breeding site*.** The project area is not within designated critical habitat.	**Endangered**
Oregon vesper sparrow *(Pooecetes gramineus ssp. affinis)*	**Proposed -** Under Review as of October 2024. ***The Airport is a known breeding site*.** Critical habitat has not been designated for this species.	**Endangered**
NMFS		
Chinook Salmon (*Oncorhynchus tshawytscha*), Puget Sound ESU	**Threatened.** Present downstream in Goldsborough Creek. Goldsborough Creek is excluded from the Critical Habitat designation.	--
Steelhead Trout *(Oncorhynchus mykiss*), Puget Sound DPS	**Threatened.** Present downstream in Goldsborough Creek. Goldsborough Creek includes designated critical habitat.	--
Southern Resident Killer Whale (*Orcinus orca*)	**Endangered.** Present in downstream waters of Puget Sound. Critical Habitat has been designated for southern resident killer whale in Puget Sound.	**Endangered**

The Airport is a well-documented breeding site for the streaked horned lark (SHLA) and Oregon vesper sparrow (OVS). USFWS and WDFW, in coordination with the Center for Natural Lands Management, have been monitoring SHLA and OVS populations on the Airport dating back to at least 2018. Although OVS are not yet listed under the federal ESA we have included them here, as their listing status may change prior to implementation of projects on the updated ALP. Any future projects that are dependent on federal grant funding and may affect SHLA or OVS habitat at the Airport would be subject to ESA Section 7 consultation requirements.

ESA-protected species under the jurisdiction of NMFS are present in aquatic habitats downstream from the Airport: Chinook salmon, steelhead trout, and southern resident killer whale. NMFS considers any increase in new and replaced pollution generating impervious surface (PGIS) (e.g., impervious surfaces, including gravel roads/pads) to contribute to the contaminant load in a basin unless 100% of the stormwater infiltrates on site. If a proposed project will increase PGIS and cannot infiltrate all stormwater on site, formal ESA Section 7 consultation with NMFS will be required for the listed species within the watershed. Resident killer whales are also protected under the Marine Mammal Protection Act, which would be addressed through Section 7 consultation.

The Airport relies primarily on subsurface infiltration of stormwater and a series of drainage swales that are adjacent to the runways and taxiways for treatment of stormwater. Stormwater that does not infiltrate on the airfield sheet flows to the southwest portion of the Airport and subsequently infiltrates. Prior documentation indicates that there are no direct connections between the Airport stormwater drainage system and offsite waterbodies (Hersum, et al. 2019). However, this should be confirmed for any projects involving new or replaced PGIS.

Under the Magnuson-Stevens Fishery Conservation and Management Act, the FAA must also consult with NMFS regarding any action authorized, funded, or undertaken that may adversely affect any Essential Fish Habitat (EFH). The Airport is within the Puget Sound watershed which includes EFH for Chinook salmon, coho salmon (*Oncorhynchus kisutch*), pink salmon (*Oncorhynchus gorbuscha*), groundfish, and multiple coastal pelagic species. The procedures for potential impacts to EFH would be included in ESA consultation requirements.

Programmatic agreements are currently being planned or developed between FAA and NMFS, as well as Washington State Department of Transportation, WDOE, and others to make consultation for stormwater impacts less onerous. Early coordination with USFWS and NMFS is highly recommended for projects that may affect listed species at the Airport to determine if there have been any updates to listing status, developments in programmatic agreements, and to confirm consultation processes.

2.2. State-Protected Species

The State Endangered Species Act of 1991 is a state law with its own rules and procedures for classifying and managing endangered and native species that need protection or management. WDFW uses the priority Habitats and Species (PHS) program to provide information on the location of State-listed species and their habitats to inform processes that may impact these species. Three Washington State ESA listed species occur on the Airport: SHLA (Endangered), OVS (Endangered), and Shelton pocket gopher *(Thomomys mazama couchi*; Threatened).

Coordination for SHLA and OVS is anticipated to occur through the federal ESA Section 7 process, which would not include the Shelton pocket gopher. Shelton pocket gophers are listed as Threatened under the State ESA, and they are identified by WDFW as a Species of Greatest Conservation Need. Development on the Airport has the potential to cause habitat loss for what may be the largest population of the Shelton pocket gopher (Stinson 2020). To comply with Mason County regulations, the Port had a habitat management plan (HMP) prepared for the Shelton Pocket Gopher population on Sanderson Field. Projects at the Airport should maintain compliance with this HMP and also review WDFW management recommendations for the protection of the species.

2.3. Migratory Birds

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. § 703-712) protects most species of birds in Washington, except some non-native species such as pigeons, house sparrows, and starlings. Multiple MBTA-protected species are found on Airport property throughout the year. Potential nesting sites are present in trees, shrubs, and on airport structures. Avian species that use grassland habitats may also nest on the ground, such as gravel pavement shoulders or in patches of grass or low vegetation (e.g. killdeer and savannah sparrows). The MBTA prohibits the removal of nests containing eggs and dependent young, therefore it is generally recommended that any clearing and grading activities conclude before March 15 or start after August 1 to avoid the nesting season. If construction activities are to take place in areas with potential bird nesting habitat during the breeding season, the affected areas should be surveyed for active nests by a qualified biologist prior to any clearing or grading.

2.4. Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) is administered by the USFWS and protects bald and golden eagles from the unauthorized “take” (50 CFR § 22.6). The Airport is within the range of both eagle species, however golden eagle activity in the area would be rare. Bald eagles are common in the area and traverse through the vicinity, or have the potential to hunt or scavenge nearby, and potential nesting and sheltering habitat is present in forested landscapes surrounding the Airport.

Disturbance to habitats around eagle nesting sites may result in “take” under the BGEPA. USFWS provides recommendations for compliance that focus on buffers from active nests (e.g., distance, visual/habitat) and timing to avoid disturbing nesting eagles. Coordination with USFWS should occur if the project intends to remove or cause disturbance within 660 feet of large trees that could support nesting bald eagles during the nesting season (generally January through the end of August). An incidental take permit may be required if construction activities occur within 330 feet or 660 feet of an eagle nest during the nesting season, depending on the specific construction activities. Anything over 660 feet from a nest that does not include blasting or other extremely loud activities is unlikely to disturb nesting eagles and an incidental take permit would not be necessary.

3. Department of Transportation Act, Section 4(f)

Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966 (now codified at 49 U.S.C. § 303) provides for consideration of publicly owned parks and recreational lands, wildlife and waterfowl refuges, and public and private historic sites during development of transportation projects. There are no parks or recreational lands located near the Airport. The Mason County Fairgrounds were formally located adjacent to the Airport, but the county decided not to renew the land lease, and the property has reverted to the Port of Shelton. There are no designated wildlife or waterfowl refuges located near the Airport. There are no designated historic sites on or near the Airport. The Sanderson Field Hanger was evaluated and determined to not be eligible for listing on the historic register. While not on the historic register, Shelton High School located just west of the Airport has been determined to be eligible for listing.

4. Hazardous Materials, Solid Waste, and Pollution Prevention

The WDOE What's in My Neighborhood and Leaking Underground Storage Tanks websites indicated that there are three existing or previous toxic cleanup sites on or near the Airport. The Port of Shelton Certified Aerospace, Inc. site is located at 400 W. Enterprise Road on the northwest corner of the Airport, and it was reported that there was soil and groundwater contamination from petroleum products, halogenated organics, and metals; surface water and air contamination was also suspected. The site has started cleanup activities. The Agreed Order is with Certified Aerospace, Inc. and that is the name associated with the site, in addition to the Port of Shelton as the landowner. The second site is located at 150 W. Sanderson Way (Don Small & Sons Oil Distribution) just off the northern edge of the Airport. There was soil and groundwater contamination by petroleum from a leaking underground storage tank. However, the site has been cleaned up and the site status has a No Further Action designation from WDOE. The third site, Airport Grocery Store, is located at 11900 Highway 101 off the Airport. This site was reported to have petroleum contaminated soil from a leaking underground storage tank. The site has been cleaned up and its WDOE status is No Further Action. An additional site, Goose Lake, is located immediately south of the Airport, and west of Highway 101. Contamination at this site was caused by historic pulp mill and landfill activities and is awaiting cleanup. These prior activities caused contamination of soil, groundwater, surface water, and sediment. This site received funding as part of the WDOE Brownsfield Program, and a draft remedial investigation report is underway, which will be followed by a feasibility study and a cleanup action plan. No other hazardous or solid waste sites are on or near the Airport.

5. Water Resources

This section describes wetlands, floodplains, surface waters, groundwater, and Wild and Scenic Rivers in the Airport vicinity. DEA performed a desktop review to identify potential wetland and water resources in the Project area, including past delineations, historic aerial photos, National Wetlands Inventory, and Natural Resource Conservation Service County Soil Survey. The Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) Map 53045C0582E shows the entire Airport as being located in Zone X "outside the 0.2% annual chance floodplain". The Airport is situated primarily in the Goldsborough Creek subbasins of the Kennedy-Goldsborough watershed (WRIA 14) in southwest Puget Sound (Figure 2). A small portion of the eastern corner is in the Cranberry Creek-Frontal Oakland Bay sub basin. Goldsborough Creek

and Cranberry Creek have both been listed in the Washington State Water Quality Assessment as exceeding standards for temperature, bacteria – fecal coliform, and instream flow (WDOE 2024).

Small wetland areas have been identified at the south side of the Airport, and offsite to the south, east, and northeast (Figure 1). There are no hydric soils mapped on the Airport (Figure 3). Projects causing ground disturbance at the Airport will require a formal wetland delineation or documentation of the absence of wetlands for the project location. Due to the managed vegetation and flat nature of the landscape, it is recommended that wetland site visits by a qualified wetland scientist occur during the early growing season when the water table is expected to be present.

Wetlands are regulated at the federal, state, and local levels. Agencies with jurisdiction include the U.S. Army Corps of Engineers, WDOE, Mason County, and the City of Shelton. The Mason County Code 8.52.110 and Shelton Municipal Code 21.64.100 require a protective buffer around each wetland based on the wetland category using the WDOE Rating System for Western Washington. Agencies typically require demonstration of avoidance and minimization of wetland impacts before approval for wetland impacts will be granted. Compensatory mitigation is also typically required for any impacts that cannot be totally avoided.

There are no designated Wild and Scenic Rivers in the immediate vicinity of the Airport.

References:

- Hersum, C., Hartung, S., Logan, I. 2019. Sanderson Field Airport Improvements Project. Environmental Science Associates, Bothell, Washington. January 2019
- Stinson, D. W. 2020. Mazama Pocket Gopher Recovery Plan and Periodic Status Review. Washington Department of Fish and Wildlife, Olympia.102+vii pp.

Attachments/Enclosures: Figures

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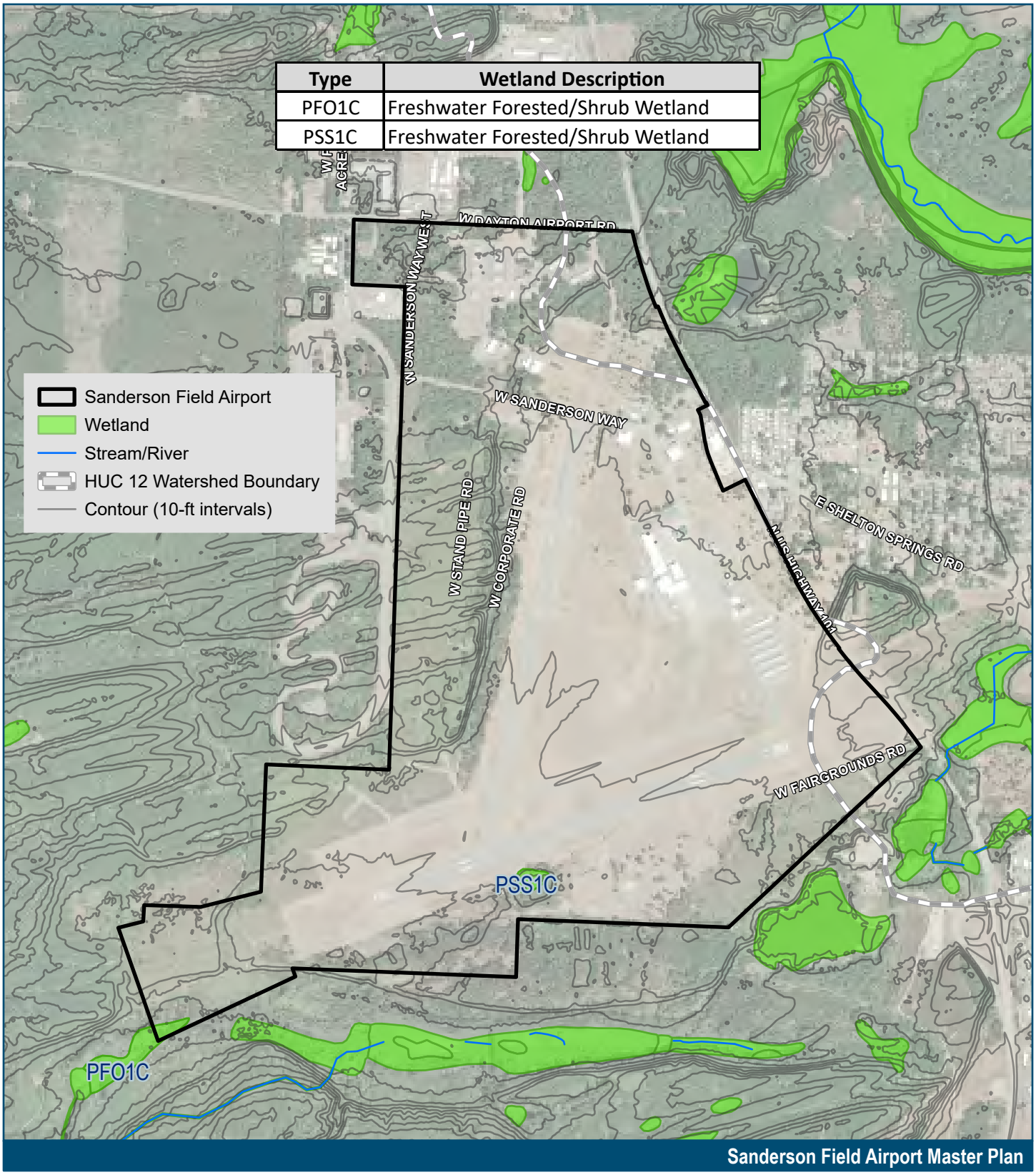

Sanderson Field Airport Master Plan

Data Sources: Mason County, USFWS, USGS

Figure 1
Wetlands and Waters

N

0 0.25 0.5 Miles

11/12/2024

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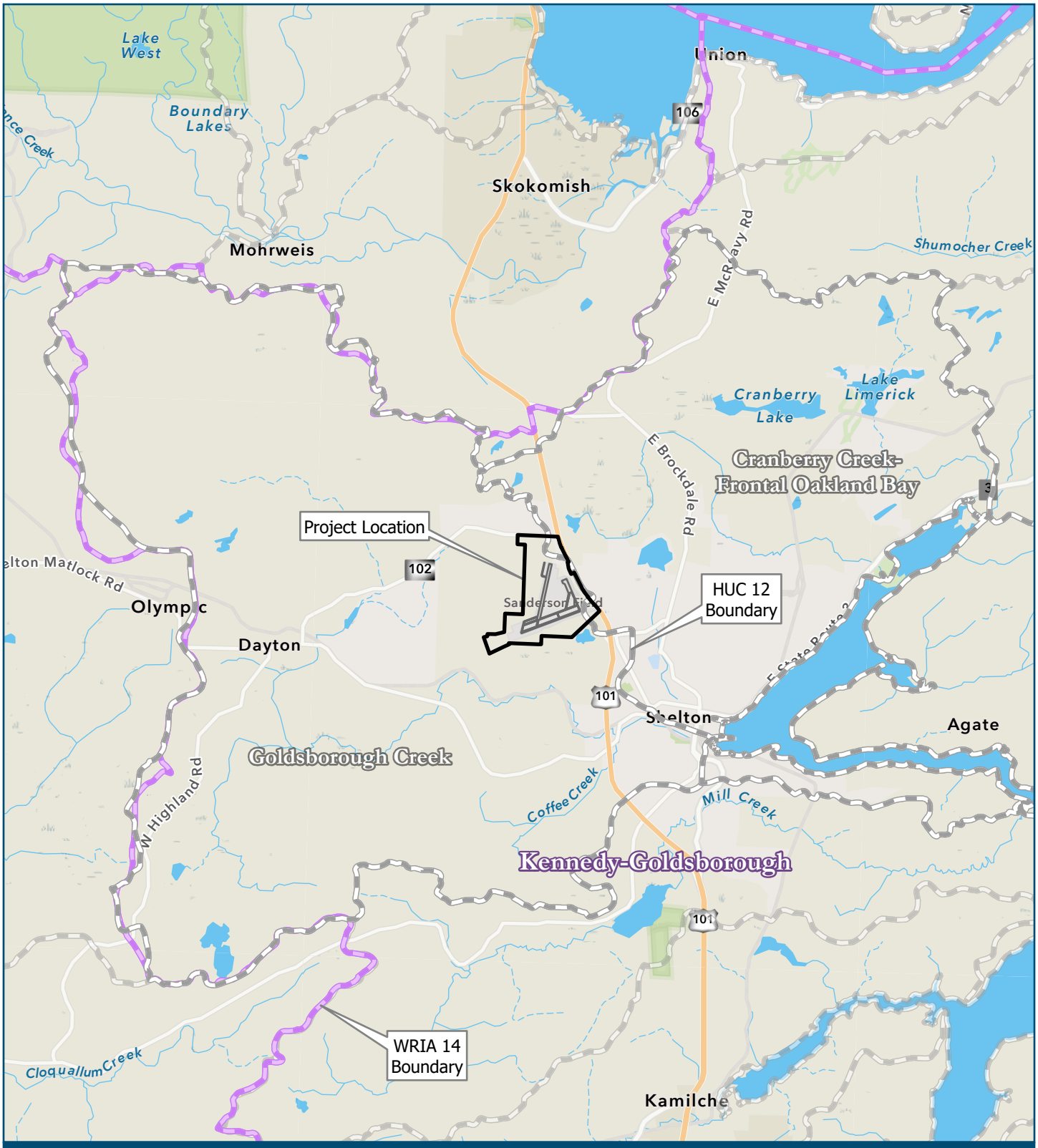


Sanderson Field Airport Master Plan

Data Sources: DOE, Mason County, USFWS, USGS

Figure 2
Watersheds

Sanderson Field Airport
HUC12 Watershed Boundary
Water Resource Inventory Area (WRIA)

N
0 1 2 Miles

11/7/2024

Path: P:\C\CWEX00000036\0600INFO\GS\CWEX0036 Sanderson Field Airport.aprx

Soil Unit	Soil Description	Drainage
Ca	Carstairs gravelly loam, 0 to 5 percent slopes	Moderately well drained
Gg	Grove gravelly loam, basin phase, 0 to 5 percent slopes	Somewhat excessively drained
Gh	Grove gravelly sandy loam, 0 to 5 percent slopes	Somewhat excessively drained
Gk	Grove gravelly sandy loam, 5 to 15 percent slopes	Somewhat excessively drained
Sf	Shelton gravelly sandy loam, 5 to 15 percent slopes	Moderately well drained

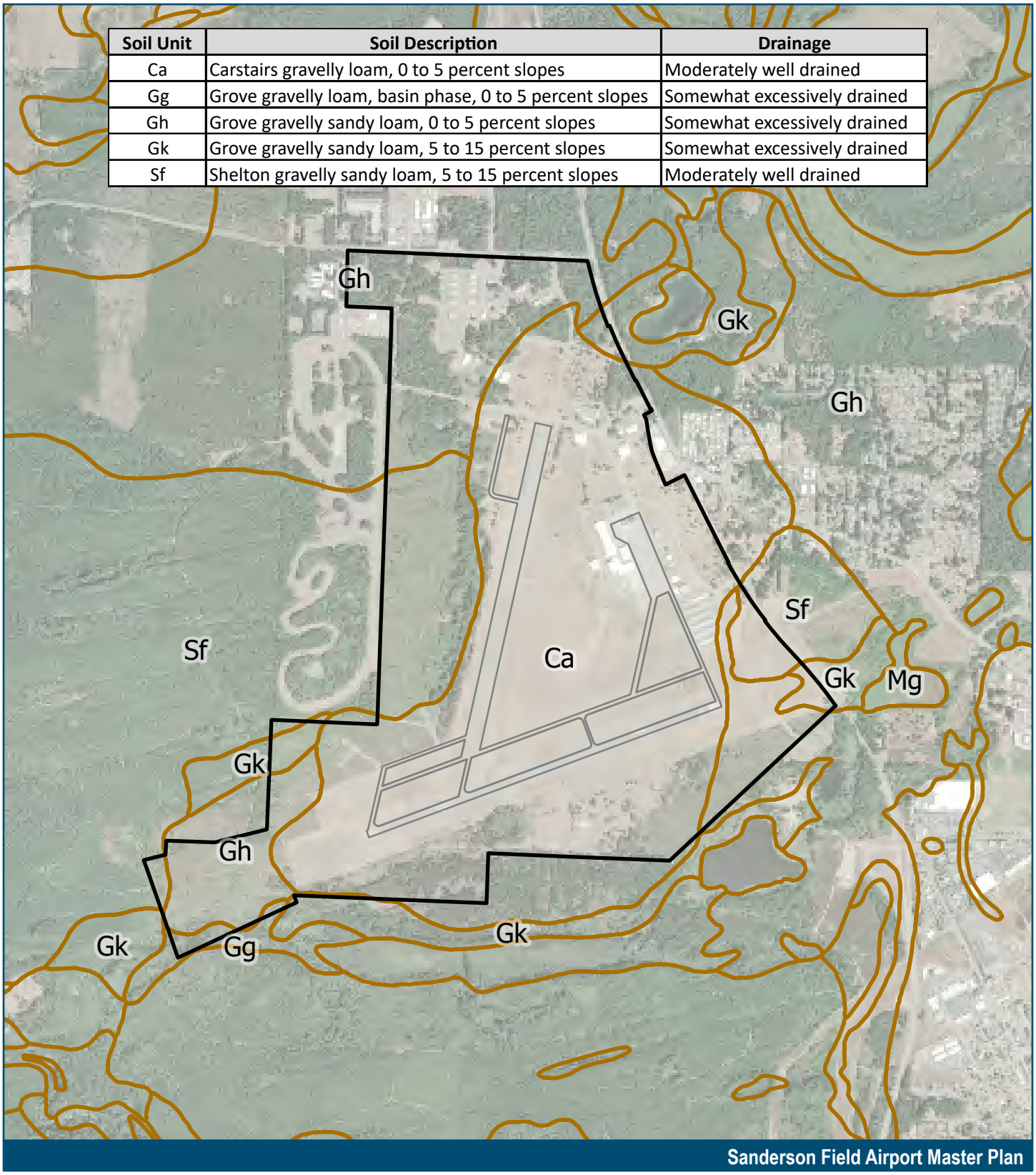


Figure 3
Soils

Sanderson Field Airport
NRCS Soil Unit

N
0 0.25 0.5 Miles

11/7/2024

Path: P:\C\CWEX00000036\0600INFO\GS\CWEX0036 Sanderson Field Airport.aprx

Aerial: Washington NAIP Imagery, 2019

Figure 4
Aerial

Sanderson Field Airport

N

0 0.25 0.5 *Miles*

11/7/2024

Path: P:\C\CWEX00000036\0600INFO\GS\CWEX0036 Sanderson Field Airport.aprx

Appendix C

Instrument Procedures

RNAV (GPS) RWY 23
SANDERSON FLD (SHN)

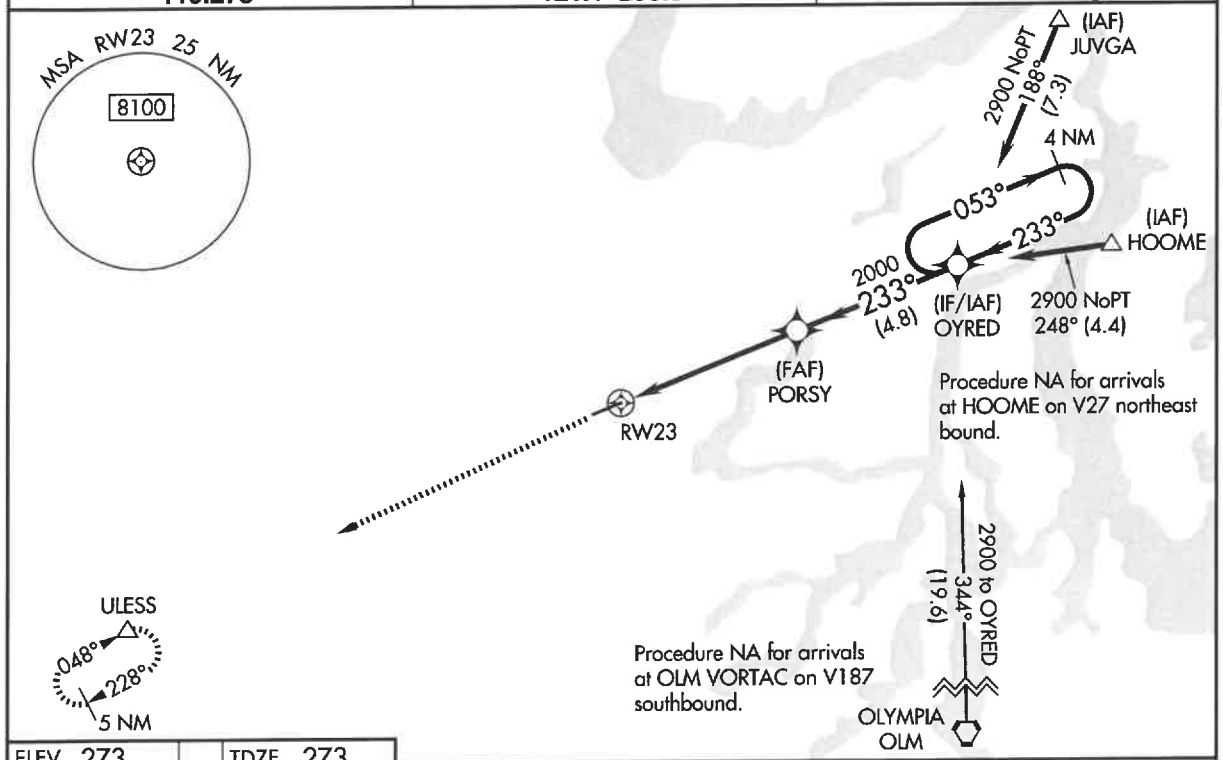
WAAS CH 58335 W23A	APP CRS 233°	Rwy Ldg 5005 TDZE 273 Apt Elev 273

RNP APCH.

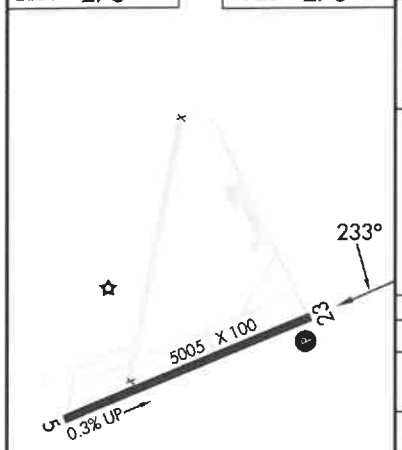
For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -10°C or above 54°C. Rwy 23 helicopter visibility reduction below ¾ SM NA. Baro-VNAV and VDP NA when using Olympia altimeter setting. Circling NA for Cats C and D south of Rwy 5-23. When local altimeter setting not received, use Olympia altimeter setting: increase #LPV DA to 576 feet, LPV DA to 720 feet, and LNAV/VNAV DA to 773 feet and all visibilities ¼ SM; increase all MDAs 60 feet and visibility LNAV Cat C and D and Circling Cat C visibility ⅛ SM.
LPV missed approach requires minimum climb of 244 feet per NM to 1700.

MISSED APPROACH: Climb to 3200 direct ULESS and hold.

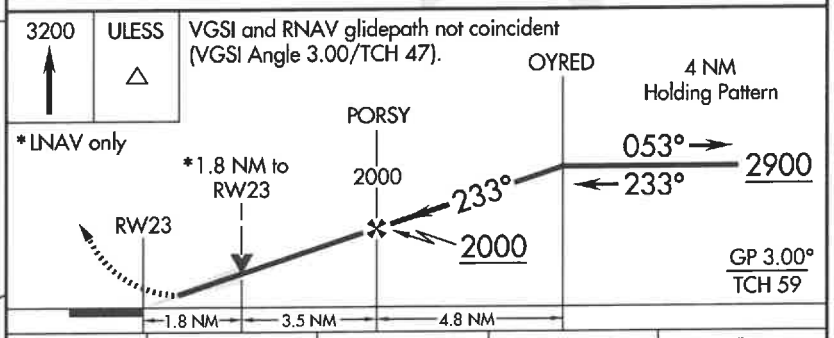
ASOS	SEATTLE APP CON	UNICOM
119.275	121.1 290.9	122.8 (CTAF)



ELEV 273 TDZE 273



REIL Rwy 23
MIRL Rwy 5-23



CATEGORY	A	B	C	D
LPV DA#	523-¾ 250 (300-¾)			
LPV DA	667-1¼ 394 (400-1¼)			
LNAV/VNAV DA	720-1½ 447 (500-1½)			
LNAV MDA	880-1 607 (700-1)		880-1¾ 607 (700-1¾)	
CIRCLING	880-1 607 (700-1)		880-1¾ 607 (700-1¾)	1200-3 927 (1000-3)

NW-1, 11 JUN 2026 to 09 JUL 2026

RNAV (GPS) RWY 5
SANDERSON FLD (SHN)

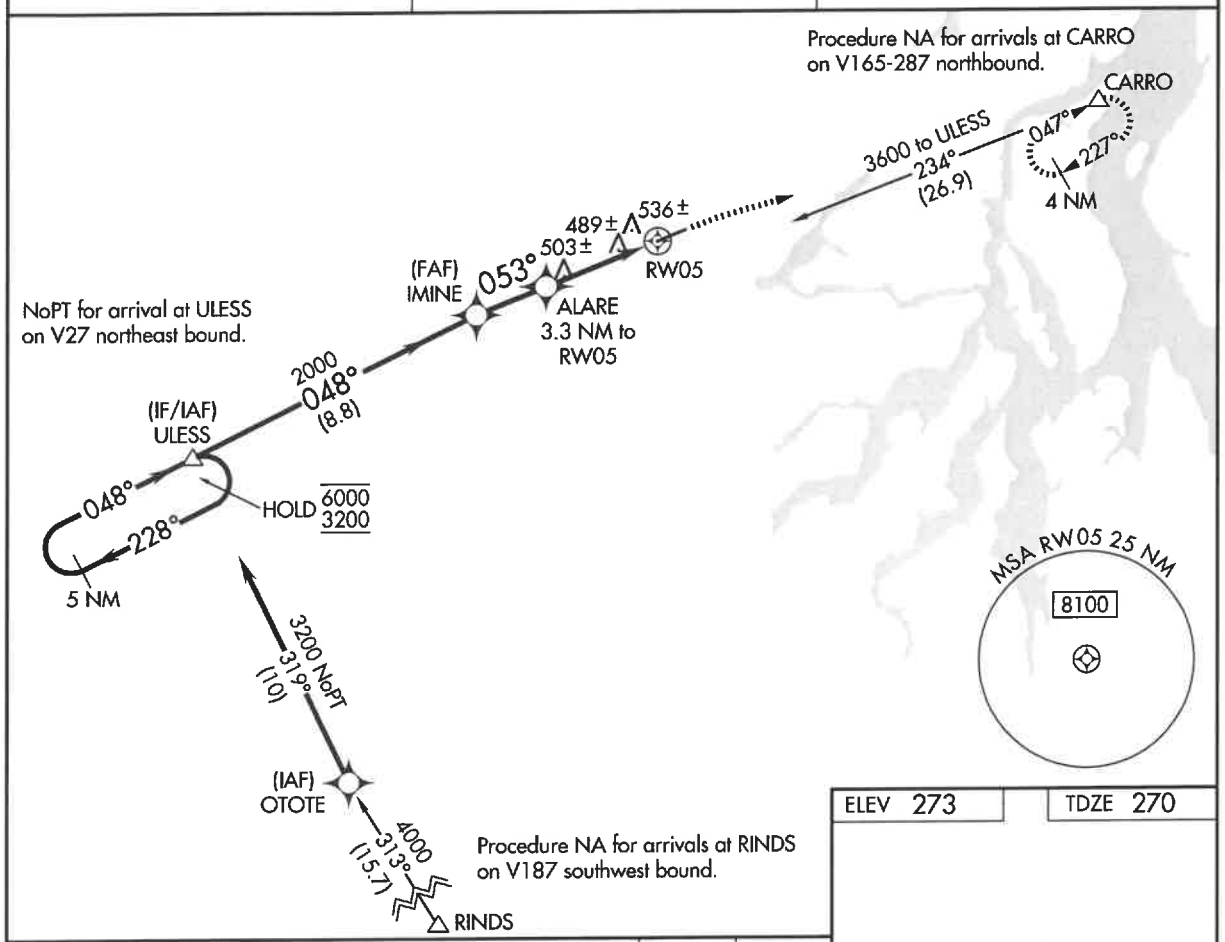
WAAS CH 61038 W05A	APP CRS 053°	Rwy Ldg 5005 / TDZE 270 / Apt Elev 273

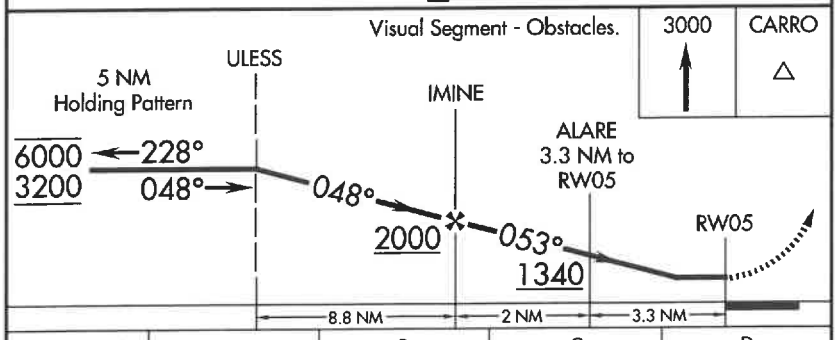
RNP APCH - GPS.

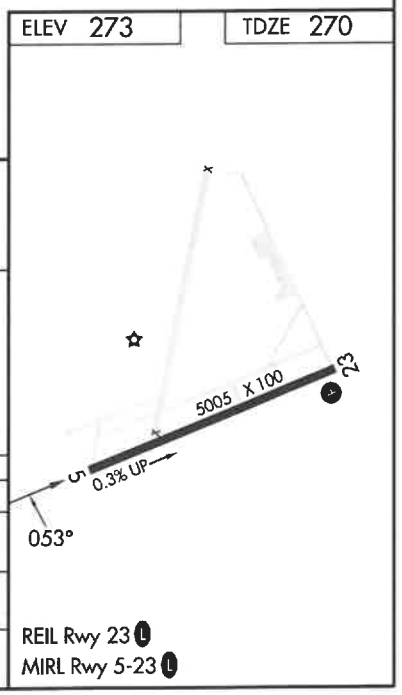
Circling NA for Cats C and D south of Rwy 5-23. Rwy 5 helicopter visibility reduction below ¾ SM NA. When local altimeter setting not received, use OLM altimeter setting: increase all MDAs 60 feet and increase LNAV visibility Cats C and D ¼ SM; increase Circling visibility Cat C ¼ SM.

MISSED APPROACH: Climb to 3000 direct CARRO and hold.

ASOS	SEATTLE APP CON	UNICOM
119.275	121.1 290.9	122.8 (CTAF)







CATEGORY	A	B	C	D
LP MDA	740-1 470 (500-1)		740-1⅜ 470 (500-1⅜)	
LNAV MDA	800-1 530 (600-1)		800-1½ 530 (600-1½)	
CIRCLING	840-1 567 (600-1)	860-1 587 (600-1)	860-1½ 587 (600-1½)	1200-3 927 (1000-3)

NW-1, 11 JUN 2026 to 09 JUL 2026

NW-1, 11 JUN 2026 to 09 JUL 2026

IFR TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)

Civil Airports and Selected Military Airports

ALL USERS: Airports that have Departure Procedures (DPs) designed specifically to assist pilots in avoiding obstacles during the climb to the minimum enroute altitude, and/or airports that have civil IFR takeoff minimums other than standard, are listed below. Takeoff Minimums and Departure Procedures apply to all runways unless otherwise specified. An entry may also be listed that contains only Takeoff Obstacle Notes. Altitudes, unless otherwise indicated, are minimum altitudes in MSL.

DPs specifically designed for obstacle avoidance are referred to as Obstacle Departure Procedures (ODPs) and are textually described below, or published separately as a graphic procedure. If the ODP is published as a graphic procedure, its name will be listed below, and it can be found in either this volume (civil), or the applicable military volume, as appropriate. Users will recognize graphic obstacle DPs by the term "(OBSTACLE)" included in the procedure title; e.g., TETON TWO (OBSTACLE). If not specifically assigned an ODP, SID, or RADAR vector as part of an IFR clearance, an ODP may be required to be flown for obstacle clearance, even though not specifically stated in the IFR clearance. When doing so in this manner, ATC should be informed when the ODP being used contains a specified route to be flown, restrictions before turning, and/or altitude restrictions.

Some ODPs, which are established solely for obstacle avoidance, require a climb in visual conditions to cross the airport, a fix, or a NAVAID in a specified direction, at or above a specified altitude. These procedures are called Visual Climb Over Airport (VCOA). To ensure safe and efficient operations, the pilot must verbally request approval from ATC to fly the VCOA when requesting their IFR clearance.

At some locations where an ODP has been established, a diverse vector area (DVA) may be created to allow RADAR vectors to be used in lieu of an ODP. DVA information will state that headings will be as assigned by ATC and climb gradients, when applicable, will be published immediately following the specified departure procedure.

Graphic DPs designed by ATC to standardize traffic flows, ensure aircraft separation and enhance capacity are referred to as "Standard Instrument Departures (SIDs)". SIDs also provide obstacle clearance and are published under the appropriate airport section. ATC clearance must be received prior to flying a SID.

CIVIL USERS NOTE: Title 14 Code of Federal Regulations Part 91 prescribes standard takeoff rules and establishes takeoff minimums for certain operators as follows: (1) For aircraft, other than helicopters, having two engines or less – one statute mile visibility. (2) For aircraft having more than two engines – one-half statute mile visibility. (3) For helicopters – one-half statute mile visibility. These standard minima apply in the absence of any different minima listed below.

MILITARY USERS NOTE: Civil (nonstandard) takeoff minima are published below. For military takeoff minima, refer to appropriate service directives.

11 JUN 2026 to 09 JUL 2026

AFTON, WY

AFTON LINCOLN COUNTY/GENERAL BOYD L EDDINS FLD (AFO)
TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES
AMDT 1 28SEP06 (25051) (FAA)
DEPARTURE PROCEDURE:
Rwy 16, use LUNDI DEPARTURE.
Rwy 34, use AFTON DEPARTURE.

ALBANY, OR

ALBANY MUNI (S12)
TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES
AMDT 2C 24MAR22 (22083) (FAA)
DEPARTURE PROCEDURE:
Rwy 16, climbing right turn direct CVO VOR/DME, thence...
Rwy 34, climbing left turn direct CVO VOR/DME, thence...
...continue climb in CVO VOR/DME holding pattern (hold east, right turns, 261° inbound) to cross CVO VOR/DME at or above 3400.
TAKEOFF OBSTACLE NOTES:
Rwy 16, lighting 40' from DER, 101' left of centerline, 3' AGL/228' MSL.
Trees, sign beginning 50' from DER, 189' right of centerline, up to 317' MSL.
Tree 58' from DER, 453' left of centerline, 253' MSL.
Tree 339' from DER, 465' left of centerline, 313' MSL.
Trees, poles, sign, electrical system beginning 419' from DER, 5' left of centerline, up to 322' MSL.
Trees, vehicles on road, lighting, poles, electrical system, sign beginning 576' from DER, 20' right of centerline, up to 323' MSL.
Trees, pole beginning 1676' from DER, 128' right of centerline, up to 331' MSL.
Trees, pole beginning 1865' from DER, 3' left of centerline, up to 336' MSL.
Trees beginning 1947' from DER, 148' right of centerline, up to 335' MSL.
Trees 3249' from DER, 1250' left of centerline, 347' MSL.
Rwy 34, building, vehicles on road beginning 58' from DER, 157' left of centerline, up to 26' AGL/250' MSL.
Building 63' from DER, 416' right of centerline, 31' AGL/258' MSL.
Tree 440' from DER, 503' right of centerline, 266' MSL.
Trees, building beginning 465' from DER, 280' right of centerline, up to 270' MSL.
Tree, pole beginning 684' from DER, 69' right of centerline, up to 271' MSL.
CON'T

SHELTON, WA
SANDERSON FLD (SHN)
TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES
AMDT 4 28SEP06 (22083) (FAA)
TAKEOFF MINIMUMS:
Rwy 5, std. w/min. climb of 312' per NM to 4000, or 1500-2½ for a climb in visual conditions.
Rwy 23, std. w/min. climb of 414' per NM to 4000, or 1500-2½ for a climb in visual conditions.
DEPARTURE PROCEDURE:
Rwy 5, climbing right turn to intercept SEA R-230 to CARRO intersection. Or for climb in visual conditions: cross Sanderson Fld northeast bound at or above 1600, thence via SEA R-230 to cross CARRO intersection at or above 4000. **Rwy 23,** climbing left turn to intercept SEA R-230 to CARRO intersection. Or for climb in visual conditions: cross Sanderson Fld northeast bound at or above 1600, thence via SEA R-230 to cross CARRO intersection at or above 4000.
TAKEOFF OBSTACLE NOTES:
Rwy 5, multiple trees beginning 550' from DER, 107' left of centerline, up to 94' AGL/366' MSL.
Multiple trees beginning 130' from DER, 70' right of centerline, up to 80' AGL/352' MSL.
Rwy 23, multiple trees beginning 52' from DER, 149'left of centerline, up to 72' AGL/330' MSL.
Multiple trees beginning 886' from DER, 153' right of centerline, up to 155' AGL/486' MSL.

SHERIDAN, WY
SHERIDAN COUNTY (SHR)
TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES
AMDT 4A 15AUG19 (19227) (FAA)
TAKEOFF MINIMUMS:
Rwy 6, std. w/min. climb of 270' per NM to 5000 or 1400-3 for VCOA.
Rwy 15, std. w/min. climb of 265' per NM to 5100 or 1400-3 for VCOA.
Rwy 24, std. w/min. climb of 370' per NM to 5200 or 1400-3 for VCOA.
DEPARTURE PROCEDURE:
Rwy 6, climbing left turn to intercept SHR R-109 to SHR VOR/DME, thence...
Rwy 15, climbing left turn heading 330° to intercept SHR R-109 to SHR VOR/DME, thence...
Rwy 24, climbing right turn to intercept SHR R-156 to SHR VOR/DME, thence...
Rwy 33, climb heading 326° to intercept SHR R-109 to SHR VOR/DME, thence...
...continue climb in SHR VOR/DME holding pattern (hold northwest, left turns, 136° inbound) to cross SHR VOR/DME at or above MEA for direction of flight before proceeding on course.
VCOA:
Rwys 6, 15, 24, obtain ATC approval for climb in visual conditions when requesting IFR clearance. Climb in visual conditions to cross Sheridan County airport at or above 5300, then proceed on SHR R-132 to SHR VOR/DME. Continue climb in SHR VOR/DME holding pattern (hold northwest, left turns, 136° inbound) to cross SHR VOR/DME at or above MEA for direction of flight before proceeding on course.
TAKEOFF OBSTACLE NOTES:
Rwy 6, elec sys 10' from DER, 17' left of centerline, 6' AGL/3941 MSL.
Sign 38' from DER, 350' right of centerline, 7' AGL/3943' MSL.
Multiple trees and buildings beginning 92' from DER, 213' left of centerline, up to 80' AGL/3993' MSL.
Rwy 15, lighting 10' from DER, 5' right of centerline, 1' AGL/3976' MSL.
Lighting 10' from DER, 5' left of centerline, 1' AGL/3976' MSL.
Rwy 24, rising terrain beginning 17' from DER up to 4445' MSL.
Trees, towers, road, poles, NAVAID and bushes beginning 41' from DER up to 65' AGL/4286' MSL.
Fence beginning 74' from DER, 497' left and 594' right of centerline, up to 10' AGL/4060' MSL.
Power lines beginning 4393' from DER, 1531' left of centerline, up to 67 ' AGL/4286' MSL.
Rwy 33, lighting beginning 10' from DER, 30' left of centerline, up to 3' AGL/4016' MSL.
Electrical system, vertical point beginning 52' from DER, 397' right of centerline, up to 14' AGL/4020' MSL.

SIDNEY, MT
SIDNEY-RICHLAND RGNL (SDY)
TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES
AMDT 6 17AUG17 (17229) (FAA)
TAKEOFF MINIMUMS:
Rwy 29, 300-2¼ or std. w/min. climb of 330' per NM to 2300.
DEPARTURE PROCEDURE:
Rwy 11, climb heading 108° to 2700 before turning right.
Rwy 29, climb heading 288° to 2800 before turning left.
TAKEOFF OBSTACLE NOTES:
Rwy 1, Rwy light, NAVAID beginning 9' from DER, 39' right of centerline, up to 1983' MSL.
Tree 86' from DER, 358' left of centerline, 2004' MSL.
Tree 145' from DER, 376' right of centerline, 2039' MSL.
Tree 171' from DER, 538' left of centerline, 2019' MSL.
Trees beginning 188' from DER, 90' right of centerline, up to 2040' MSL.
Tree 193' from DER, 470' left of centerline, 2026' MSL.
Tree, vehicle on road beginning 304' from DER, 99' left of centerline, up to 2037' MSL.
Tree 640' from DER, 585' left of centerline, 2038' MSL.
Tree, ground beginning 763' from DER, 123' left of centerline, up to 2049' MSL.
Trees beginning 1094' from DER, 137' right of centerline, up to 2041' MSL.
Trees beginning 1218' from DER, 269' right of centerline, up to 2044' MSL.
CON'T

11 JUN 2026 to 09 JUL 2026

IFR ALTERNATE AIRPORT MINIMUMS

Pilots must review the IFR Alternate Minimums Notes to determine alternate airport suitability.
NA designation on the approach chart means that pilots may not use that approach as an alternate due to unmonitored facility, absence of weather reporting service, or lack of adequate navigation coverage. Approaches with the NA designation are not listed in this section. designation on the approach chart indicates that the approach procedure has non-standard minimums (for aircraft other than helicopters) or restrictions (for all users) for its use as an alternate. A procedure is not authorized for alternate flight planning purposes when local weather is not available.

MILITARY USERS NOTE: For IFR alternate airport and minima planning, refer to appropriate service directives.

Alternate Minima (ref: 14 CFR 91.169)

	Precision Approach	Non-Precision Approach
Standard	**600-2**	**800-2**
Non-Standard or restrictions	As indicated below	As indicated below
Helicopters	For the selected approach: Ceiling: 200' above published ceiling Visibility: the greater of 1 SM visibility or the published visibility	

Note: For alternate airport flight planning purposes, precision approach operations include: ILS, PAR, and GLS, and Non-Precision approach operations include: NDB, VOR, LOC, TACAN, LDA, SDF, ASR, RNAV (GPS) and RNAV (RNP).

NAME — ALTERNATE MINIMUMS

AFTON, WY
AFTON LINCOLN COUNTY/GENERAL BOYD L EDDINS FLD (AFO).....**RNAV (GPS) Rwy 16**
Cat A, B 1700-2, Cat C 1700-3.

ARLINGTON, WA
ARLINGTON MUNI (AWO).....**RNAV (GPS) Rwy 34**
NA when local weather not available.
Cat C 900-2½, Cat D 900-3.

ASTORIA, OR
ASTORIA RGNL (AST).....**ILS Rwy 26**[1]
RNAV (GPS) Rwy 8[12]
RNAV (GPS) Rwy 26[3]
VOR Rwy 8[14]
[1]NA when local weather not available.
[2]Cat B 900-2, Cat C 1100-3, Cat D 1200-3.
[3]Cat A, B 900-2, Cat C 1100-3, Cat D 1200-3.
[4]Cat C 1100-3, Cat D 1200-3.

AURORA, OR
AURORA STATE (UAO).....**LOC Rwy 17**[1]
RNAV (GPS) Rwy 17[2]
RNAV (GPS) Rwy 35[2]
NA when local weather not available.
[1]Cat C, D 800-2½.
[2]Cat D 800-2¼.

NAME — ALTERNATE MINIMUMS

BAKER, MT
BAKER MUNI (BHK).....**RNAV (GPS) Rwy 13**
RNAV (GPS) Rwy 31
Cat D 900-2¾.

BAKER CITY, OR
BAKER CITY MUNI (BKE).....**RNAV (GPS) Rwy 13**[1]
VOR-A[23]
VOR/DME Rwy 13[45]
[1]Cat A, B 900-2, Cat C 1200-3, Cat D 1400-3.
[2]NA when local weather not available.
[3]Cat A, B 1900-2, Cat C, D 1900-3.
[4]Cat D 900-2¾.
[5]NA when control zone not in effect.

BELLINGHAM, WA
BELLINGHAM INTL (BLI).....**ILS or LOC Rwy 16**[1]
RNAV (GPS) Y Rwy 16[2]
RNAV (GPS) Y Rwy 34[2]
NA when local weather not available.
[1]LOC Cat D 1000-3.
[2]Cat D 1000-3.

BEND, OR
BEND MUNI (BDN)..... **RNAV (GPS) Rwy 34**
RNAV (GPS) Y Rwy 16
RNAV (GPS) Z Rwy 16
VOR Rwy 16
Cat D 1200-3.
NA when local weather not available.

11 JUN 2026 to 09 JUL 2026

NAME — ALTERNATE MINIMUMS

RIVERTON, WY
CENTRAL WYOMING
RGNL (RIW)……**RNAV (GPS) Rwy 10**
RNAV (GPS) Rwy 28
VOR Rwy 10
VOR Rwy 28
NA when local weather not available.

ROCK SPRINGS, WY
SOUTHWEST WYOMING
RGNL (RKS)……**ILS or LOC Rwy 27[1]**
RNAV (GPS) Rwy 9[2]
RNAV (GPS) Rwy 27[2]
[1]LOC Cat D 800-2½.
[2]Cat D 800-2½.

ROSEBURG, OR
ROSEBURG
RGNL (RBG)……**RNAV (GPS)-B**
NA when local weather not available.
Cat A, B 1200-2, Cat C 1500-3, Cat D 1600-3.

SALEM, OR
MCNARY FLD (SLE)……**ILS or LOC Z Rwy 31[12]**
LOC BC Rwy 13[13]
LOC Y Rwy 31[13]
RNAV (GPS) Rwy 13[3]
RNAV (GPS) Rwy 31[14]
[1]NA when local weather not available.
[2]LOC Cat A, B 900-2, Cat C 900-2½, Cat D 1100-3.
[3]Cat C 900-2½, Cat D 1100-3.
[4]Cat C 800-2¼, Cat D 1100-3.

SANDPOINT, ID
SANDPOINT (SZT)……**RNAV (GPS) Y Rwy 2[12]**
RNAV (GPS) Y Rwy 20[13]
RNAV (GPS) Z Rwy 2[14]
RNAV (GPS) Z Rwy 20[1]
RNAV (GPS)-B[5]
[1]NA when local weather not available.
[2]Cat A, B 1500-2, Cat C 1500-3.
[3]Cat A, B 1300-2, Cat C 1300-3.
[4]Cat A, B 1000-2, Cat C 1000-3.
[5]Cat A, B 1500-2, Cat C 1500-3, Cat D 2100-3.

SARATOGA, WY
SHIVELY FLD (SAA)……**RNAV (GPS) Rwy 5**
RNAV (GPS) Rwy 23
NA when local weather not available.
Cat D 900-2¾.

SCAPPOOSE, OR
SCAPPOOSE INDUSTRIAL
AIRPARK (SPB)……**LOC/DME Rwy 15**
RNAV (GPS) Rwy 15
VOR/DME-A
NA when local weather not available.
Cat D 900-2½.

NAME — ALTERNATE MINIMUMS

SCOBEY, MT
SCOBEY (9S2)……**RNAV (GPS) Rwy 12**
NA when local weather not available.

SEATTLE, WA
BOEING FLD/KING COUNTY
INTL (BFI)……**ILS or LOC Rwy 14R[1]**
ILS or LOC Rwy 32L[1]
RNAV (GPS) Y Rwy 32L[2]
RNAV (RNP) Z Rwy 32L[2]
[1]LOC Cat B 900-2, Cat C 1000-2¾, Cat D 1000-3.
[2]Cat A, B, C, D 900-2½.

SHELBY, MT
SHELBY (SBX)……**RNAV (GPS) Rwy 5**
RNAV (GPS) Rwy 23
NA when local weather not available.
Cat D 800-½.

SHELTON, WA
SANDERSON
FLD (SHN)……**RNAV (GPS) Rwy 5**
RNAV (GPS) Rwy 23
NA when local weather not available.
Cat D 1000-3.

SHERIDAN, WY
SHERIDAN
COUNTY (SHR)……**ILS or LOC/DME Rwy 33[1]**
RNAV (GPS) Rwy 15[2]
RNAV (GPS) Rwy 33[2]
VOR Rwy 15[2]
[1]ILS Cat B 700-2, Cat C 900-2½ Cat D 1200-3; LOC Cat C 900-2 ½, Cat D 1200-3.
[2]Cat C 900-2½, Cat D 1200-3.

SIDNEY, MT
SIDNEY-RICHLAND
RGNL (SDY)……**RNAV (GPS) Rwy 1**
RNAV (GPS) Rwy 19[1]
Cat D 900-2¾.
[1]NA when local weather not available.

SPOKANE, WA
FELTS FLD (SFF)……**ILS or LOC Rwy 22R[1]**
RNAV (GPS) Rwy 4L[2]
VOR Rwy 4L[3]
NA when local weather not available.
[1]LOC Cat A, B 900-2, Cat C 1200-3.
[2]Cat A, B 900-2½, Cat C 1200-3, Cat D 1500-3.
[3]Cat A, B 1100-2, Cat C 1200-3, Cat D 1500-3.

11 JUN 2026 to 09 JUL 2026

Appendix D

Zoning Ordinances

Article 5. - Airport Industrial (AI)

17.07.510 - Intent.

The airport industrial designation is intended to provide a land use classification that accommodates the industrial, commercial, and aviation-oriented uses that exist and are envisioned for Sanderson Field. This land use promotes flexibility while addressing changes in market demands, and ensures sensitive design practices are utilized within the City of Shelton gateway corridor. Development along U.S. 101 should strive to be consistent with guidance provided in "The Washington Coastal Corridor: U.S. 101 Corridor Master Plan."

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.520 - Definitions.

A. "The City of Shelton Gateway Corridor" describes the gateway corridor generally along U.S. 101, being one of the three distinct gateways in Shelton described in the land use element of the City of Shelton comprehensive plan. As defined herein, the gateway corridor shall include the area as indicated on the City of Shelton future land use map extending two hundred feet from the edge of the U.S. 101 right-of-way.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.530 - Permitted uses.

All uses shall act in accordance with "Chapter IV Port of Shelton Comprehensive Plan (dated November 6, 2006, or as amended) and be consistent with the activities, purposes, and land uses intended within the specific zoning district where the use is proposed.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.550 - Setback and open space requirements.

This land use does not require building and development coverage requirements, minimum lot sizes and lot widths except when required by the Port of Shelton, or to address project-specific environmental or design issues. Building setbacks that provide minimum required fire access, noise separation, and areas for landscaping between buildings and driveways, public or private roads, parking areas, adjacent buildings, or other improvements shall be developed as part of the leased space provided by the Port of Shelton. Development may be further restricted by airport overlay zoning where applicable.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.560 - Building size and height.

Maximum height in the Airport Industrial Zone shall be forty-five feet, except when adjoining a zone with a lower height restriction, in which case any structure located within one hundred feet of the more restrictive zone shall have a maximum height as imposed by the more restrictive zone. A special use permit shall be required for structures over forty-five feet. Industrial equipment such as cranes or communication towers, appurtenant structures, and structures deemed necessary for airport operations shall be exempt. Deviation from this standard will be processed in accordance with Chapter 17.05. Structure height may be further restricted by the Airport Overlay Zone Ordinance or by the FAA.

(Ord. No. 47-09, Attach. A, 6-2-2009; Ord. No. 2024-043, Attach. A, 7-30-2024)

17.07.570 - Design review.

Uses proposed within the gateway and neighborhood commercial districts of the Sanderson Field master plan shall conform to the standards set forth in Chapter IV Port of Shelton Comprehensive Plan (dated November 6, 2006 or as amended). Development adjacent to Highway 101 must comply with the U.S. 101 Coastal Corridor Plan as referenced in the Sanderson Field Master Plan.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.580 - Sign requirements.

Signage shall conform to the Port of Shelton "Signage Master Plan & Tenant Signage Guidelines" dated May 27, 2003, or as amended.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.590 - Parking requirements.

New development shall provide a minimum required number of parking stalls in compliance with Section 17.08, Mason County Parking Standards.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.595 - Landscaping.

Landscaping shall meet all requirements of Chapter 17.07.800 [Sections 17.07.801—17.07.814], Landscaping and Screening in the Shelton UGA.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.598 - Appeals.

Administrative decisions of the Community Development Director or her/his designee shall be final and conclusive, unless a written statement of appeal is filed using the appeal procedures contained in Mason County Development Code Chapter 15.11, Appeals. Said statement shall set forth any alleged errors and/or the basis for appeal and shall be accompanied by a fee in an amount as set by resolution of the board.

The timely filing of an appeal shall stay the effective date of the decision until such time as the appeal is heard and decided or is withdrawn. The burden of proof regarding modification or reversal shall rest with the appellant.

(Ord. No. 47-09, Attach. A, 6-2-2009)

Chapter 17.60 - AIRPORT OVERLAY ZONE ORDINANCE

17.60.010 - Title.

The ordinance codified in this chapter shall be known and may be cited as the "Airport Overlay Zone Ordinance."

(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

17.60.020 - Purpose and intent.

(a) Purpose. The airport overlay zone ordinance has two fundamental purposes:
  (1) To minimize the public's exposure to excessive noise and safety hazards that would result from incompatible land use development around Sanderson Field; and
  (2) To protect Sanderson Field from potential encroachment by land uses that are incompatible with airport activities and that may impair the planned development and use of the airport.

(b) Intent. The intent of this chapter is to:
  (1) Implement policies of the Mason County comprehensive plan and the port of Shelton, Sanderson Field Airport master plan.
  (2) Establish land use zoning regulations around Sanderson Field that are specifically designed to address issues of compatibility between the airport and surrounding land uses. Regulations are established with respect to compatible land use, noise, safety and height limits (airspace protection).

(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

17.60.030 - Applicability.

(a) Affected Land Use Activities and Structures—General Applicability.
  (1) In general, this chapter applies to the following activities and structures situated within the airport overlay zone established as the land use compatibility zones (Map 1) and the airspace protection areas (Map 2):
    (A) Proposed land divisions;
    (B) Proposed new construction;
    (C) Changes to the existing uses of land or structures to the extent that such changes require review under other applicable regulations.

(b) Uses and Structures Not Affected. This chapter does not apply to:
  (1) Existing development as of the effective date of this chapter for which no expansion or changes of use are proposed even if the existing uses are not in conformance with the standards in this chapter;
  (2) Aviation and related development or use of airport property for aeronautical purposes;
  (3) The manner in which aircraft operate on the airport or in the surrounding airspace.

(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

17.60.040 - Definitions.

The following definitions apply for the purposes of this chapter:

"Airport" means Sanderson Field airport in Mason County. This includes the terminal, fixed-base operations, and the area of land designated and set aside for the landing and taking off of aircraft, including all necessary taxiways, aircraft storage and tie-down areas, hangars, and other necessary buildings, and open spaces, designated for the storage, repair, and operation of aircraft, and utilized or to be utilized in the interest of the public for such purposes.

"Airport manager" means the port of Shelton board of commissioners or another person delegated to represent the board for the purposes established in the airport overlay zone ordinance.

"Federal aviation regulations (FAR) Part 77" means that part of federal regulations dealing with obstructions to air navigation.

"Residential density" means the number of dwelling units, including detached secondary units, on a specific parcel, site, or land use development divided by the gross acreage of the parcel, site or development.

"Special function land use" means land use for which the significant common element is the relative inability of the people occupying the space to move out of harm's way; this includes schools (K-12), hospitals, nursing homes, daycare centers and other similar uses.

"Structure" means an object, including a mobile object, constructed or installed by man, including, but without limitation, buildings, antennas, towers, cranes, smokestacks, earth formation and overhead transmission lines.

"Temporary special events" are ones (such as balloon fairs or an air show at an airport) for which a facility is not designed and normally not used and for which extra safety precautions can be taken as appropriate.

"Usage intensity" means the number of people occupying a specific parcel, site, or land use development divided by the gross acreage of the parcel, site, or development. Usage intensity criteria are applicable to all types of land uses except residential.

(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

17.60.050 - Airport overlay zone maps.

The area of the airport overlay zone is defined by two maps as established below.

(1) Land Use Compatibility Zones (Map 1).

(A) The land use compatibility zones map depicts the boundaries of the Sanderson Airfield influence area and airport land use zones for which various compatibility criteria are defined in this chapter. The land use compatibility zone boundaries take into account incompatible land use activity, relative risks of aircraft accidents in various portions of the airport environs, noise and other associated activities that may impact the operations of the airport in the future.

(B) Specific factors upon which the boundaries of the land use compatibility zones are delineated are as follows:

(i) Zone 1 - Runway Protection Zone (RPZ). This zone is trapezoidal in shape and centered about the extended runway centerline. It begins two hundred feet beyond the end of the area usable for takeoff or landing. The RPZ dimensions are a function of the type of aircraft operating at the airport and the approach visibility minimums associated with each runway end;

(ii) Zone 2 - Inner Safety Zone (ISZ). This encompasses a rectangular area that is positioned on the extended runway centerline, and adjacent to the RPZ boundary. For Runway 5-23, Zone 2 extends approximately two thousand three hundred beyond the RPZ boundary;

(iii) Zone 3 - Inner Turning Zone (ITZ). The ITZ boundary is defined by a triangular shaped area that is positioned along each side of the RPZ and ISZ boundaries. For Runway 5-23, the ITZ extends approximately four thousand five hundred feet from the inner width of the RPZ, within a sixty-degree sector of the extended runway centerline;

(iv) Zone 4 - Outer Safety Zone (OSZ). The OSZ is a rectangular area that is also centered on the runway. For Runway 5-23, the OSZ is one thousand feet wide overall (extending five hundred feet laterally from the runway centerline) and extends approximately three thousand feet beyond the ISZ;

(v) Zone 5 - Sideline Safety Zone (SSZ). For Runway 5-23, the SSZ boundary is defined by a one thousand foot centerline offset on each side of the runway that connects the ITZs on each end of the runway;

(vi) Zone 6 - Traffic Pattern Zone (TPZ). Encompasses an area surrounding the runway of approximately five thousand feet, as depicted in airport land use zoning map.

(2) Airspace Protection Areas (Map 2). The airspace protection areas map depicts the airspace surfaces defined for Sanderson Field in accordance with Federal Aviation Regulations, Part 77, Subpart C. For the purposes of this chapter, planned future runway configuration or types

of runway approaches are assumed in the airspace protection areas. The critical airspace surfaces are defined by a set of five types of surfaces as follows:

(A) A primary surface is longitudinally centered and extends two hundred feet beyond each end of the runway. The width is one thousand feet for Runway 5-23. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline;

(B) Approach surfaces are longitudinally centered on the extended runway centerline and extend outward and upward beginning at, and at the same elevation as, each end of a primary surface. Approach surface dimensions and slopes for each runway end are as follows:

(i) Runways 23:

A. Inner edge width: one thousand feet,

B. Outer end width: sixteen thousand feet,

C. Length: fifty thousand feet,

D. Slope: fifty to one (one foot vertically for each fifty feet horizontally) for the inner ten thousand feet of length and forty to one for the outer forty thousand feet;

(ii) Runways 5:

A. Inner edge width: one thousand feet,

B. Outer edge width: four thousand feet,

C. Length: ten thousand feet,

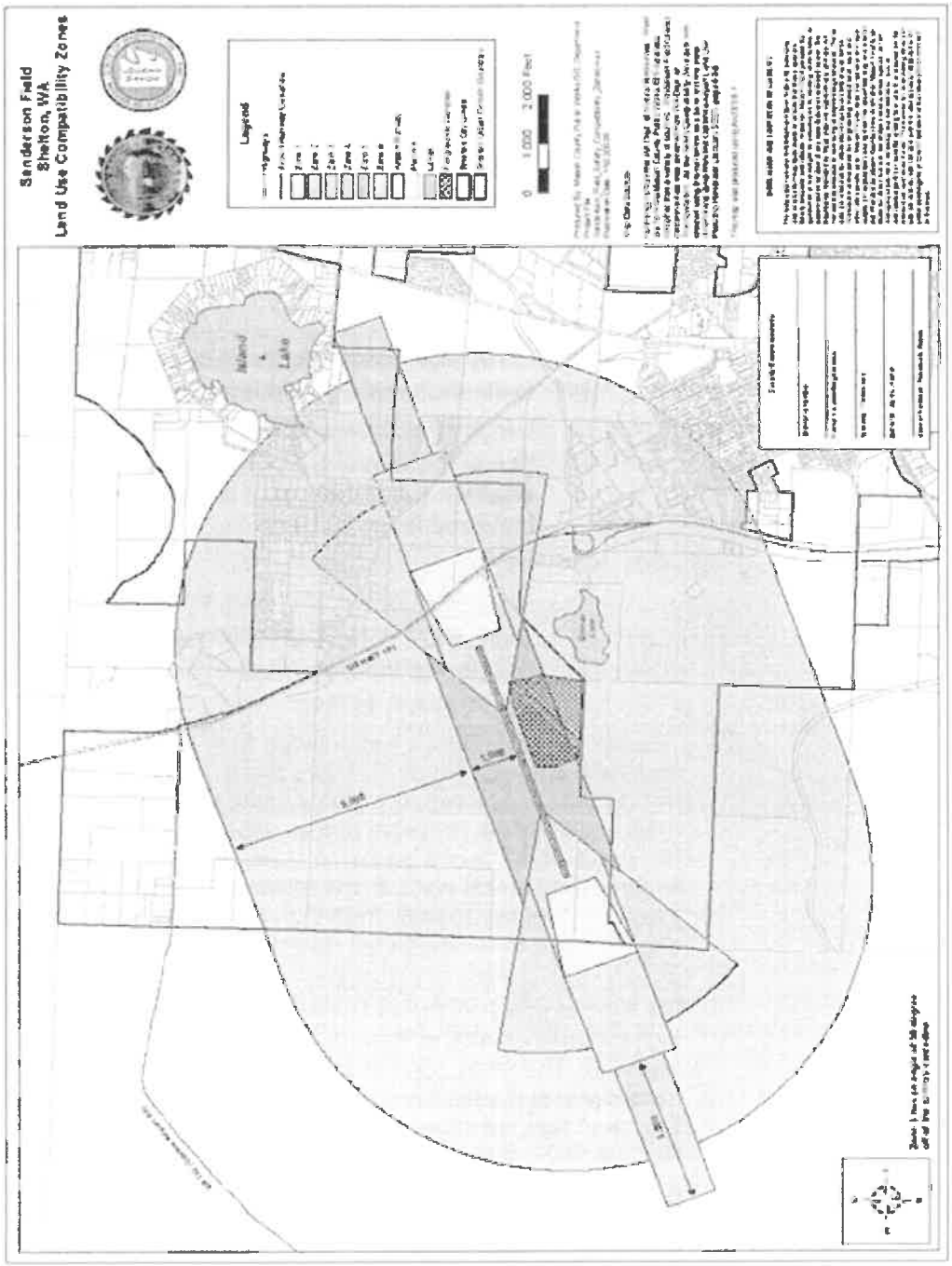
D. Slope: twenty to one;

(C) Transitional surfaces extend outward from the sides of each primary surface and each approach surface. These surfaces slope upward one foot vertically for each seven feet horizontally, measured at a ninety degree angle to the runway centerline and extended runway centerline, and continue to where they intersect a horizontal or conical surface. For those portions of a precision approach surface which extend through or beyond the limits of the conical surface, the adjacent transitional surfaces extend a distance of five thousand feet horizontally from the edge of the approach surface, measured at a ninety degree angle to the extended runway centerline;

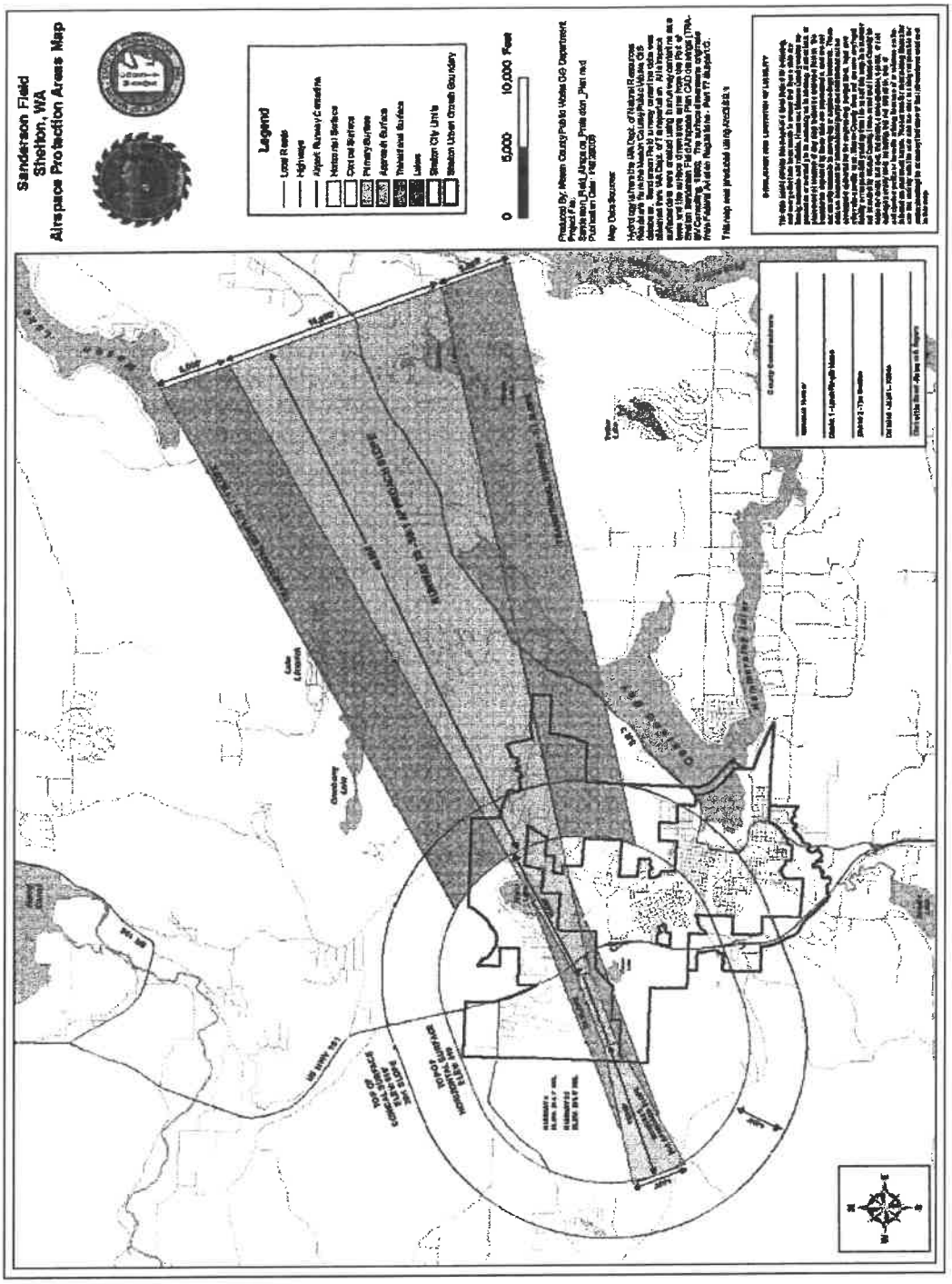
(D) A horizontal surface is established at an elevation of two hundred fifty-four feet above the highest point on airport Runway 5, and two hundred sixty-nine feet above the highest point on airport Runway 23, specifically four hundred nineteen feet above mean sea level. The inner edge of the horizontal surface is defined by its intersection with transitional surfaces. The outer edge is defined by drawing arcs with radii of ten thousand feet centered on the runway centerline at each end of the primary surface of Runway 9-27, then connecting the arcs with lines drawn tangent to them;

(E) A conical surface extends outward for a distance of four thousand feet from the periphery of the horizontal surface and upward at a slope of one foot vertically for each twenty feet horizontally.

Land Use Compatibility Zones (Map 1)



Airspace Protection Areas (Map 2)



(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

17.60.060 - Density and intensity limitations for new development.

(a) Residential Development Density Criteria. Any subdivision of property for the purposes of residential development within the land use compatibility zones shall comply with the following density criteria:

(1) Land Use Compatibility Zones 1, 2 and 5. No new residential land divisions are permitted. No new residential dwellings permitted, except infill in Zone 5 as provided in subsection (h) of this section;

(2) Land Use Compatibility Zones 3 and 4. No new land divisions for the purpose of creating additional multi-family residential parcels, except as permitted in subsection (b) of this section. Residential land divisions for single-family development are limited to one dwelling

unit per five acres. Other residential development must comply with usage intensity (subsection (d) of this section) and deed notification (Section 17.60.080) requirements. Infill development is allowed as provided in subsection (h) of this section.

(b) Mixed Use Development. If residential uses are proposed to be located with nonresidential uses in the same or nearby buildings on the same site, they shall be treated as nonresidential development provided the residential development does not exceed thirty percent of the overall square footage of the structures. The occupancy of the residential portion shall be added to that of the nonresidential portion and evaluated with respect to the nonresidential usage intensity criteria defined in subsection (d) of this section.

(c) Special Function Land Use. Special function land uses as defined in Section 17.60.040 shall be prohibited in the Land Use Compatibility Zones 1, 2, 3 and 4. New special function land uses are also prohibited in Zone 6; however, expansion of such existing uses is conditioned upon review for impacts to the airport.

(d) Nonresidential Development Usage Intensity Criteria. Any proposed nonresidential construction or use of land within the land use compatibility zones shall not be permitted if they exceed the following usage intensity limitations:

(1) Zone 1: no people other than aircraft occupants, airport personnel, and other persons authorized by airport regulations;

(2) Zone 2: no more than five people per acre average over the site;

(3) Zone 3: no more than twenty-five people per acre average over the site;

(4) Zone 4: no more than four people per acre in buildings and no more than seventy-five people per acre outside of buildings;

(5) Zone 5: no more than one hundred people per acre average over the site.

(e) Usage Intensity Calculation Factors. The maximum number of people permitted on a site within the land use compatibility zones shall be calculated based on the following factors:

(1) All people (e.g., employees, customers, visitors, etc.) who may be on the property are to be included in the calculations;

(2) The calculations must reflect the total number of people on the site at any time, except temporary special events;

(3) All usage intensities are calculated on a gross acreage basis including the use's share of adjacent roads and permanently open lands;

(4) Intensity on the property under review shall be calculated for each acre of the site by a site plan identifying each one acre area and the respective use and density. The one-acre areas indicated are to be rectangular in shape, not elongated or irregularly shaped. To the extent that the parcel is irregularly shaped, the site plan shall show the best fit of the one acre or portion of one acre areas consistent with the intent of this chapter.

(f) Usage Intensity Data Sources. The usage intensity of all individual uses highly depends upon the specifics of the proposed land use and its design. Where necessary to determine the acceptability of a particular proposal within the land use compatibility zones, the anticipated number of people per acre can be calculated based on any of the following methods:

(1) The Number of Automobile Parking Spaces Required on the Site. Unless a substantial number of people would arrive at the site by means other than automobile (or would park off-site), the anticipated number of people on the site can be estimated to be at least equal to the number of automobile parking spaces required for the use. A higher number shall be assumed for uses that typically attract more than one person per vehicle;

(2) International Building Code (IBC) Occupancy Levels. The anticipated maximum number of people occupying indoor facilities on a site can be assumed to be no higher than the total floor area of the proposed use divided by the minimum square feet per occupant requirements listed in the IBC. Because the IBC criteria represent highly intensive levels of usage, the number obtained through this calculation can normally be divided in half for the purposes of the usage intensity criteria in this section;

(3) Documented Survey or Analysis Results. A project applicant may provide evidence, such as surveys of existing uses similar to the type proposed, documenting that specific features of a proposal would result in a usage intensity lower than that assumed using the methods indicated above. Acceptance of such evidence shall be at the discretion of Mason County.

(g) Parcels Lying Within Two or More Land Use Compatibility Zones. If a parcel proposed for residential subdivision is split by land use compatibility zone boundaries, the total number of dwelling units permitted shall be calculated as if the parcel were multiple parcels divided at the

compatibility zone boundary line. Similarly, if a parcel proposed for nonresidential use is split by compatibility zone boundaries, the usage intensity shall be calculated as if the parcel were divided at the compatibility zone boundary line. In both cases, however, the development density or intensity allowed within the more restricted portion of the parcel can (and is encouraged to) be transferred to (clustered on) the less restricted portion even if the resulting development in the latter area then exceeds the criteria for that compatibility zone. This transfer of development is also allowed with respect to multiple parcels proposed to be developed as a single project.

(h) Infill Development. Where substantial incompatible development already exists adjacent to the site of the proposal, additional infill development of similar or less intensive land uses may be allowed to occur even if such land uses are not allowed elsewhere in the land use compatibility zones. This exception does not apply within Land Use Compatibility Zones 1 or 2. A parcel can be considered for infill development if it meets all of the following criteria:

(1) The parcel size is no larger than two acres;

(2) The site is at least sixty-five percent bounded (excluding roads) by existing uses similar to, or more intensive than, those proposed;

(3) The proposed project would not extend the perimeter of the area defined by the surrounding, already developed, incompatible uses;

(4) The proposed project would not, in the case of a residential subdivision, have a density greater than the average of that on other parcels within three hundred feet of the perimeter of the parcel to be subdivided; or in the case of a nonresidential use, have a usage intensity more than fifty percent above the intensity permitted in accordance with subsection (d) of this section;

(5) The proposed project will not otherwise increase the intensity and/or incompatibility of use through special use permits, density transfers or subdivisions.

(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

17.60.070 - Airspace protection areas—Height limitations.

(a) Basis for Height Limits. Protection of navigable airspace from obstructions that can be hazards to aircraft flight requires establishment of limits on the height of structures, trees, and other objects in the vicinity of Sanderson. These limits are primarily based upon Part 77, Subpart C, of the Federal Aviation Regulations (FAR), but also may take into account the United States Standard for Terminal Instrument Procedures (TERPS) and applicable airport design standards published by the Federal Aviation Administration.

(b) Criteria.

(1) No structure shall penetrate or be permitted to have a height exceeding that of the critical airspace surfaces defined above, except as specifically necessary for airport operations.

(2) Variance procedure height adjustments from the height limit criteria may be permitted subject to the Mason County development code and only if all of the following conditions are met:

(A) There is located another existing object or obstruction (terrain, trees, buildings or other structures of greater height) within a two hundred-foot radius of the proposed object;

(B) The owner of the property agrees to take responsibility for ensuring that any obstruction marking and/or lighting required by the Federal Aviation Administration is installed, operated, and maintained, unless the airport manager has agreed in writing to be responsible for such installation, operation and maintenance;

(C) The Federal Aviation Administration has conducted an aeronautical study of the proposed object and determined that the object would not create a hazard to the navigable airspace of the airport.

(c) Notification to Federal Aviation Administration. Nothing in this chapter shall diminish the responsibility of project proponents to submit a notice of construction or alteration to the Federal Aviation Administration if required in accordance with Subpart B of Federal Aviation Regulations Part 77, "Objects Affecting Navigable Airspace."

(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

17.60.080 - Other requirements.

(a) Deed Notification.

(1)

As a condition for approval of new development within the approach surfaces (Section 17.60.050(b)(2)) shown on the airspace protection areas map (Map 2), or Land Use Compatibility Zones 2, 3, 4, 5 and 6 (Map 1); a notice shall be recorded with the county auditor prior to final approval of new subdivisions, short subdivisions, building permits, conditional use permits, special use permit or other similar permits, unless such notice is already recorded on the property. The notice shall state: "This property is located adjacent to an airport and routinely subject to overflight activity by aircraft using the airport; and residents and tenants may experience inconvenience, annoyance, or discomfort from noise, smell or other effects of aviation activities."

(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

17.60.090 - Nonconforming conditions.

(a) Land uses and structures not in conformance with this Airport Overlay Zone Ordinance as of the effective date of the chapter may continue in use under the following conditions:

(1) Continuation of the use must not be in conflict with other development regulations;

(2) A nonconforming use may be changed to another nonconforming use only if the new use does not involve expansion of the affected land area, an increase in building size, or an increase in the intensity of usage (i.e., the number of people per acre);

(3) Once a nonconforming use or structure has been abandoned as defined by Section 1.05.016 of the Mason County Development Regulations, then any future use of land or buildings must conform to the provisions of the Mason County development regulations.

(b) Nothing in this section shall be interpreted to prevent normal maintenance of existing uses and structures.

(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

17.60.100 - Review procedures.

(a) Applications for land uses or land use development within airport overlay zone shall include the following information:

(1) Property boundaries and acreage of the project/proposed use, including the geographic relationship to the land use compatibility and airspace protections zones;

(2) Location, elevation, and height of all existing and proposed buildings, structures, and utility lines. The applicant may also be asked for the location, elevation and height of trees;

(3) A description of the proposed land use including the number of dwelling units and/or number of people expected to occupy the site.

(b) In consideration of an application for a building, structure, or other use, the reviewing official may require the applicant to submit a certificate from a registered professional engineer or a licensed land surveyor clearly indicating the average ground elevation, maximum elevations of proposed structure(s) and the critical airspace surfaces based on the established airport elevation and USGS datum. The registered professional engineer or a licensed land surveyor shall determine elevations plus or minus one foot shown as mean sea level (msl) elevation and maximum elevation above the airport runway elevation.

(c) When requested the application shall also include the analysis of the proposal with respect to the density and intensity limitations contained in Section 17.40.070.

(1) Review Criteria.

(A) In reviewing such proposals, the Mason County department of community development shall consider the following factors:

(i) The compatibility criteria adopted by the county,

(ii) Characteristics of the proposed land use development,

The county may consult with the airport manager or Washington department of transportation, aviation division, before making a determination;

(B) The review of variances from height limits under Section 17.40.080 shall be considered a Type II administrative variance.

(Ord. 15-06 (part), 2006: Ord. 108-05 Attach. B (part), 2005).

Chapter 20.70 AIRPORT OVERLAY ZONES AND REGULATIONS

§ 20.70.010 Title.

The regulations codified in this chapter shall be known and may be cited as the "airport overlay zone regulations."
(Ord. 1698-0407 § 1 (part), 2007)

§ 20.70.020 Purpose and intent.

A. Purpose. The airport overlay zone regulations have two fundamental purposes:

1. To minimize the public's exposure to excessive noise and safety hazards that would result from incompatible land use development around Sanderson Field; and

2. To protect Sanderson Field from potential encroachment by land uses that are incompatible with airport activities and that may impair the planned development and use of the airport.

B. Intent. The intent of this chapter is to:

1. Implement policies of the city of Shelton's comprehensive plan and the Port of Shelton, Sanderson Field Airport Master Plan.

2. Establish land use zoning regulations around Sanderson Field that are specifically designed to address issues of compatibility between the airport and surrounding land uses. Regulations are established with respect to compatible land use, noise, safety, and height limits (airspace protection).

(Ord. 1698-0407 § 1 (part), 2007)

§ 20.70.030 Applicability.

A. Affected Land Use Activities and Structures—General Applicability.

1. This chapter applies to the following activities and structures situated within the airport overlay zone established as the land use compatibility zones (Map 1) and the airspace protection areas (Map 2):

a. Land divisions.

b. New construction.

c. Changes to existing structures or site improvements, or to the uses of land or structures, to the extent that such changes require review under other applicable regulations.

B. Aviation Uses and Structures Not Affected. This chapter does not apply to:

1. Aviation and related development or use of airport property for aeronautical purposes.

2. The manner in which aircraft operate on the airport or in the surrounding airspace.

C. Uses and Structures Not Affected. This chapter does not apply to:

1. Existing development as of the effective date of this chapter for which no expansion or changes in use are proposed even if the existing uses are not in conformance with the standards herein.

(Ord. 1698-0407 § 1 (part), 2007)

§ 20.70.040 **Definitions.**

The following definitions apply for the purposes of this chapter:

A. "Airport"
means Sanderson Field airport in Mason County. This includes but is not limited to the terminal, fixed-base operations, and the area of land designated and set aside for the landing and taking off of aircraft, including all necessary taxiways, aircraft storage and tie-down areas, hangars, and other necessary buildings, and open spaces designated for the storage, repair, and operation of aircraft, and utilized or to be utilized in the interest of the public for such purposes.

B. "Airport manager"
means the Port of Shelton board of commissioners or another person delegated to represent the board for the purposes established in this chapter.

C. "Federal Aviation Regulations (FAR) Part 77"
means that part of federal regulations dealing with obstructions to air navigation.

D. "Temporary special events"
are ones (such as festivals, balloon fairs or an air show at an airport) for which a facility is not designed and normally not used and for which extra safety precautions can be taken as appropriate.

E. "Gross density"
means the number of dwelling units, including detached secondary units, on a specific parcel, site, or land use development divided by the gross acreage of the parcel, site, or development.

F. "Special function land use"
means land use for which the significant common element is the relative inability of the people occupying the space to move out of harm's way; this includes schools (K—12), hospitals, nursing homes, day care centers, and other similar uses involving occupants that require personal assistance in vacating the premises.

G. "Structure"
in the context of this chapter means an object, including a mobile object, constructed or installed by man, including, but without limitation, buildings, antennas, towers, cranes, smokestacks, and overhead transmission lines.

H. "Usage intensity"
is the number of people occupying a specific parcel, site, or land use development divided by the gross acreage of the parcel, site, or development. Usage intensity criteria are applicable to all types of land uses except residential.

(Ord. 1698-0407 § 1 (part), 2007)

§ 20.70.050 **Airport overlay zone maps.**

The area of the airport overlay zone is defined by two maps as established below.

A. Land Use Compatibility Zones (Map 1).

1. The land use compatibility zones map depicts the boundaries of the Sanderson Airfield influence area and airport land use zones for which various compatibility criteria are defined in this chapter. The land use compatibility zone boundaries take into account incompatible land use activity, relative risks of aircraft accidents in various portions of the airport environs, noise and other associated activities that may impact the operations of the airport in the future.

2. Specific factors upon which the boundaries of the land use compatibility zones are delineated are as follows:

   a. Zone 1—Runway Protection Zone (RPZ). This zone is trapezoidal in shape and centered about the extended runway centerline. It begins two hundred feet beyond the end of the area usable for takeoff or landing. The RPZ dimensions are a function of the type of aircraft operating at the airport and the approach visibility minimums associated with each runway end.

   b. Zone 2—Inner Safety Zone (ISZ). This encompasses a rectangular area that is positioned on the extended runway centerline, and adjacent to the RPZ boundary. For Runway 5-23, as shown on Map 1, zone 2, extends approximately two thousand three hundred feet beyond the RPZ boundary.

   c. Zone 3—Inner Turning Zone (ITZ). The ITZ boundary is defined by a triangular-shaped area that is positioned along each side of the RPZ and ISZ boundaries. For Runway 5-23, the ITZ extends approximately four thousand five hundred feet from the inner width of the RPZ, within a sixty-degree sector of the extended runway centerline.

   d. Zone 4—Outer Safety Zone (OSZ). The OSZ is a rectangular area that is also centered on the runway. For Runway 5-23, the OSZ is one thousand feet wide overall (extending five hundred feet laterally from the runway centerline) and extends approximately three thousand feet beyond the ISZ.

   e. Zone 5—Sideline Safety Zone (SSZ). For Runway 5-23, the SSZ boundary is defined by a one-thousand-foot centerline offset on each side of the runway that connects the ITZs on each end of the runway.

   f. Zone 6—Traffic Pattern Zone (TPZ). This encompasses an area surrounding the runway of approximately five thousand feet, as depicted in airport land use zoning map.

B. Airspace Protection Areas (Map 2). The airspace protection areas map depicts the airspace surfaces defined for Sanderson Field in accordance with Federal Aviation Regulations, Part 77, Subpart C. For the purposes of this chapter, planned future runway configuration or types of runway approaches are assumed in the airspace protection areas. The critical airspace surfaces are defined by a set of five types of surfaces as follows:

1. A primary surface is longitudinally centered and extends two hundred feet beyond each end of the runway. The width is one thousand feet for Runway 5-23. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

2. Approach surfaces are longitudinally centered on the extended runway centerline and extend outward and upward beginning at, and at the same elevation as, each end of a primary surface. Approach surface dimensions and slopes for each runway end are as follows:

   a. Runway 23:

      i. Inner edge width: one thousand feet.

ii. Outer end width: sixteen thousand feet.

iii. Length: fifty thousand feet.

iv. Slope: fifty to one (one foot vertically for each fifty feet horizontally) for the inner ten thousand feet of length and forty to one for the outer forty thousand feet.

b. Runway 5:

i. Inner edge width: one thousand feet.

ii. Outer edge width: four thousand feet.

iii. Length: ten thousand feet.

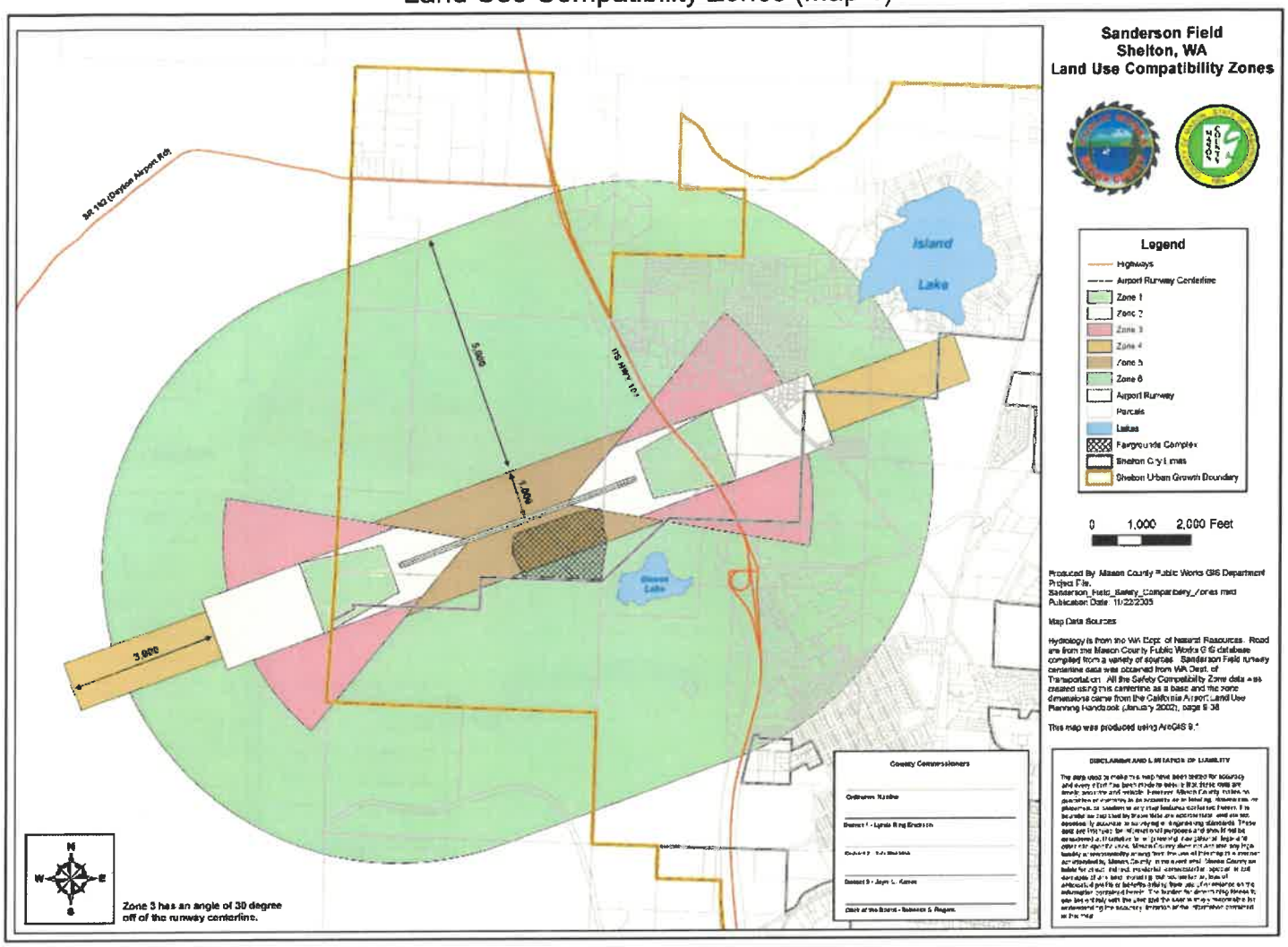
iv. Slope: twenty to one.

3. Transitional surfaces extend outward from the sides of each primary surface and each approach surface. These surfaces slope upward one foot vertically for each seven feet horizontally, measured at a ninety-degree angle to the runway centerline and extended runway centerline, and continue to where they intersect a horizontal or conical surface. For those portions of a precision approach surface which extend through or beyond the limits of the conical surface, the adjacent transitional surfaces extend a distance of five thousand feet horizontally from the edge of the approach surface, measured at a ninety-degree angle to the extended runway centerline.

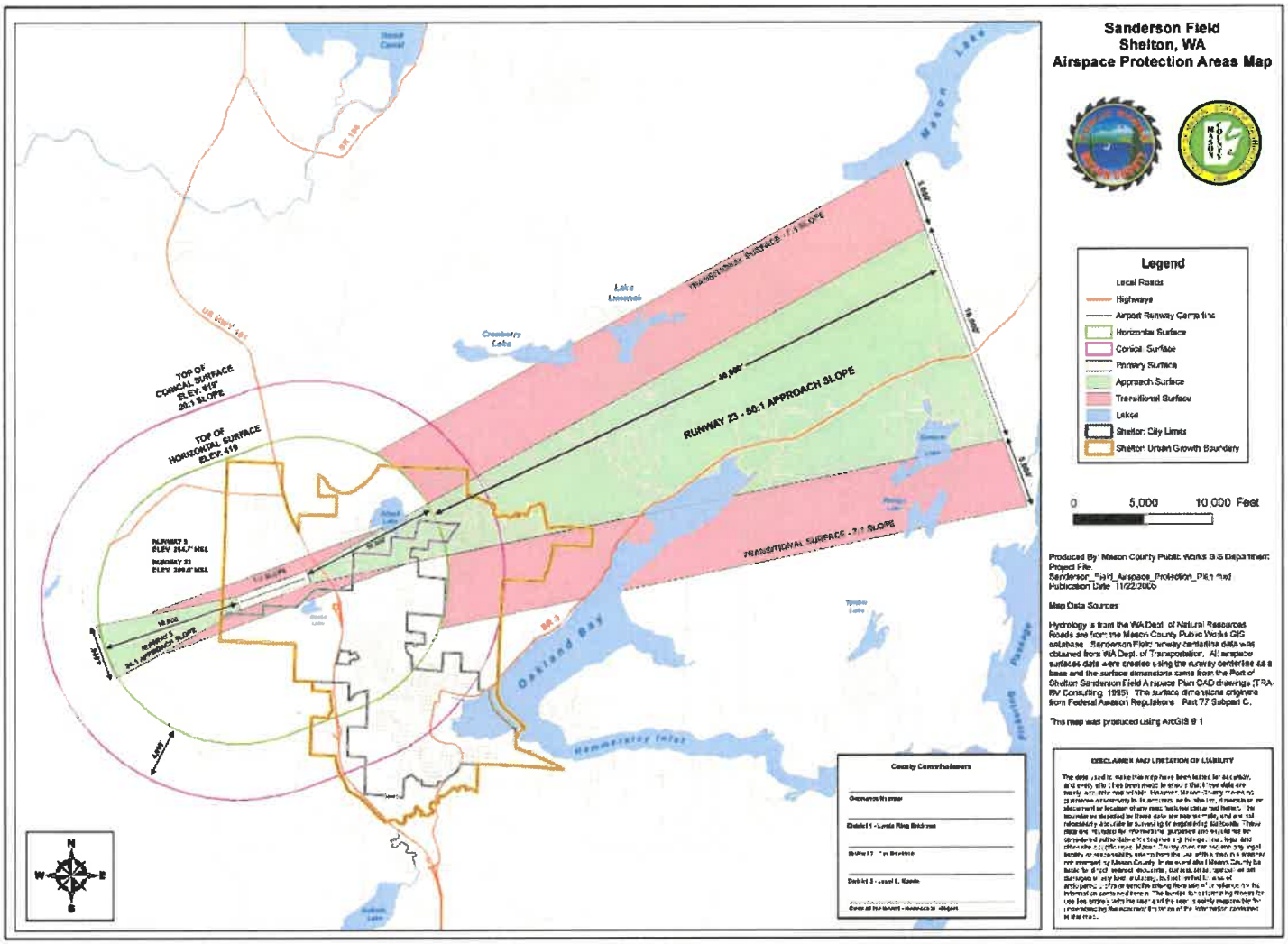
4. A horizontal surface is established at an elevation of two hundred fifty-four feet above the highest point on airport Runway 5, and two hundred sixty-nine feet above the highest point on airport Runway 23, specifically four hundred nineteen feet above mean sea level. The inner edge of the horizontal surface is defined by its intersection with transitional surfaces. The outer edge is defined by drawing arcs with radii of ten thousand feet centered on the runway centerline at each end of the primary surface of Runway 9-27, then connecting the arcs with lines drawn tangent to them.

5. A conical surface extends outward for a distance of four thousand feet from the periphery of the horizontal surface and upward at a slope of one foot vertically for each twenty feet horizontally.

Land Use Compatibility Zones (Map 1)



Airspace Protection Areas (Map 2)


Sanderson Field
Shelton, WA
Airspace Protection Areas Map
Legend
Local Roads
Highways
Airport Runway Centerline
Horizontal Surface
Conical Surface
Primary Surface
Approach Surface
Transitional Surface
Lakes
Shelton City Limits
Shelton Urban Growth Boundary
0 5,000 10,000 Feet
TRANSITIONAL SURFACE - 7:1 SLOPE
RUNWAY 23 - 50:1 APPROACH SLOPE
TOP OF CONICAL SURFACE ELEV. 619' 20:1 SLOPE
TOP OF HORIZONTAL SURFACE ELEV. 419
RUNWAY 5 ELEV. 264.7' MSL
RUNWAY 23 ELEV. 300.0' MSL
RUNWAY 5 APPROACH SLOPE 34:1
Oakland Bay
Hammersley Inlet
Mason Lake
Lake Limerick
Cranberry Lake
County Commissioners
Produced By: Mason County Public Works GIS Department
Project File: Sanderson_Field_Airspace_Protection_Plan.mxd
Publication Date: 11/22/2005
Map Data Sources
Hydrology is from the WA Dept. of Natural Resources
Roads are from the Mason County Public Works GIS database. Sanderson Field runway centerline data was obtained from WA Dept. of Transportation. All airspace surfaces data were created using the runway centerline as a base and the surface dimensions came from the Port of Shelton Sanderson Field Airspace Plan CAD drawings (TRA-SV Consulting, 1995). The surface dimensions originate from Federal Aviation Regulations Part 77 Subpart C.
This map was produced using ArcGIS 9.1
DISCLAIMER AND LIMITATION OF LIABILITY

(Ord. 1698-0407 § 1 (part), 2007)

§ 20.70.060 **Density and intensity limitations for new development.**

A. Residential Development Density Criteria. Any subdivision of property for the purposes of residential development within the land use compatibility zones shall comply with the following density criteria:

1. Land Use Compatibility Zones 1, 2 and 5. No new residential land divisions are permitted. No new residential dwellings permitted.

2. Land Use Compatibility Zones 3 and 4. No multifamily, except as permitted in subsection **B** of this section. Residential land divisions for single-family development are limited to one dwelling unit per five acres. Residential development must comply with usage intensity (this section) and deed notification (Section **20.70.080**) requirements. Infill development is allowed as provided in subsection **H** of this section.

B. Mixed Use Development. If residential uses are proposed to be located with nonresidential uses in the same or nearby buildings on the same site, they shall be treated as nonresidential development provided the residential development does not exceed thirty percent of the overall square footage of the structures. The occupancy of the residential portion shall be added to that of the nonresidential portion and evaluated with respect to the nonresidential usage intensity criteria defined in subsection **D** of this section.

C. Special Function Land Use. Special function land uses as defined in 20.70.040(F) shall be prohibited in the land use compatibility zones 1, 2, 3, and 4. New special function land uses are also prohibited in zone 6; however, expansion of such existing uses are conditioned upon review for impacts to the airport through the special use permit provisions of Chapter **20.46**, with added performance standards addressing potential noise impacts.

D. Nonresidential Development Usage Intensity Criteria. Any proposed nonresidential construction or use of land within the land use compatibility zones shall not be permitted if they exceed the following usage intensity limitations.

1. Zone 1. No people other than aircraft occupants, airport personnel, and other persons authorized by airport regulations.

2. Zone 2. No more than five people per acre average over the site.

3. Zone 3. No more than twenty-five people per acre average over the site.

4. Zone 4. No more than four people per acre in buildings and no more than seventy-five people per acre outside of buildings.

5. Zone 5. No more than one hundred people per acre average over the site.

E. Usage Intensity Calculation Factors. The maximum number of people permitted on a site within the land use compatibility zones shall be calculated based on the following factors:

1. All people (e.g., employees, customers, visitors, etc.) who may be on the property are to be included in the calculations.

2. The calculations must reflect the total number of people on the site at any time, except temporary special events.

3. All usage intensities are calculated on a gross acreage basis including streets within a site, half-streets abutting a site, and permanently open lands.

4. Intensity on the property under review shall be calculated for each acre of the site by a site plan identifying each one acre area and the respective use and density. The one-acre areas indicated are to be generally square or rectangular in shape; provided, that rectangles shall be no longer than twice their width. To the extent that the parcel is irregularly shaped, the site plan shall show the best fit of the one acre or portion of one acre areas consistent with the intent of this chapter.

F. Usage Intensity Data Sources. The usage intensity of all individual uses highly depends upon the specifics of the proposed land use and its design. Where necessary to determine the acceptability of a particular proposal within the land use compatibility zones, the anticipated number of people per acre can be calculated based upon any of the following methods:

1. The Number of Automobile Parking Spaces Required on the Site. Unless a substantial number of people would arrive at the site by means other than automobile (or would park off-site), the anticipated number of people on the site can be estimated to be at least equal to the number of automobile parking spaces required for the use. A higher number shall be assumed for uses that typically attract more than one person per vehicle.

2. International Building Code (IBC) Occupancy Levels. The anticipated maximum number of people occupying indoor facilities on a site can be assumed to be no higher than the total floor area of the proposed use divided by the minimum square feet per occupant requirements listed in the IBC. Because the IBC criteria represent highly intensive levels of usage, the number obtained through this calculation can normally be divided in half for the purposes of the usage intensity criteria in this section.

3. Documented Survey or Analysis Results. A project applicant may provide evidence, such as surveys of existing uses similar to the type proposed, documenting that specific features of a proposal would result in a usage intensity lower than that assumed using the methods indicated above. Acceptance of such evidence shall be at the discretion of city of Shelton community and economic development director.

G. Parcels Lying within Two or More Land Use Compatibility Zones. If a parcel proposed for residential subdivision is split by land use compatibility zone boundaries, the total number of dwelling units permitted shall be calculated as if the parcel were multiple parcels divided at the compatibility zone boundary line. Similarly, if a parcel proposed for nonresidential use is split by compatibility zone boundaries, the usage intensity shall be calculated as if the parcel were divided at the compatibility zone boundary line. In both cases, however, the development density or intensity allowed within the more restricted portion of the parcel can (and is encouraged to) be transferred to (clustered on) the less restricted portion even if the resulting development in the latter area then exceeds the criteria for that compatibility zone. This transfer of development is also allowed with respect to multiple parcels proposed to be developed as a single project.

H. Infill Development. Where development not in compliance with this chapter already exists adjacent to the site of the proposal, additional infill development of similar or less intensive land uses may be allowed to occur even if such land uses are not allowed elsewhere in the land use compatibility zones. This exception does not apply within land use compatibility zone 1. A parcel can be considered for infill development if it meets all of the following criteria:

1. The parcel size is no larger than two acres.

2. The site is at least sixty-five percent bounded (excluding roads) by existing uses similar to, or more intensive than, those proposed.

3. The proposed project would not extend the perimeter of the area defined by the surrounding, already developed, incompatible uses.

4. In the case of a nonresidential use, the proposed project would not have a usage intensity more than fifty percent above the intensity permitted in accordance with subsection **D** of this section.

5. The proposed project will not otherwise increase the intensity and/or incompatibility of use through special use permits, density transfers, or subdivisions.

6. The proposed project complies with all other land use and development regulations applicable in the underlying zone.

(Ord. 1698-0407 § 1 (part), 2007)

§ 20.70.070 **Airspace protection areas—Height limitations.**

A. Basis for Height Limits. Protection of navigable airspace from obstructions that can be hazards to aircraft flight requires establishment of limits on the height of structures, trees, and other objects in the vicinity of Sanderson. These limits are primarily based upon Part 77, Subpart C, of the Federal Aviation Regulations (FAR), but also may take into account the United States Standard for Terminal Instrument Procedures (TERPS) and applicable airport design standards published by the Federal Aviation Administration.

B. Criteria.

1. No structure shall penetrate or be permitted to have a height exceeding that of the critical airspace surfaces defined on Map 2 of Section **20.70.050(B)**, except as specifically necessary for airport operations.

2. Variance procedure height adjustments from the height limit criteria may be permitted subject to the variance criteria of Chapter **20.50** and only if all of the following conditions are met:

   a. There is located another existing object or obstruction (terrain, trees, buildings or other structures of greater height) within a two-hundred-foot radius of the proposed object.

   b. The owner of the property agrees to take responsibility for ensuring that any obstruction marking and/or lighting required by the Federal Aviation Administration is installed, operated, and maintained, unless the airport manager has agreed in writing to be responsible for such installation, operation, and maintenance.

   c. The Federal Aviation Administration has conducted an aeronautical study of the proposed object and determined that the object would not create a hazard to the navigable airspace of the airport.

C. Notification to Federal Aviation Administration. Nothing in this chapter shall diminish the responsibility of project proponents to submit a notice of construction or alteration to the Federal Aviation Administration if required in accordance with Subpart B of Federal Aviation Regulations Part 77, "Objects Affecting Navigable Airspace."

(Ord. 1698-0407 § 1 (part), 2007)

§ 20.70.080 **Other requirements.**

A. Deed Notification.

1.

As a condition for approval of new development within the approach surfaces (Section 20.70.050(B)(2)) shown on the airspace protection areas map (Map 2), or land use compatibility zones 2, 3, 4, 5, and 6 (Map 1); a notice shall be recorded with the county auditor prior to final approval of new subdivisions, short subdivisions, building permits, conditional use permits, special use permit or other similar permits, unless said notice is already recorded on the property. Said notice shall state: "This property is located adjacent to an airport and routinely subject to overflight activity by aircraft using the airport. Residents and tenants may experience inconvenience, annoyance, or discomfort from noise, smell or other effects of aviation activities."

(Ord. 1698-0407 § 1 (part), 2007)

§ 20.70.090 **Nonconforming conditions.**

Land uses and structures not in conformance with this chapter shall be regulated under the provisions of Chapter **20.42**.

(Ord. 1698-0407 § 1 (part), 2007)

§ 20.70.100 **Review procedures.**

A. Applications for land uses or land use development within the airport overlay zone shall include the following information:

1. Property boundaries and acreage of the project/proposed use, including the geographic relationship to the land use compatibility and airspace protections zones.

2. Location, elevation, and height of all existing and proposed buildings, structures, and utility lines. The applicant may also be asked for the location, elevation, and height of trees.

3. A description of the proposed land use including the number of dwelling units and/or number of people expected to occupy the site.

B. In consideration of an application for a building, structure, or other use, the reviewing official may require the applicant to submit a certificate from a registered professional engineer or a licensed land surveyor clearly indicating the average ground elevation, maximum elevations of proposed structure(s) and the critical airspace surfaces based on the established airport elevation and USGS datum. The registered professional engineer or a licensed land surveyor shall determine elevations plus or minus one foot shown as mean sea level (msl) elevation and maximum elevation above the airport runway elevation.

C. When requested the application shall also include the analysis of the proposal with respect to the density and intensity limitations contained in Section **20.70.060**.

D. Review Criteria.

1. In reviewing such proposals, the Shelton community and economic development department shall consider the following factors:

a. The compatibility criteria adopted by the county;

b. Characteristics of the proposed land use development.

The county shall consult with the airport manager, and should consider consulting with the Washington Department of Transportation, Aviation Division, before making a determination.

2.

The review of variances from height limits under Section **20.70.070** shall be considered a Type II administrative variance.

(Ord. 1698-0407 § 1 (part), 2007)

Article 4. - Commerical-Industrial (CI)

17.07.410 - Intent.

This designation provides for light manufacturing, flex space, research and development, and limited retail and service uses that support the industrial uses in the zone. This Commercial-Industrial mixed area should be buffered from residential uses through the provision of adequate mitigation, including landscaping, as a part of site plans for these higher intensity uses. In addition, to lessen traffic congestion that may be created by these uses, the Commercial-Industrial District shall be located in areas directly accessible to the arterial and transportation systems of the county. This limitation is not intended to restrict access to local roads from private parcels.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.415 - Definitions.

A. "Flex space" refers to buildings designed to accommodate a combination of office, wholesale, and warehousing functions, the exact proportions of each use being subject to user needs over time.

B. "Hazardous substance" means any dangerous or extremely hazardous waste as defined in RCW 70.105.010(5) and (6) or any dangerous or extremely dangerous waste as designated by rule under Chapter 70.105 RCW; any hazardous substance as defined in RCW 70.105.01(14) or any hazardous substance as defined by rule under Chapter 70.105 RCW; any substance that is a hazardous substance under section 101(14) of the federal cleanup law, 42 U.S.C., Sec. 9601(14); petroleum or petroleum products, and any substance or category of substances, including solid waste decomposition products, determined by the director by rule to present a threat to human health or the environment if released into the environment.

The term hazardous substance does not include any of the following when contained in an underground storage tank from which there is not a release: Crude oil or any fraction thereof or petroleum, if the tank is in compliance with all applicable federal, state, and local law.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.420 - Permitted uses.

Permitted uses listed below are intended as a guide to types of light industrial and commercial uses that are allowed. The community development director or his/her designee will make the determination as to whether a proposed use is permitted. Examples of permitted uses include, but are not limited to the following:

A. Auto repair and service, with towing impound yard up to one acre in size;
B. Auto, RV and boat sales;
C. Brewery, distillery, winery;
D. Contractors', loggers' or agricultural equipment storage yard, plant, repair, or rental and sales;
E. Eating and drinking places with drive-thru/in;
F. Furniture and home furnishings, manufacture and assembly;
G. Gas stations and associated convenience stores;
H. Hardware stores and lumber yards;
I. Heavy machinery, repair, storage and sales;
J. Kennels;
K. Manufacture and assembly;
L. Research and development;
M. Retail nurseries and garden stores;
N. Services to buildings such as janitorial, landscaping, carpet/upholstery cleaning, pest control;
O. Storage or sales yards, no salvage or junk;

P. Warehouse and wholesale establishments, excluding the storage of explosive and other dangerous or toxic substances as defined in RCW 70.105.

Q. Data centers, server farms;

R. Self-storage facilities;

S. Similar or related uses permitted:

1. Uses similar to, or related to, or compatible with those listed or described in Section 17.07.420 are permitted upon a finding by the community development director or his/her designee that a proposed use does not conflict with:

a. The intent of this chapter, or

b. The policies of the Shelton Urban Growth Area Plan.

2. Criteria for such a finding of similarity for uses other than those listed herein shall include, but not be limited to, the following:

a. The proposed use is appropriate in this area;

b. The development standards for permitted uses can be met by the proposed use.

(Ord. No. 47-09, Attach. A, 6-2-2009; Ord. No. 21-13, Attach. A, 4-16-2013; Ord. No. 30-13, Attach. A, 6-4-2013; Ord. No. 53-16, Att. A, 8-16-2016)

17.07.425 - Permitted accessory uses.

The following accessory uses are permitted:

A. Flammable material and liquid may be stored as an accessory use as restricted by the Fire Code of Mason County. Such tanks shall be located no less than twenty feet from any building, property line or similar tank and at least one hundred feet from the boundary of any use district other than an industrial district.

B. No residential use shall be allowed except as an accessory use to provide quarters for a caretaker or security guard.

C. Storage, processing, or use of hazardous substances incidental to a permitted use in compliance with applicable county and state regulations are allowed.

D. Enameling or metal coating, galvanizing, electroplating, incidental to a permitted use, in compliance with applicable county and state regulations, is allowed.

E. Hazardous waste treatment and storage facilities incidental to the operation of a permitted use in compliance with applicable county and state regulations are allowed.

F. Deli and other food services located within a primary use, is allowed.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.430 - Special uses.

Uses that are determined by the community development director or his/her designee not to be outright permitted uses, but that have unique characteristics that may be consistent with the CI zone, require a special use permit as provided in Chapter 17.05 of this title, and are subject to applicable conditions as found in that chapter. Such uses include, but are not limited to:

A. Towing impound yard over one acre in size.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.435 - Prohibited uses.

The community development director or his/her designee will make the determination as to whether a proposed use is prohibited. Prohibited uses in the Commercial-Industrial Zone include, but are not limited to, the following:

A. Beauty shops, barber shops;

C. Convalescent centers/care facilities;

D. Residential uses, including residential above commercial, except as noted in 17.07.425.B;

E. Drug stores;
F. Motels and hotels;
G. Junk yard/car wreckage/salvage;
H. Retail stores, unless supporting the industrial uses within the zone;
I. Cemeteries, including mausoleums.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.440 - Lot, yard, and open space requirements.

A. Minimum lot size: None required.
B. Front, rear and side yard: None, unless property adjoins a more restrictive district, when setbacks shall be the same as required of that more restrictive district.
C. Lot width: None required.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.450 - Maximum height.

Maximum height for the CI district shall be as follows: Forty-five feet, except when adjoining a zone with a lower height restriction, in which case any structure located within one hundred feet of the more restrictive zone shall have a maximum height as imposed by the more restrictive zone. Height may be further restricted by airport overlay zoning, where applicable. Deviation from this standard will be processed as a special use permit.

(Ord. No. 47-09, Attach. A, 6-2-2009; Ord. No. 52-19, att. A, 6-4-2019; Ord. No. 2022-006, Att. A, 1-18-2022)

17.07.455 - Performance standards.

The following provisions shall apply to all uses within the district:

A. There shall be no unusual fire, explosion or safety hazards.
B. When adjacent to a residential zone, the applicant shall demonstrate to the Community Development Director or his/her designee that noise does not exceed the maximum permissible noise levels set forth in WAC 173.60 or MCC 9.36.
C. There shall be no emissions in excess of any density prescribed by the air pollution control authority.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.460 - Off-street parking.

Parking shall meet the requirements of Chapter 17.08 of this title.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.470 - Landscaping.

Landscaping shall meet all requirements of Chapter 17.07.800 of this title.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.480 - Appeals.

Administrative decisions of the Community Development Director or her/his designee shall be final and conclusive, unless a written statement of appeal is filed using the appeal procedures contained in Mason County Development Code Chapter 15.11, Appeals. Said statement shall set forth any alleged errors and/or the basis for appeal and shall be accompanied by a fee in an amount as set by resolution of the board.

The timely filing of an appeal shall stay the effective date of the decision until such time as the appeal is heard and decided or is withdrawn. The burden of proof regarding modification or reversal shall rest with the appellant.

(Ord. No. 47-09, Attach. A, 6-2-2009)

Article 6. - Industrial (I)

17.07.610 - Intent.

The intent of the Industrial Zoning District in the Shelton UGA is to:

A. Provide for moderate to heavy industrial development in order to provide needed goods, materials, and services to ensure the economic vitality of the City of Shelton and Mason County.

B. Protect the industrial land base for industrial economic development and employment opportunities by limiting uses that may interfere with the purpose and efficient functioning of the area except those necessary for the convenience and support of the industries within the zone.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.620 - Definitions.

A. "Advanced materials" means the development and use of materials or applications that represent advances and technological advantages over traditional approaches for a broad range of applications.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.630 - Permitted uses.

A. Specific types of uses permitted are those types of industrial activities, which can be accomplished within the performance standards established by this title. Any industrial activity for which performance standards are not included in this title shall comply with the standards established by recognized public or quasi-public agencies with jurisdiction over the activity for the protection of industrial or environmental health. The standards shall be those in effect at the time of a complete building permit application.

The industrial zone allows those uses that are traditionally considered to be industrial in nature. Uses listed below are intended as a guide to types of uses that are allowed, but the list is not all-inclusive. As technologies and industries change new business types emerge, and to the extent they are industrial in nature, are encouraged in this zone. The community development director or his/her designee will make the determination as to whether a proposed use is permitted. Examples of permitted uses include, but are not limited to the following:

1. Industrial activities involving the manufacture, assembly, processing, repair, or servicing;
2. The production, sale or bulk storage of materials or products;
3. Warehousing, distribution and open storage;
4. Food processing, including shellfish;
5. Fabrication;
6. Value-added forest products;
7. Data centers;
8. Public utilities and facilities (buildings);
9. Advanced materials;
10. Research and development;
11. Commercial mail processing;
12. Sale of goods or products that serve industrial property;
13. Junk yard, car wreckage, salvage;
14. Enameling or metal coating, galvanizing, electroplating;
15. Mineral extraction.

B. Similar or related uses permitted:

1.

Uses similar to, or related to, or compatible with those listed or described in Section 17.07.630 of the Mason County Code (MCC) are permitted upon a finding by the community development director or his/her designee that a proposed use does not conflict with:

a. The intent of this chapter; or

b. The policies of the Shelton Urban Growth Area Plan.

The criteria for such a finding of similarity for uses other than those listed herein shall include, but not be limited to, the following:

a. The proposed use is appropriate in this area;

b. The development standards for permitted uses can be met by the proposed use.

2. Eating and drinking places within an industrial building or as an accessory use, and catering primarily to the people working in the area;
3. Living or residential quarters such as guards' quarters in large establishments where such quarters are customarily provided for security and/or insurability of the premises; and other residential uses directly related to the operation of the primary permitted use;
4. Storage, processing, or use of hazardous substances incidental to a permitted use in compliance with applicable, county and state regulations;
5. Hazardous waste treatment and storage facilities incidental to the operation of a permitted use in compliance with applicable county and state regulations.

(Ord. No. 47-09, Attach. A, 6-2-2009; Ord. No. 21-13, Attach. A, 4-16-2013; Ord. No. 30-13, Attach. A, 6-4-2013; Ord. No. 53-16, Att. A, 8-16-2016)

17.07.640 - Special use permit required uses.

Uses that are determined by the community development director or his/her designee not to be outright permitted uses, but that have unique characteristics that may be consistent with the industrial zone and existing adjacent uses within the zone require a special use permit as provided in Chapter 17.05 of this title, and are subject to applicable conditions as found in that chapter.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.650 - Prohibited uses.

Uses other than those identified or described in Sections 17.07.620, 17.07.630 and 17.07.640 in this chapter are prohibited. Prohibited uses are generally those uses that convert industrial land to a non-industrial purpose, have the potential to be disrupted by the noise and activity commonly associated with industrial development.

(Ord. No. 47-09, Attach. A, 6-2-2009; Ord. No. 21-17, Att. A, 4-25-2017)

17.07.660 - Environmental performance standards.

A. All uses shall comply with state and federal pollution abatement standards both prior to commencement of operations, and at all times thereafter;

B. Maximum permissible noise levels shall be as determined by Chapter 173-60 WAC, as amended, and applicable provisions of Subtitle 40.3.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.670 - Minimum site requirements.

A. Minimum Lot Size: None; except adequate space must be provided for required parking, yards and landscaping;

B. Lot Coverage: No maximum, except adequate space must be provided for required parking, yards and landscaping;

C. Front Yard: None;

D. Side Yard: None, except fifty feet if abutting a residential or mixed use zone;

E. Rear Yard: None, except fifty feet if abutting a residential or mixed use zone;

F. Lot Width: None required;

G. Maximum height in the industrial district shall be as follows: Forty-five feet, except when adjoining a zone with a lower height restriction, in which case any structure located within one hundred feet of the more restrictive zone shall have a maximum height as imposed by the more restrictive zone. Industrial equipment such as cranes or communication towers or appurtenant structures is exempt. A height limit shall be imposed if necessary, to prevent detrimental effects on the surrounding properties and may be further restricted by airport overlay zoning. Deviations from this standard will be processed as a special use permit.

H. Relationship to Adjacent Parcels in the Same Classification: Setbacks between buildings in separate ownership are exempt from the side and rear setback requirements cited in this section, but shall comply with the side and rear setback requirements of the fire and building codes.

(Ord. No. 47-09, Attach. A, 6-2-2009; Ord. No. 52-19, att. A, 6-4-2019; Ord. No. 2022-006, Att. A, 1-18-2022)

17.07.680 - Off-street parking.

Off-street parking shall be provided in accordance with Chapter 17.08 of this title, Off-street parking in the Shelton UGA.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.690 - Landscaping.

Landscaping shall meet all requirements of Chapter [Section] 17.07.800 of this title, Landscaping and Screening in the Shelton UGA.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.695 - Site plan approval.

Development within the Industrial zoning district is subject to site plan approval to ensure that new development is planned in a manner consistent with this Chapter and to assure it will be compatible with adjoining development.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.698 - Appeals.

Administrative decisions of the Community Development Director or her/his designee shall be final and conclusive, unless a written statement of appeal is filed using the appeal procedures contained in Mason County Development Code Chapter 15.11, Appeals. Said statement shall set forth any alleged errors and/or the basis for appeal and shall be accompanied by a fee in an amount as set by resolution of the board.

The timely filing of an appeal shall stay the effective date of the decision until such time as the appeal is heard and decided or is withdrawn. The burden of proof regarding modification or reversal shall rest with the appellant.

(Ord. No. 47-09, Attach. A, 6-2-2009)

Article 3. - General Commercial (GC)

17.07.310 - Intent.

The intent of the General Commercial (GC) zone is to provide for those commercial uses and activities which are dependent on convenient vehicular access and to provide development standards which enhance pedestrian and transit access. The regulations are intended to integrate new development with existing uses to achieve a better environment for users arriving by car or by foot and to maintain or enhance the livability of adjacent residential neighborhoods.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.320 - Permitted uses.

A. Permitted uses listed below are intended as a guide to types of uses that are allowed in the general commercial district. The community development director or his/her designee will make the determination as to whether a proposed use is permitted. Permitted uses include but are not limited to the following:
   1. Automobile/RV/boat sales;
   2. Bakery;
   3. Banks, other financial institutions;
   4. Barber/beauty shop;
   5. Brewery, distillery, winery, on-site retail;
   6. Business and professional offices;
   7. Convenience stores;
   8. Eating and drinking places, with or without drive-ins/thrus;
   9. Enterprises providing indoor entertainment and recreation;
   10. Gas stations and associated convenience stores;
   11. Grocery stores;
   12. Health club, gym;
   13. Hotel and lodging;
   14. Instruction studio;
   15. Medical and dental offices;
   16. Personal services;
   17. Repair services;
   18. Retail;
   19. Self-storage facilities;
   20. Social services;
   21. Veterinary clinics; and

B. Similar or related uses permitted:
   1. Uses similar to, or related to, or compatible with those listed or described in Section 17.07.320 are permitted upon a finding by the community development director or his/her designee that a proposed use does not conflict with:
      a. The intent of this chapter, or
      b. The policies of the Shelton Urban Growth Area Plan.

The criteria for such a finding of similarity for uses other than those listed herein shall include, but not be limited to, the following:

   a. The proposed use is appropriate in this area;
   b. The development standards for permitted uses can be met by the proposed use.

(Ord. No. 47-09, Attach. A, 6-2-2009; Ord. No. 21-13, Attach. A, 4-16-2013; Ord. No. 30-13, Attach. A, 6-4-2013; Ord. No. 53-16, Att. A, 8-16-2016)

17.07.325 - Accessory uses.

The following accessory uses are permitted:

A. Light manufacture of consumer goods that is incidental to an on-premises retail use, provided that:
   1. Noise shall not exceed the maximum permissible noise levels set forth in WAC 173.60 or MCC 9.36.
   2. There shall be no emissions in excess of any density prescribed by the Olympic Region Clean Air Authority (ORCAA).

B. Storage, processing, or use of hazardous substances incidental to a permitted use in compliance with applicable county and state regulations.

C. Hazardous waste treatment and storage facilities incidental to a permitted use in compliance with applicable county and state regulations.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.330 - Special uses.

The following uses require a special use permit as provided in Chapter 17.05 of this title, and subject to applicable conditions as found in that chapter:

A. Public utilities;

B. Public, private, and parochial schools and facilities;

C. Fraternal organizations;

D. Churches.

(Ord. No. 47-09, Att. 6-2-2009)

17.07.335 - Prohibited uses.

Uses that are not consistent with the intent of the zone are prohibited. These uses include, but are not limited to:

A. Kennels, except those associated with veterinary clinics;

B. Wrecking yards;

C. Contractors' yards and storage of materials not for retail sale;

D. Concrete mixing facilities and asphalt plants.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.340 - Lot, yard, and open space requirements.

A. Minimum lot size: None required.

B. Front, rear and side yard: None, unless property adjoins a more restrictive district, when setbacks shall be the same as required of that more restrictive district.

C. Lot width: None required.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.350 - Maximum height.

Maximum height for the GC district shall be as follows: Not to exceed forty-five feet for buildings, structures, and appurtenant facilities except when adjoining a zone with a lower height restriction, in which case any structure located within one hundred feet of the more restrictive zone shall have a maximum height as imposed by the more restrictive zone, or as reviewed by special use permit.

(Ord. No. 47-09, Attach. A, 6-2-2009; Ord. No. 52-19, att. A, 6-4-2019; Ord. No. 2022-006, Att. A, 1-18-2022)

17.07.360 - Off-street parking.

Parking shall meet the requirements of Chapter 17.08 of this title.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.370 - Landscaping.

Landscaping shall meet all requirements of Chapter 17.07.800 of this title.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.380 - Design review.

All uses in this district shall comply with appropriate sections of Chapter 17.07.900 Design Standards.

(Ord. No. 47-09, Attach. A, 6-2-2009)

17.07.390 - Appeals.

Administrative decisions of the Community Development Director or her/his designee shall be final and conclusive, unless a written statement of appeal is filed using the appeal procedures contained in Mason County Development Code Chapter 15.11, Appeals. Said statement shall set forth any alleged errors and/or the basis for appeal and shall be accompanied by a fee in an amount as set by resolution of the board.

The timely filing of an appeal shall stay the effective date of the decision until such time as the appeal is heard and decided or is withdrawn. The burden of proof regarding modification or reversal shall rest with the appellant.

(Ord. No. 47-09, Attach. A, 6-2-2009)

Article IV. - Rural Residential 20 (RR 20)

17.04.241 - Purpose.

This district provides for new residential development on parcels of twenty acres or more.

(Ord. 108-05 Attach. B (part), 2005).

17.04.242 - Uses permitted.

(a) Uses. Single-family residential, hobby farm (small scale commercial agriculture, including aquaculture and wood lots), church, local community and recreation centers, fire station, fish hatchery, cell towers, public utilities.

(b) Accessory Uses. Cottage industry (home occupation), single-family residence.

(c) Special Permit Required Uses. Essential public facility, cemetery, and home occupations and cottage industries that do not meet the standards in Section 17.03.021.

(d) Signs are permitted not to exceed twelve square feet in size and six feet in height except for temporary signs permitted by section 17.05.025. Signs prohibited by section 17.03.202 are not allowed.

(Ord. 108-05 Attach. B (part), 2005).

(Ord. No. 134-08, 12-16-2008; Ord. No. 2022-093, Att. A, 12-20-2022)

17.04.243 - Lot requirements.

(a) Density and Lot Size. Standard density of one principal residence per twenty acres or 1/32nd of a section and one accessory dwelling unit per parcel; minimum lot size of two acres, except for an approved performance subdivision the maximum density which may be allowed is one dwelling per ten acres or 1/64th of a section and minimum lot size is twenty thousand sq. ft.

(b) Lot Width and Depth. All lots shall have a minimum width at any point of fifty feet.

(c) Front Yard Setback. Twenty-five feet.

(d) Side and Rear Yard Setbacks. Side and rear yard setbacks for the residential dwelling is twenty feet, accessory buildings shall be twenty feet, and for accessory structures used for agricultural purposes or home occupations shall be fifty feet. Exception to the side yard standard is allowed on a parcel with a lot width up to one hundred feet at the building site: the required side yard setback for a residential dwelling and accessory structures shall be equal to ten percent of the lot width but in no case shall be less than five feet from the property line.

(e) A lot created by short plat, large lot or long plat subdivision which is restricted to special purposes, such as stormwater storage, community play areas, or utility facilities, and is restricted by perpetual covenants meeting county requirements to such purpose, is not required to meet minimum lot size requirements.

(Ord. 108-05 Attach. B (part), 2005).

17.04.244 - Building regulations.

(a) Size. Four thousand eight hundred square feet maximum, except for dwellings and agricultural buildings.

(b) Height. Thirty-five feet, except for agricultural buildings, cell towers, antennas, water tanks, or necessary structural elements for an otherwise complaint permitted land use.

(Ord. 100-07 Attach. B (part), 2007: Ord. 108-05 Attach. B (part), 2005).

(Ord. No. 2022-093, Att. A, 12-20-2022)

17.04.246 - Off-street parking.

Two Spaces per Residence. See Parking Ordinance for other land uses.

(Ord. 108-05 Attach. B (part), 2005).

(Ord. No. 2022-093, Att. A, 12-20-2022)

17.04.247 - Special provisions.

(a) Cell towers shall be located per Ordinance No. 5-98, Telecommunication Towers.

(b) Accessory dwelling units are required to meet Section 17.03.029 standards.

(c) Essential public facilities and churches may exceed three thousand sq. ft. as approved by the special use permit. Application for special use permit requires the applicant to provide the following information to aid in analyzing the request, preparing necessary conditions, and providing consistency with dimensional and performance standards in these and other relevant county regulations: the location and size of lot(s); site plan with areas of proposed use; access to state and county roads; land uses on adjacent properties and potential impacts to those uses by the proposal; provision of parking areas and stormwater facilities; hours of operations; and anticipated sources of noise, glare, or odors from proposed use(s).

(d) Essential public facilities, which were in existence prior to June 17, 1996 and without a prior special use permit, may expand up to fifteen percent cumulatively from their size prior to June 17, 1996, without a special use permit. Expansions over fifteen percent will require a special use permit.

(e) Front yard or rear yard setback may be reduced as provided in Section 17.05.034(c) or side yard setback may be reduced as provided in Section 17.05.034(d).

(Ord. 108-05 Attach. B (part), 2005).

17.04.237 - Special provisions.

7.02.036 - Long-term commercial forests; mineral resource lands.

These land designations are intended to recognize and protect unique resources that, due to the nature of their operations, are sensitive to abutting land uses. This chapter sets forth regulations intended to minimize the impact of intrusion of less compatible land uses upon these land use types. Development regulations for long-term commercial forest lands and mineral resource lands are located in MCC 8.52.060 and MCC 8.52.090 of the Mason County Resource Ordinance.

(Ord. 108-05 Attach. B (part), 2005).

(Ord. No. 2022-093, Att. A, 12-20-2022)

Chapter 20.14 CR-G GOOSE LAKE COMMERCIAL/RESIDENTIAL MIX DISTRICT

§ 20.14.010 **Intent.**

The Goose Lake commercial/residential designation is to allow for new development that conforms to the goals and policies of the comprehensive plan. The CR-G zone is intended to provide for higher-density residential development with a mix of pedestrian-oriented commercial development in order to support transit service and provide maximum protection for the environment.
(Ord. 1462-1296 § 2 (part), 1996)

§ 20.14.020 **Permitted uses.**

A. Permitted uses in the CR-G district shall be as listed in the land use matrix, Section **20.06.030** of this title, and as follows:

1. Gas stations (retail sale of gasoline and related convenience items only, no service available), subject to site plan review, within two hundred seventy feet of a more intense (GC, CI, or I) zone.

2. Residential uses as listed in land use matrix.

3. Drive-thru restaurants, subject to site plan review, and within three hundred feet of direct access (on- or off-ramp) to a Washington State or United States Highway.

B. In addition, any development or plat in excess of three acres must meet the following requirements:

1. Commercial and office uses shall be limited to forty percent of the total floor area or lot area of the development;

2. Residential development shall consist of a variety of housing types, including a minimum of fifty percent multifamily development.

(Ord. 1462-1296 § 2 (part), 1996)

§ 20.14.025 **Accessory uses.**

A. Light manufacture of consumer goods that is incidental to an on-premises retail use, provided that:

1. There shall be no unusual fire, explosion or safety hazards;

2. Applicant shall demonstrate to the site plan review committee that there shall be no production of noise at any boundary of the property in excess of the average intensity of street noise at this point;

3. There shall be no emission of smoke in excess of any density prescribed by the air pollution control authority;

4. There shall be no emission of dust, dirt, or toxic or offensive gases or fumes;

5.

There shall be no production of heat, glare or vibration perceptible from any property line of the premises upon which such heat, glare or vibration is being generated.

B. Storage, processing, or use of hazardous substances incidental to a permitted use in compliance with applicable city and state regulations.

C. Hazardous waste treatment and storage facilities incidental to a permitted use in compliance with applicable city and state regulations.

(Ord. 1462-1296 § 2 (part), 1996)

§ 20.14.030 **Similar or related uses.**

Similar or related uses are permitted and the criteria for determination of similarity or relatedness are as follows:

A. Uses similar to, or related to, those listed in the land use matrix are permitted upon a finding of the site plan review committee that a particular unlisted use does not conflict with the intent of this chapter or the policies of the comprehensive plan.

B. The criteria for such finding of similarity shall include but not be limited to the following:

1. The proposed use is appropriate in this zone given the emphasis on pedestrian orientation, mass transit and mixed use;

2. The design requirements for permitted uses can be met by the proposed use;

3. The proposed use will be compatible with and complementary to adjacent uses and uses within the corridor in general;

4. The public need is served by the proposed use.

(Ord. 1462-1296 § 2 (part), 1996)

§ 20.14.040 **Conditional uses.**

Conditional uses as listed in the land use matrix, Section **20.06.030** of this title, require a conditional use permit as provided in Chapter **20.44** of this title, and subject to applicable conditions as found in that chapter.

(Ord. 1462-1296 § 2 (part), 1996)

§ 20.14.050 **Lot, yard, and open space requirements.**

A. Minimum lot size: six thousand square feet, four thousand five hundred square feet when lot is adjacent to and accessed by an alley.

B. Front yard: minimum ten feet.

C. Side yard: minimum five feet, ten feet on a flanking side street.

D. Rear yard: minimum five feet, excepting that an accessory building may be placed a minimum of two feet from an alley.

E. Maximum building coverage: forty-five percent.

F. Maximum development coverage: Maximum coverage by impervious surfaces shall be sixty-five percent.

(Ord. 1462-1296 § 2 (part), 1996)

§ 20.14.060 **Building height.**

Building height requirements shall be as provided in Table 20.06.030(A).
(Ord. 1462-1296 § 2 (part), 1996; Ord. 2021-0824 § 7, 2024)

§ 20.14.070 **Design review.**

All uses in this designation shall comply with the provisions of Section **20.64.090** of this title, design standards.
(Ord. 1462-1296 § 2 (part), 1996)

§ 20.14.080 **Sign requirements.**

Signs shall be constructed and maintained in accordance with Chapter **20.38** of this title.
(Ord. 1462-1296 § 2 (part), 1996)

§ 20.14.090 **Off-street parking.**

A. Parking shall meet the requirements of Chapter **20.40** of this title.

B. Where parking abuts the street, that parking shall be screened by landscaping in accordance with Chapter **20.40** of this title.

C. Corner lots shall not be used for parking unless the site plan review committee finds there is no practicable alternative.

(Ord. 1462-1296 § 2 (part), 1996)

Appendix E

Aviation Activity Forecasts

U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Colorado · Idaho · Montana · Oregon · Utah
Washington · Wyoming

Seattle Airports District Office
2200 S 216th Street, Rm 1W-422
Des Moines, WA 98198

October 6th, 2025

Ms. Wendy Smith <wendys@portofshelton.com>
Port of Shelton Airport (SHN)
Sanderson Field, Shelton, WA

Port of Shelton Airport (SHN)
Master Plan and Airport Layout Plan Update:
Grant 3-53-0069-020-2024
Aviation Forecast Approval

Dear Ms. Smith:

The Federal Aviation Administration (FAA), Seattle Airports District Office has received and reviewed the aviation forecast for Shelton Municipal Airport (SHN) Master Plan Update, dated September 18th, 2025. The FAA approves the baseline scenario through year ten (10) for airport planning purposes, including Airport Layout Plan (ALP) development. We found the forecast to be generally consistent with the current year TAF, using current data and supported by appropriate forecasting methodologies.

The existing critical aircraft is determined to be B-II typified by the Beechcraft King Air 300. The future and ultimate critical aircraft is expected to be B-II typified by the Beechcraft King Air 300.

Table 5: Critical Aircraft Summary

EXISTING CRITICAL AIRCRAFT				
Representative Aircraft	RDC	ARC	TDG	Annual Operations
Beechcraft King Air 300	B-II-4000	B-II	2A	>500[1]
FUTURE CRITICAL AIRCRAFT				
Representative Aircraft	RDC	ARC	TDG	Annual Operations
Beechcraft King Air 300	B-II-2400[2]	B-II	2A	>500[1]

1. Justification is based on a combination of documented and estimated activity by AAC and ADG assessed independently. Operations totals for a single aircraft are not available.
2. A future ½ mile approach procedure was identified on the previous ALP and is anticipated be carried forward.

<u>Taken from: SHN MPU Facilities Requirement Chapter:- Airport Activity Overview – Baseline Operations</u>

The approval of the forecast and critical aircraft does not automatically constitute a commitment on the part of the United States to participate in any development recommended in the master plan or shown on the ALP. The FAA approval of the baseline scenario in this forecast does not constitute justification for future projects. Justification for future projects will be made based on activity levels at the time the project is requested for development, in accordance with criteria in FAA Orders 5090.5 and 5100.38. Documentation of actual activity levels meeting planning activity levels will be

necessary to justify AIP funding for eligible projects. Further, the approved forecast may be subject to additional analyses, if the fundamental rationale of the forecast or critical aircraft changes materially. The FAA may request a sensitivity analysis if this data is to be used for environmental or Part 150 noise planning purposes.

Table 1: Baseline (2024) Operation Totals

Activity Segment	Documented Operations	Estimated Operations	Total Operations
Kapowsin	4,554		**4,554**
TFMSC	538		**538**
OPBA		22,212	**22,212**
Military		500	**500**
Total Aircraft Operations			**27,804**

Taken from: SHN MPU:- Airport Activity Overview – Baseline Operations

If you have any questions about this forecast approval, please call Agnes Fisher at (206) 231-3894.

Community Planner – Seattle Airports District Office, WA

Airport Activity Overview

Introduction

Recently, the Federal Aviation Administration (FAA) changed its forecasting guidance for airports with less than 90,000 annual operations through release of its August 2024 Memorandum – Forecast Review and Approval Instructions (8/12/2024). The updated FAA guidance for "smaller general aviation (GA) airports with less than 90,000 annual operations" states that planning forecasts can be streamlined to focus on the existing and likely future critical aircraft for each runway.

Based on this guidance and a review of recent activity at Sanderson Field, it is determined that annual aircraft operations at the Airport for the foreseeable future will be less than 90,000. As a result, preparation of a full aviation activity forecast in the current Airport Master Plan is not required.

The following is a brief summary of the airport activity evaluation and results. For additional details see the "Summary of Airport Activity" section in Chapter 3 of the Airport Master Plan report.

Critical Aircraft

Critical aircraft are determined for individual runways based on the current and projected level of flight activity defined in the airport master plan. The applicable design standards of the runway and their associated facilities correspond to the Runway Design Code (RDC) assigned to the critical aircraft.

- The existing critical aircraft is the **Beechcraft King Air 300 – RDC B-II**
- The future critical aircraft is the **Beechcraft King Air 300 – RDC B-II**

The Beechcraft King Air 300 is a large, multi-engine turboprop classified as RDC B-II.

Aeronautical Activity

The following is a summary of the estimated current and future aeronautical activity levels (operations and based aircraft), and the associated existing and future critical aircraft. The current and future aeronautical activity estimates are summarized below.

OPERATIONS (2024 BASELINE)

Sanderson Field is a non-towered airport, and detailed operations data are limited. For this airport master plan, operations estimates were derived from ADSB data for frequently operating aircraft (Kapowsin Skydiving), TFMSC data, and operations per based aircraft (OPBA) estimates. Military activity was estimated based on previous planning work. Baseline operations data are summarized in Table 1.

Table 1: Sanderson Field Aircraft Operations (2024 Baseline)

	Activity Segment	Base Metric (Aircraft Fleet)	Multiplier	ADS-B Data (Operations)	Total Operations
A	Kapowsin			4,554[3]	4,554
B	OPBA	65[1]	350[2]		22,750
C	Military				500
Total Aircraft Operations					27,804

1. Validated Based Aircraft Count (less Kapowsin Aircraft)
2. OPBA typical multiplier of 350 to include TMFSC ops
3. Recorded ADS-B operations for 12 months for 4 Kapowsin Aircraft

BASED AIRCRAFT (2024 BASELINE)

An updated count of 69 based aircraft at Sanderson Field was verified by airport management and FAA in December of 2024 following a review of the FAA's National Based Aircraft Inventory (www.basedaircraft.com). A summary of the current based aircraft is presented in Table 2.

Table 2: Sanderson Field Base Aircraft (2024 Baseline)

Aircraft Type	
Single-Engine	61
Multi-Engine	4
Jet	0
Helicopter	4
Total	69

Source: FAA National Based Aircraft Inventory Report – 2024 (Validated Count Sanderson Field Airport)

FUTURE ACTIVITY

To provide a reasonable estimate of future aeronautic activity at the Airport, the FAA National Aerospace Forecast 2024-2044 growth rates for Active GA and Air Taxi Aircraft, and GA and Air Taxi Hours Flown were applied to the 2024 baseline activity numbers discussed above to develop forward-looking projections of base aircraft and operations respectively. These projections assume that aeronautical activity at Sanderson Field will follow national trends over the 20-year planning period.

ADG-II operations provided were based on documented ADG-II activity (ADSB and TFMSC) plus an estimated 3 percent of the non-documented, non-military VFR operations for 2024. The remaining VFR operations were assumed to be from ADG-I aircraft. The mix of ADG I and II operations are assumed to remain consistent over the planning period. The 2024 operations and projected estimates for based aircraft and operations are presented in Table 3.

Table 3: Sanderson Field Projected Future Activity

Aeronautical Activity Projections						
	AAG	2024	2029	2034	2039	2044
Based Aircraft	0.4%[5]	69	70	72	73	75
Total Operations[1]	0.8%[6]	27,804	28,934	30,110	31,334	32,608
ADG I Operations[2,4]	0.8%[7]	22,275	23,197	24,156	25,155	26,194
ADG II Operations[2,3]	0.8%[7]	5,029	5,237	5,454	5,679	5,914

1. Includes 500 annual operations by military aircraft
2. Military operations not included
3. Includes documented ADG II ops (ADSB and TFMSC) plus assumed 3% of undocumented VFR ops
4. Non-military, non-ADG II ops assumed to be ADG I
5. FAA National Aerospace Forecast 2024 - 2044 Active General Aviation and Air Taxi Aircraft Growth Rate
6. FAA National Aerospace Forecast 2024-2044 Active General Aviation and Air Taxi Hours Flown Growth Rate
7. ADG I vs ADG II split assumed to remain steady through planning period

Appendix F

Grant Assurances

FAA
Airports

ASSURANCES

AIRPORT SPONSORS

A. General.

1. These assurances shall be complied with in the performance of grant agreements for airport development, airport planning, and noise compatibility program grants for airport sponsors.
2. These assurances are required to be submitted as part of the project application by sponsors requesting funds under the provisions of Title 49, U.S.C., subtitle VII, as amended. As used herein, the term "public agency sponsor" means a public agency with control of a public-use airport; the term "private sponsor" means a private owner of a public-use airport; and the term "sponsor" includes both public agency sponsors and private sponsors.
3. Upon acceptance of this grant offer by the sponsor, these assurances are incorporated in and become part of this Grant Agreement.

B. Duration and Applicability.

1. **Airport development or Noise Compatibility Program Projects Undertaken by a Public Agency Sponsor.**

   The terms, conditions and assurances of this Grant Agreement shall remain in full force and effect throughout the useful life of the facilities developed or equipment acquired for an airport development or noise compatibility program project, or throughout the useful life of the project items installed within a facility under a noise compatibility program project, but in any event not to exceed twenty (20) years from the date of acceptance of a grant offer of Federal funds for the project. However, there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport. There shall be no limit on the duration of the terms, conditions, and assurances with respect to real property acquired with federal funds. Furthermore, the duration of the Civil Rights assurance shall be specified in the assurances.

2. **Airport Development or Noise Compatibility Projects Undertaken by a Private Sponsor.**

   The preceding paragraph (1) also applies to a private sponsor except that the useful life of project items installed within a facility or the useful life of the facilities developed or equipment acquired under an airport development or noise compatibility program project shall be no less than ten (10) years from the date of acceptance of Federal aid for the project.

3. **Airport Planning Undertaken by a Sponsor.**

   Unless otherwise specified in this Grant Agreement, only Assurances 1, 2, 3, 5, 6, 13, 18, 23, 25, 30, 32, 33, 34, and 37 in Section C apply to planning projects. The terms, conditions, and

assurances of this Grant Agreement shall remain in full force and effect during the life of the project; there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport.

C. Sponsor Certification.

The sponsor hereby assures and certifies, with respect to this grant that:

1. General Federal Requirements

It will comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance, and use of Federal funds for this Grant including but not limited to the following:

FEDERAL LEGISLATION

a. 49 U.S.C. subtitle VII, as amended.

b. Davis-Bacon Act, as amended — 40 U.S.C. §§ 3141-3144, 3146, and 3147, et seq.[1]

c. Federal Fair Labor Standards Act – 29 U.S.C. § 201, et seq.

d. Hatch Act – 5 U.S.C. § 1501, et seq.[2]

e. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 U.S.C. § 4601, et seq.[1, 2]

f. National Historic Preservation Act of 1966 – Section 106 – 54 U.S.C. § 306108.[1]

g. Archeological and Historic Preservation Act of 1974 – 54 U.S.C. § 312501, et seq.[1]

h. Native Americans Grave Repatriation Act – 25 U.S.C. § 3001, et seq.

i. Clean Air Act, P.L. 90-148, as amended – 42 U.S.C. § 7401, et seq.

j. Coastal Zone Management Act, P.L. 92-583, as amended – 16 U.S.C. § 1451, et seq.

k. Flood Disaster Protection Act of 1973 – Section 102(a) - 42 U.S.C. § 4012a.[1]

l. 49 U.S.C. § 303, (formerly known as Section 4(f)).

m. Rehabilitation Act of 1973 – 29 U.S.C. § 794.

n. Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin).

o. Americans with Disabilities Act of 1990, as amended, (42 U.S.C. § 12101 et seq.) (prohibits discrimination on the basis of disability).

p. Age Discrimination Act of 1975 – 42 U.S.C. § 6101, et seq.

q. American Indian Religious Freedom Act, P.L. 95-341, as amended.

r. Architectural Barriers Act of 1968, as amended – 42 U.S.C. § 4151, et seq.[1]

s. Powerplant and Industrial Fuel Use Act of 1978 – Section 403 – 42 U.S.C. § 8373.[1]

t. Contract Work Hours and Safety Standards Act – 40 U.S.C. § 3701, et seq.[1]

u. Copeland Anti-kickback Act – 18 U.S.C. § 874.[1]

v. National Environmental Policy Act of 1969 – 42 U.S.C. § 4321, et seq.[1]

w. Wild and Scenic Rivers Act, P.L. 90-542, as amended – 16 U.S.C. § 1271, et seq.

x. Single Audit Act of 1984 – 31 U.S.C. § 7501, et seq.[2]

y. Drug-Free Workplace Act of 1988 – 41 U.S.C. §§ 8101 through 8105.

z. The Federal Funding Accountability and Transparency Act of 2006, as amended (P.L. 109-282, as amended by section 6202 of P.L. 110-252).

aa. Civil Rights Restoration Act of 1987, P.L. 100-259.

bb. Build America, Buy America Act, P.L. 117-58, Title IX.

EXECUTIVE ORDERS

a. Executive Order 11246 – Equal Employment Opportunity[1]

b. Executive Order 11990 – Protection of Wetlands

c. Executive Order 11998 – Flood Plain Management

d. Executive Order 12372 – Intergovernmental Review of Federal Programs

e. Executive Order 12699 – Seismic Safety of Federal and Federally Assisted New Building Construction[1]

f. Executive Order 12898 – Environmental Justice

g. Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency

h. Executive Order 13985 – Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

i. Executive Order 13988 – Preventing and Combating Discrimination on the Basis of Gender Identity or Sexual Orientation

j. Executive Order 14005 – Ensuring the Future is Made in all of America by All of America's Workers

k. Executive Order 14008 – Tackling the Climate Crisis at Home and Abroad

FEDERAL REGULATIONS

a. 2 CFR Part 180 – OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement).

b. 2 CFR Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. [4, 5]

c. 2 CFR Part 1200 – Nonprocurement Suspension and Debarment.

d. 14 CFR Part 13 – Investigative and Enforcement Procedures.

e. 14 CFR Part 16 – Rules of Practice for Federally-Assisted Airport Enforcement Proceedings.

f. 14 CFR Part 150 – Airport Noise Compatibility Planning.

g. 28 CFR Part 35 – Nondiscrimination on the Basis of Disability in State and Local Government Services.

h. 28 CFR § 50.3 – U.S. Department of Justice Guidelines for the Enforcement of Title VI of the Civil Rights Act of 1964.

i. 29 CFR Part 1 – Procedures for Predetermination of Wage Rates.[1]

j. 29 CFR Part 3 – Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States.[1]

k. 29 CFR Part 5 – Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction (Also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act).[1]

l. 41 CFR Part 60 – Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor (Federal and Federally-assisted contracting requirements).[1]

m. 49 CFR Part 20 – New Restrictions on Lobbying.

n. 49 CFR Part 21 – Nondiscrimination in Federally-Assisted Programs of the Department of Transportation - Effectuation of Title VI of the Civil Rights Act of 1964.

o. 49 CFR Part 23 – Participation by Disadvantage Business Enterprise in Airport Concessions.

p. 49 CFR Part 24 – Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs.[1, 2]

q. 49 CFR Part 26 – Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs.

r. 49 CFR Part 27 – Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance.[1]

s. 49 CFR Part 28 – Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities Conducted by the Department of Transportation.

t. 49 CFR Part 30 – Denial of Public Works Contracts to Suppliers of Goods and Services of Countries That Deny Procurement Market Access to U.S. Contractors.

u. 49 CFR Part 32 – Governmentwide Requirements for Drug-Free Workplace (Financial Assistance).

v. 49 CFR Part 37 – Transportation Services for Individuals with Disabilities (ADA).

w. 49 CFR Part 38 – Americans with Disabilities Act (ADA) Accessibility Specifications for Transportation Vehicles.

x. 49 CFR Part 41 – Seismic Safety.

FOOTNOTES TO ASSURANCE (C)(1)

[1] These laws do not apply to airport planning sponsors.

[2] These laws do not apply to private sponsors.

[3] 2 CFR Part 200 contains requirements for State and Local Governments receiving Federal assistance. Any requirement levied upon State and Local Governments by this regulation shall

apply where applicable to private sponsors receiving Federal assistance under Title 49, United States Code.

[4] Cost principles established in 2 CFR part 200 subpart E must be used as guidelines for determining the eligibility of specific types of expenses.

[5] Audit requirements established in 2 CFR part 200 subpart F are the guidelines for audits.

SPECIFIC ASSURANCES

Specific assurances required to be included in grant agreements by any of the above laws, regulations or circulars are incorporated by reference in this Grant Agreement.

2. Responsibility and Authority of the Sponsor.

a. Public Agency Sponsor:

It has legal authority to apply for this Grant, and to finance and carry out the proposed project; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing body authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

b. Private Sponsor:

It has legal authority to apply for this Grant and to finance and carry out the proposed project and comply with all terms, conditions, and assurances of this Grant Agreement. It shall designate an official representative and shall in writing direct and authorize that person to file this application, including all understandings and assurances contained therein; to act in connection with this application; and to provide such additional information as may be required.

3. Sponsor Fund Availability.

It has sufficient funds available for that portion of the project costs which are not to be paid by the United States. It has sufficient funds available to assure operation and maintenance of items funded under this Grant Agreement which it will own or control.

4. Good Title.

a. It, a public agency or the Federal government, holds good title, satisfactory to the Secretary, to the landing area of the airport or site thereof, or will give assurance satisfactory to the Secretary that good title will be acquired.

b. For noise compatibility program projects to be carried out on the property of the sponsor, it holds good title satisfactory to the Secretary to that portion of the property upon which Federal funds will be expended or will give assurance to the Secretary that good title will be obtained.

5. Preserving Rights and Powers.

a. It will not take or permit any action which would operate to deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in this Grant Agreement without the written approval of the Secretary, and will act promptly to acquire, extinguish or modify any outstanding rights or claims of right of others which would interfere

with such performance by the sponsor. This shall be done in a manner acceptable to the Secretary.

b. Subject to the FAA Act of 2018, Public Law 115-254, Section 163, it will not sell, lease, encumber, or otherwise transfer or dispose of any part of its title or other interests in the property shown on Exhibit A to this application or, for a noise compatibility program project, that portion of the property upon which Federal funds have been expended, for the duration of the terms, conditions, and assurances in this Grant Agreement without approval by the Secretary. If the transferee is found by the Secretary to be eligible under Title 49, United States Code, to assume the obligations of this Grant Agreement and to have the power, authority, and financial resources to carry out all such obligations, the sponsor shall insert in the contract or document transferring or disposing of the sponsor's interest, and make binding upon the transferee all of the terms, conditions, and assurances contained in this Grant Agreement.

c. For all noise compatibility program projects which are to be carried out by another unit of local government or are on property owned by a unit of local government other than the sponsor, it will enter into an agreement with that government. Except as otherwise specified by the Secretary, that agreement shall obligate that government to the same terms, conditions, and assurances that would be applicable to it if it applied directly to the FAA for a grant to undertake the noise compatibility program project. That agreement and changes thereto must be satisfactory to the Secretary. It will take steps to enforce this agreement against the local government if there is substantial non-compliance with the terms of the agreement.

d. For noise compatibility program projects to be carried out on privately owned property, it will enter into an agreement with the owner of that property which includes provisions specified by the Secretary. It will take steps to enforce this agreement against the property owner whenever there is substantial non-compliance with the terms of the agreement.

e. If the sponsor is a private sponsor, it will take steps satisfactory to the Secretary to ensure that the airport will continue to function as a public-use airport in accordance with these assurances for the duration of these assurances.

f. If an arrangement is made for management and operation of the airport by any agency or person other than the sponsor or an employee of the sponsor, the sponsor will reserve sufficient rights and authority to ensure that the airport will be operated and maintained in accordance with Title 49, United States Code, the regulations and the terms, conditions and assurances in this Grant Agreement and shall ensure that such arrangement also requires compliance therewith.

g. Sponsors of commercial service airports will not permit or enter into any arrangement that results in permission for the owner or tenant of a property used as a residence, or zoned for residential use, to taxi an aircraft between that property and any location on airport. Sponsors of general aviation airports entering into any arrangement that results in permission for the owner of residential real property adjacent to or near the airport must comply with the requirements of Sec. 136 of Public Law 112-95 and the sponsor assurances.

6. Consistency with Local Plans.

The project is reasonably consistent with plans (existing at the time of submission of this application) of public agencies that are authorized by the State in which the project is located to plan for the development of the area surrounding the airport.

7. **Consideration of Local Interest.**

   It has given fair consideration to the interest of communities in or near where the project may be located.

8. **Consultation with Users.**

   In making a decision to undertake any airport development project under Title 49, United States Code, it has undertaken reasonable consultations with affected parties using the airport at which project is proposed.

9. **Public Hearings.**

   In projects involving the location of an airport, an airport runway, or a major runway extension, it has afforded the opportunity for public hearings for the purpose of considering the economic, social, and environmental effects of the airport or runway location and its consistency with goals and objectives of such planning as has been carried out by the community and it shall, when requested by the Secretary, submit a copy of the transcript of such hearings to the Secretary. Further, for such projects, it has on its management board either voting representation from the communities where the project is located or has advised the communities that they have the right to petition the Secretary concerning a proposed project.

10. **Metropolitan Planning Organization.**

    In projects involving the location of an airport, an airport runway, or a major runway extension at a medium or large hub airport, the sponsor has made available to and has provided upon request to the metropolitan planning organization in the area in which the airport is located, if any, a copy of the proposed amendment to the airport layout plan to depict the project and a copy of any airport master plan in which the project is described or depicted.

11. **Pavement Preventive Maintenance-Management.**

    With respect to a project approved after January 1, 1995, for the replacement or reconstruction of pavement at the airport, it assures or certifies that it has implemented an effective airport pavement maintenance-management program and it assures that it will use such program for the useful life of any pavement constructed, reconstructed or repaired with Federal financial assistance at the airport. It will provide such reports on pavement condition and pavement management programs as the Secretary determines may be useful.

12. **Terminal Development Prerequisites.**

    For projects which include terminal development at a public use airport, as defined in Title 49, it has, on the date of submittal of the project grant application, all the safety equipment required for certification of such airport under 49 U.S.C. § 44706, and all the security equipment required by rule or regulation, and has provided for access to the passenger enplaning and deplaning area of such airport to passengers enplaning and deplaning from aircraft other than air carrier aircraft.

13. **Accounting System, Audit, and Record Keeping Requirements.**

    a. It shall keep all project accounts and records which fully disclose the amount and disposition by the recipient of the proceeds of this Grant, the total cost of the project in connection with which this Grant is given or used, and the amount or nature of that portion of the cost of the project supplied by other sources, and such other financial records pertinent to the project. The

accounts and records shall be kept in accordance with an accounting system that will facilitate an effective audit in accordance with the Single Audit Act of 1984.

b. It shall make available to the Secretary and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination, any books, documents, papers, and records of the recipient that are pertinent to this Grant. The Secretary may require that an appropriate audit be conducted by a recipient. In any case in which an independent audit is made of the accounts of a sponsor relating to the disposition of the proceeds of a grant or relating to the project in connection with which this Grant was given or used, it shall file a certified copy of such audit with the Comptroller General of the United States not later than six (6) months following the close of the fiscal year for which the audit was made.

14. Minimum Wage Rates.

It shall include, in all contracts in excess of $2,000 for work on any projects funded under this Grant Agreement which involve labor, provisions establishing minimum rates of wages, to be predetermined by the Secretary of Labor under 40 U.S.C. §§ 3141-3144, 3146, and 3147, Public Building, Property, and Works), which contractors shall pay to skilled and unskilled labor, and such minimum rates shall be stated in the invitation for bids and shall be included in proposals or bids for the work.

15. Veteran's Preference.

It shall include in all contracts for work on any project funded under this Grant Agreement which involve labor, such provisions as are necessary to insure that, in the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in 49 U.S.C. § 47112. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

16. Conformity to Plans and Specifications.

It will execute the project subject to plans, specifications, and schedules approved by the Secretary. Such plans, specifications, and schedules shall be submitted to the Secretary prior to commencement of site preparation, construction, or other performance under this Grant Agreement, and, upon approval of the Secretary, shall be incorporated into this Grant Agreement. Any modification to the approved plans, specifications, and schedules shall also be subject to approval of the Secretary, and incorporated into this Grant Agreement.

17. Construction Inspection and Approval.

It will provide and maintain competent technical supervision at the construction site throughout the project to assure that the work conforms to the plans, specifications, and schedules approved by the Secretary for the project. It shall subject the construction work on any project contained in an approved project application to inspection and approval by the Secretary and such work shall be in accordance with regulations and procedures prescribed by the Secretary. Such regulations and procedures shall require such cost and progress reporting by the sponsor or sponsors of such project as the Secretary shall deem necessary.

18. Planning Projects.

In carrying out planning projects:

a. It will execute the project in accordance with the approved program narrative contained in the project application or with the modifications similarly approved.

b. It will furnish the Secretary with such periodic reports as required pertaining to the planning project and planning work activities.

c. It will include in all published material prepared in connection with the planning project a notice that the material was prepared under a grant provided by the United States.

d. It will make such material available for examination by the public, and agrees that no material prepared with funds under this project shall be subject to copyright in the United States or any other country.

e. It will give the Secretary unrestricted authority to publish, disclose, distribute, and otherwise use any of the material prepared in connection with this grant.

f. It will grant the Secretary the right to disapprove the sponsor's employment of specific consultants and their subcontractors to do all or any part of this project as well as the right to disapprove the proposed scope and cost of professional services.

g. It will grant the Secretary the right to disapprove the use of the sponsor's employees to do all or any part of the project.

h. It understands and agrees that the Secretary's approval of this project grant or the Secretary's approval of any planning material developed as part of this grant does not constitute or imply any assurance or commitment on the part of the Secretary to approve any pending or future application for a Federal airport grant.

19. Operation and Maintenance.

a. The airport and all facilities which are necessary to serve the aeronautical users of the airport, other than facilities owned or controlled by the United States, shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards as may be required or prescribed by applicable Federal, state, and local agencies for maintenance and operation. It will not cause or permit any activity or action thereon which would interfere with its use for airport purposes. It will suitably operate and maintain the airport and all facilities thereon or connected therewith, with due regard to climatic and flood conditions. Any proposal to temporarily close the airport for non-aeronautical purposes must first be approved by the Secretary. In furtherance of this assurance, the sponsor will have in effect arrangements for:

   1. Operating the airport's aeronautical facilities whenever required;

   2. Promptly marking and lighting hazards resulting from airport conditions, including temporary conditions; and

   3. Promptly notifying pilots of any condition affecting aeronautical use of the airport. Nothing contained herein shall be construed to require that the airport be operated for aeronautical use during temporary periods when snow, flood, or other climatic conditions interfere with such operation and maintenance. Further, nothing herein shall be construed as requiring the maintenance, repair, restoration, or replacement of any structure or

facility which is substantially damaged or destroyed due to an act of God or other condition or circumstance beyond the control of the sponsor.

b. It will suitably operate and maintain noise compatibility program items that it owns or controls upon which Federal funds have been expended.

20. Hazard Removal and Mitigation.

It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

21. Compatible Land Use.

It will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended.

22. Economic Nondiscrimination.

a. It will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.

b. In any agreement, contract, lease, or other arrangement under which a right or privilege at the airport is granted to any person, firm, or corporation to conduct or to engage in any aeronautical activity for furnishing services to the public at the airport, the sponsor will insert and enforce provisions requiring the contractor to:

   1. Furnish said services on a reasonable, and not unjustly discriminatory, basis to all users thereof, and

   2. Charge reasonable, and not unjustly discriminatory, prices for each unit or service, provided that the contractor may be allowed to make reasonable and nondiscriminatory discounts, rebates, or other similar types of price reductions to volume purchasers.

c. Each fixed-based operator at the airport shall be subject to the same rates, fees, rentals, and other charges as are uniformly applicable to all other fixed-based operators making the same or similar uses of such airport and utilizing the same or similar facilities.

d. Each air carrier using such airport shall have the right to service itself or to use any fixed-based operator that is authorized or permitted by the airport to serve any air carrier at such airport.

e. Each air carrier using such airport (whether as a tenant, non-tenant, or subtenant of another air carrier tenant) shall be subject to such nondiscriminatory and substantially comparable rules, regulations, conditions, rates, fees, rentals, and other charges with respect to facilities directly and substantially related to providing air transportation as are applicable to all such air carriers which make similar use of such airport and utilize similar facilities, subject to reasonable

classifications such as tenants or non-tenants and signatory carriers and non-signatory carriers. Classification or status as tenant or signatory shall not be unreasonably withheld by any airport provided an air carrier assumes obligations substantially similar to those already imposed on air carriers in such classification or status.

f. It will not exercise or grant any right or privilege which operates to prevent any person, firm, or corporation operating aircraft on the airport from performing any services on its own aircraft with its own employees (including, but not limited to maintenance, repair, and fueling) that it may choose to perform.

g. In the event the sponsor itself exercises any of the rights and privileges referred to in this assurance, the services involved will be provided on the same conditions as would apply to the furnishing of such services by commercial aeronautical service providers authorized by the sponsor under these provisions.

h. The sponsor may establish such reasonable, and not unjustly discriminatory, conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport.

i. The sponsor may prohibit or limit any given type, kind or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public.

23. Exclusive Rights.

It will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. For purposes of this paragraph, the providing of the services at an airport by a single fixed-based operator shall not be construed as an exclusive right if both of the following apply:

a. It would be unreasonably costly, burdensome, or impractical for more than one fixed-based operator to provide such services, and

b. If allowing more than one fixed-based operator to provide such services would require the reduction of space leased pursuant to an existing agreement between such single fixed-based operator and such airport. It further agrees that it will not, either directly or indirectly, grant or permit any person, firm, or corporation, the exclusive right at the airport to conduct any aeronautical activities, including, but not limited to charter flights, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, air carrier operations, aircraft sales and services, sale of aviation petroleum products whether or not conducted in conjunction with other aeronautical activity, repair and maintenance of aircraft, sale of aircraft parts, and any other activities which because of their direct relationship to the operation of aircraft can be regarded as an aeronautical activity, and that it will terminate any exclusive right to conduct an aeronautical activity now existing at such an airport before the grant of any assistance under Title 49, United States Code.

24. Fee and Rental Structure.

It will maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, taking into account such factors as the volume of traffic and economy of collection. No part of the Federal share of an airport development, airport planning or noise compatibility project for

which a Grant is made under Title 49, United States Code, the Airport and Airway Improvement Act of 1982, the Federal Airport Act or the Airport and Airway Development Act of 1970 shall be included in the rate basis in establishing fees, rates, and charges for users of that airport.

25. Airport Revenues.

a. All revenues generated by the airport and any local taxes on aviation fuel established after December 30, 1987, will be expended by it for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport. The following exceptions apply to this paragraph:

   1. If covenants or assurances in debt obligations issued before September 3, 1982, by the owner or operator of the airport, or provisions enacted before September 3, 1982, in governing statutes controlling the owner or operator's financing, provide for the use of the revenues from any of the airport owner or operator's facilities, including the airport, to support not only the airport but also the airport owner or operator's general debt obligations or other facilities, then this limitation on the use of all revenues generated by the airport (and, in the case of a public airport, local taxes on aviation fuel) shall not apply.

   2. If the Secretary approves the sale of a privately owned airport to a public sponsor and provides funding for any portion of the public sponsor’s acquisition of land, this limitation on the use of all revenues generated by the sale shall not apply to certain proceeds from the sale. This is conditioned on repayment to the Secretary by the private owner of an amount equal to the remaining unamortized portion (amortized over a 20-year period) of any airport improvement grant made to the private owner for any purpose other than land acquisition on or after October 1, 1996, plus an amount equal to the federal share of the current fair market value of any land acquired with an airport improvement grant made to that airport on or after October 1, 1996.

   3. Certain revenue derived from or generated by mineral extraction, production, lease, or other means at a general aviation airport (as defined at 49 U.S.C. § 47102), if the FAA determines the airport sponsor meets the requirements set forth in Section 813 of Public Law 112-95.

b. As part of the annual audit required under the Single Audit Act of 1984, the sponsor will direct that the audit will review, and the resulting audit report will provide an opinion concerning, the use of airport revenue and taxes in paragraph (a), and indicating whether funds paid or transferred to the owner or operator are paid or transferred in a manner consistent with Title 49, United States Code and any other applicable provision of law, including any regulation promulgated by the Secretary or Administrator.

c. Any civil penalties or other sanctions will be imposed for violation of this assurance in accordance with the provisions of 49 U.S.C. § 47107.

26. Reports and Inspections.

It will:

a. submit to the Secretary such annual or special financial and operations reports as the Secretary may reasonably request and make such reports available to the public; make available to the

public at reasonable times and places a report of the airport budget in a format prescribed by the Secretary;

b. for airport development projects, make the airport and all airport records and documents affecting the airport, including deeds, leases, operation and use agreements, regulations and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request;

c. for noise compatibility program projects, make records and documents relating to the project and continued compliance with the terms, conditions, and assurances of this Grant Agreement including deeds, leases, agreements, regulations, and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request; and

d. in a format and time prescribed by the Secretary, provide to the Secretary and make available to the public following each of its fiscal years, an annual report listing in detail:

    1. all amounts paid by the airport to any other unit of government and the purposes for which each such payment was made; and

    2. all services and property provided by the airport to other units of government and the amount of compensation received for provision of each such service and property.

27. Use by Government Aircraft.

It will make available all of the facilities of the airport developed with Federal financial assistance and all those usable for landing and takeoff of aircraft to the United States for use by Government aircraft in common with other aircraft at all times without charge, except, if the use by Government aircraft is substantial, charge may be made for a reasonable share, proportional to such use, for the cost of operating and maintaining the facilities used. Unless otherwise determined by the Secretary, or otherwise agreed to by the sponsor and the using agency, substantial use of an airport by Government aircraft will be considered to exist when operations of such aircraft are in excess of those which, in the opinion of the Secretary, would unduly interfere with use of the landing areas by other authorized aircraft, or during any calendar month that:

a. Five (5) or more Government aircraft are regularly based at the airport or on land adjacent thereto; or

b. The total number of movements (counting each landing as a movement) of Government aircraft is 300 or more, or the gross accumulative weight of Government aircraft using the airport (the total movement of Government aircraft multiplied by gross weights of such aircraft) is in excess of five million pounds.

28. Land for Federal Facilities.

It will furnish without cost to the Federal Government for use in connection with any air traffic control or air navigation activities, or weather-reporting and communication activities related to air traffic control, any areas of land or water, or estate therein as the Secretary considers necessary or desirable for construction, operation, and maintenance at Federal expense of space or facilities for such purposes. Such areas or any portion thereof will be made available as provided herein within four months after receipt of a written request from the Secretary.

29. Airport Layout Plan.

a. Subject to the FAA Reauthorization Act of 2018, Public Law 115-254, Section 163, it will keep up to date at all times an airport layout plan of the airport showing:

1. boundaries of the airport and all proposed additions thereto, together with the boundaries of all offsite areas owned or controlled by the sponsor for airport purposes and proposed additions thereto;
2. the location and nature of all existing and proposed airport facilities and structures (such as runways, taxiways, aprons, terminal buildings, hangars and roads), including all proposed extensions and reductions of existing airport facilities;
3. the location of all existing and proposed non-aviation areas and of all existing improvements thereon; and
4. all proposed and existing access points used to taxi aircraft across the airport's property boundary.

Such airport layout plans and each amendment, revision, or modification thereof, shall be subject to the approval of the Secretary which approval shall be evidenced by the signature of a duly authorized representative of the Secretary on the face of the airport layout plan. The sponsor will not make or permit any changes or alterations in the airport or any of its facilities which are not in conformity with the airport layout plan as approved by the Secretary and which might, in the opinion of the Secretary, adversely affect the safety, utility or efficiency of the airport.

b. Subject to the FAA Reauthorization Act of 2018, Public Law 115-254, Section 163, if a change or alteration in the airport or the facilities is made which the Secretary determines adversely affects the safety, utility, or efficiency of any federally owned, leased, or funded property on or off the airport and which is not in conformity with the airport layout plan as approved by the Secretary, the owner or operator will, if requested, by the Secretary:

1. eliminate such adverse effect in a manner approved by the Secretary; or
2. bear all costs of relocating such property (or replacement thereof) to a site acceptable to the Secretary and all costs of restoring such property (or replacement thereof) to the level of safety, utility, efficiency, and cost of operation existing before the unapproved change in the airport or its facilities except in the case of a relocation or replacement of an existing airport facility due to a change in the Secretary's design standards beyond the control of the airport sponsor.

30. Civil Rights.

It will promptly take any measures necessary to ensure that no person in the United States shall, on the grounds of race, color, and national origin (including limited English proficiency) in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4); creed and sex (including sexual orientation and gender identity) per 49 U.S.C. § 47123 and related requirements; age per the Age Discrimination Act of 1975 and related requirements; or disability per the Americans with Disabilities Act of 1990 and related requirements, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in any program and activity conducted with, or benefiting from, funds received from this Grant.

a. Using the definitions of activity, facility, and program as found and defined in 49 CFR §§ 21.23(b) and 21.23(e), the sponsor will facilitate all programs, operate all facilities, or conduct all programs in compliance with all non-discrimination requirements imposed by or pursuant to these assurances.

b. Applicability

   1. Programs and Activities. If the sponsor has received a grant (or other federal assistance) for any of the sponsor's program or activities, these requirements extend to all of the sponsor's programs and activities.

   2. Facilities. Where it receives a grant or other federal financial assistance to construct, expand, renovate, remodel, alter, or acquire a facility, or part of a facility, the assurance extends to the entire facility and facilities operated in connection therewith.

   3. Real Property. Where the sponsor receives a grant or other Federal financial assistance in the form of, or for the acquisition of real property or an interest in real property, the assurance will extend to rights to space on, over, or under such property.

c. Duration.

   The sponsor agrees that it is obligated to this assurance for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the assurance obligates the sponsor, or any transferee for the longer of the following periods:

   1. So long as the airport is used as an airport, or for another purpose involving the provision of similar services or benefits; or

   2. So long as the sponsor retains ownership or possession of the property.

d. Required Solicitation Language. It will include the following notification in all solicitations for bids, Requests For Proposals for work, or material under this Grant Agreement and in all proposals for agreements, including airport concessions, regardless of funding source:

   "The (**[Selection Criteria: Sponsor Name]**), in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, [select businesses, or disadvantaged business enterprises or airport concession disadvantaged business enterprises] will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award."

e. Required Contract Provisions.

   1. It will insert the non-discrimination contract clauses requiring compliance with the acts and regulations relative to non-discrimination in Federally-assisted programs of the Department of Transportation (DOT), and incorporating the acts and regulations into the contracts by reference in every contract or agreement subject to the non-discrimination in Federally-assisted programs of the DOT acts and regulations.

2. It will include a list of the pertinent non-discrimination authorities in every contract that is subject to the non-discrimination acts and regulations.
3. It will insert non-discrimination contract clauses as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a sponsor.
4. It will insert non-discrimination contract clauses prohibiting discrimination on the basis of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability as a covenant running with the land, in any future deeds, leases, license, permits, or similar instruments entered into by the sponsor with other parties:
    a. For the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and
    b. For the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.

f. It will provide for such methods of administration for the program as are found by the Secretary to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the acts, the regulations, and this assurance.

g. It agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the acts, the regulations, and this assurance.

31. Disposal of Land.

a. For land purchased under a grant for airport noise compatibility purposes, including land serving as a noise buffer, it will dispose of the land, when the land is no longer needed for such purposes, at fair market value, at the earliest practicable time. That portion of the proceeds of such disposition which is proportionate to the United States' share of acquisition of such land will be, at the discretion of the Secretary, (1) reinvested in another project at the airport, or (2) transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order:
    1. Reinvestment in an approved noise compatibility project;
    2. Reinvestment in an approved project that is eligible for grant funding under 49 U.S.C. § 47117(e);
    3. Reinvestment in an approved airport development project that is eligible for grant funding under 49 U.S.C. §§ 47114, 47115, or 47117;
    4. Transfer to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport; or
    5. Payment to the Secretary for deposit in the Airport and Airway Trust Fund.

    If land acquired under a grant for noise compatibility purposes is leased at fair market value and consistent with noise buffering purposes, the lease will not be considered a disposal of the land. Revenues derived from such a lease may be used for an approved airport development

project that would otherwise be eligible for grant funding or any permitted use of airport revenue.

b. For land purchased under a grant for airport development purposes (other than noise compatibility), it will, when the land is no longer needed for airport purposes, dispose of such land at fair market value or make available to the Secretary an amount equal to the United States' proportionate share of the fair market value of the land. That portion of the proceeds of such disposition which is proportionate to the United States' share of the cost of acquisition of such land will, upon application to the Secretary, be reinvested or transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order:

   1. Reinvestment in an approved noise compatibility project;
   2. Reinvestment in an approved project that is eligible for grant funding under 49 U.S.C. § 47117(e);
   3. Reinvestment in an approved airport development project that is eligible for grant funding under 49 U.S.C. §§ 47114, 47115, or 47117;
   4. Transfer to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport; or
   5. Payment to the Secretary for deposit in the Airport and Airway Trust Fund.

c. Land shall be considered to be needed for airport purposes under this assurance if (1) it may be needed for aeronautical purposes (including runway protection zones) or serve as noise buffer land, and (2) the revenue from interim uses of such land contributes to the financial self-sufficiency of the airport. Further, land purchased with a grant received by an airport operator or owner before December 31, 1987, will be considered to be needed for airport purposes if the Secretary or Federal agency making such grant before December 31, 1987, was notified by the operator or owner of the uses of such land, did not object to such use, and the land continues to be used for that purpose, such use having commenced no later than December 15, 1989.

d. Disposition of such land under (a), (b), or (c) will be subject to the retention or reservation of any interest or right therein necessary to ensure that such land will only be used for purposes which are compatible with noise levels associated with operation of the airport.

32. Engineering and Design Services.

If any phase of such project has received Federal funds under Chapter 471 subchapter 1 of Title 49 U.S.C., it will award each contract, or sub-contract for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design, engineering, surveying, mapping or related services in the same manner as a contract for architectural and engineering services is negotiated under Chapter 11 of Title 40 U S.C., or an equivalent qualifications-based requirement prescribed for or by the sponsor of the airport.

33. Foreign Market Restrictions.

It will not allow funds provided under this Grant to be used to fund any project which uses any product or service of a foreign country during the period in which such foreign country is listed by

the United States Trade Representative as denying fair and equitable market opportunities for products and suppliers of the United States in procurement and construction.

34. Policies, Standards, and Specifications.

It will carry out any project funded under an Airport Improvement Program Grant in accordance with policies, standards, and specifications approved by the Secretary including, but not limited to, current FAA Advisory Circulars (https://www.faa.gov/airports/aip/media/aip-pfc-checklist.pdf) for AIP projects as of [Selection Criteria: Project Application Date].

35. Relocation and Real Property Acquisition.

a. It will be guided in acquiring real property, to the greatest extent practicable under State law, by the land acquisition policies in Subpart B of 49 CFR Part 24 and will pay or reimburse property owners for necessary expenses as specified in Subpart B.

b. It will provide a relocation assistance program offering the services described in Subpart C of 49 CFR Part 24 and fair and reasonable relocation payments and assistance to displaced persons as required in Subpart D and E of 49 CFR Part 24.

c. It will make available within a reasonable period of time prior to displacement, comparable replacement dwellings to displaced persons in accordance with Subpart E of 49 CFR Part 24.

36. Access By Intercity Buses.

The airport owner or operator will permit, to the maximum extent practicable, intercity buses or other modes of transportation to have access to the airport; however, it has no obligation to fund special facilities for intercity buses or for other modes of transportation.

37. Disadvantaged Business Enterprises.

The sponsor shall not discriminate on the basis of race, color, national origin, or sex, in the award and performance of any DOT-assisted contract covered by 49 CFR Part 26, or in the award and performance of any concession activity contract covered by 49 CFR Part 23. In addition, the sponsor shall not discriminate on the basis of race, color, national origin or sex in the administration of its Disadvantaged Business Enterprise (DBE) and Airport Concessions Disadvantaged Business Enterprise (ACDBE) programs or the requirements of 49 CFR Parts 23 and 26. The sponsor shall take all necessary and reasonable steps under 49 CFR Parts 23 and 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts, and/or concession contracts. The sponsor's DBE and ACDBE programs, as required by 49 CFR Parts 26 and 23, and as approved by DOT, are incorporated by reference in this agreement. Implementation of these programs is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the sponsor of its failure to carry out its approved program, the Department may impose sanctions as provided for under Parts 26 and 23 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. § 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. §§ 3801-3809, 3812).

38. Hangar Construction.

If the airport owner or operator and a person who owns an aircraft agree that a hangar is to be constructed at the airport for the aircraft at the aircraft owner's expense, the airport owner or operator will grant to the aircraft owner for the hangar a long term lease that is subject to such terms and conditions on the hangar as the airport owner or operator may impose.

39. Competitive Access.

a. If the airport owner or operator of a medium or large hub airport (as defined in 49 U.S.C. § 47102) has been unable to accommodate one or more requests by an air carrier for access to gates or other facilities at that airport in order to allow the air carrier to provide service to the airport or to expand service at the airport, the airport owner or operator shall transmit a report to the Secretary that:

   1. Describes the requests;
   2. Provides an explanation as to why the requests could not be accommodated; and
   3. Provides a time frame within which, if any, the airport will be able to accommodate the requests.

b. Such report shall be due on either February 1 or August 1 of each year if the airport has been unable to accommodate the request(s) in the six month period prior to the applicable due date.

Appendix G

Glossary of Aviation Terms & List of Abbreviations

GLOSSARY OF AVIATION TERMS

The following glossary of aviation terms was compiled from a variety of aviation industry sources.

Above Ground Level (AGL) – As measured above the ground; used to identify heights of built items (towers, etc.) on aeronautical charts in terms of absolute height above the ground.

Accelerate Stop Distance Available (ASDA) – The length of the takeoff run available plus the length of a stopway, when available.

Agricultural Aviation – The use of fixed-wing or rotor-wing aircraft in the aerial application of agricultural products (i.e., fertilizers, pesticides, etc.).

Air Cargo – All commercial air express and air freight with the exception of airmail and parcel post.

Air Carrier/Airline – All regularly scheduled airline activity performed by airlines certificated in accordance with Federal Aviation Regulations (FAR Part 121).

Air Taxi – Operations of aircraft "for hire" for specific trips, commonly referred to an aircraft available for charter (FAR Part 135).

Aircraft Approach Category – Grouping of aircraft based on the speed they are traveling when configured for landing (typically 1.3 times the aircraft stall speed in landing configuration). As a rule of thumb, slower approach speeds mean smaller airport dimensions and faster approach speeds require larger dimensions. The aircraft approach categories are:

Category A - Speed less than 91 knots;

Category B - Speed 91 knots or more but less than 121 knots

Category C - Speed 121 knots or more but less than 141 knots

Category D - Speed 141 knots or more but less than 166 knots

Category E - Speed 166 knots or more

Aircraft Holding Area – An area typically located adjacent to a taxiway and runway end designed to accommodate aircraft prior to departure (for pre–takeoff engine checks, instrument flight plan clearances, etc.). Per FAA design standards, aircraft holding areas should be located outside the runway safety area (RSA) and obstacle free zone (OFZ) and aircraft located in the holding area should not interfere with normal taxiway use (taxiway object free area). Sometimes referred to as holding bays or "elephant ear." Smaller areas (aircraft turnarounds) are used to facilitate aircraft movement on runways without exit taxiways or where back-taxiing is required.

Aircraft Operation – A landing or takeoff is one operation. An aircraft that takes off and then lands creates two aircraft operations.

Aircraft Owners and Pilots Association (AOPA) – A general aviation organization.

Aircraft Parking Line (APL) – A setback depicted on an ALP or other drawings that defines the minimum separation between aircraft parking areas and an adjacent runway or taxiway. The APL dimension reflects runway and taxiway clearances (object free area, etc.) and FAR Part 77 airspace surface clearance (transitional surface penetrations) for parked aircraft. Typically the tail height of the parked aircraft is used to determine adequate clearance for the transitional surface.

Airplane Design Group – A grouping of airplanes based on wingspan and tail height. As with Approach Category, the wider the wingspan, the bigger the aircraft is, the more room it takes up for operating on an airport. The Airplane Design Groups are:

Group I:	Up to but not including 49 feet or tail height up to but not including 20 feet.
Group II:	49 feet up to but not including 79 feet or tail height from 20 up to but not including 30 feet.
Group III:	79 feet up to but not including 118 feet or tail height from 30 up to but not including 45 feet.
Group IV:	118 feet up to but not including 171 feet or tail height from 45 up to but not including 60 feet.
Group V:	171 feet up to but not including 214 feet or tail height from 60 up to but not including 66 feet.
Group VI:	214 feet up to but not including 262 feet or tail height from 66 up to but not including 80 feet.

Airport - A landing area regularly used by aircraft for receiving or discharging passengers or cargo, including heliports and seaplane bases.

Airport Beacon (also Rotating Beacon) – A visual navigational aid that displays alternating green and white flashes for a lighted land airport and white for an unlighted land airport.

GLOSSARY OF AVIATION TERMS

Airports District Office (ADO) – The local" office of the FAA that coordinates planning and construction projects. The Seattle ADO is responsible for airports located in Washington, Oregon, and Idaho.

Airport Improvement Program (AIP) – The funding program administered by the Federal Aviation Administration (FAA) with user fees which are dedicated to improvement of the national airport system. This program currently provides 95% of funding for eligible airport improvement projects. The local sponsor of the project (i.e., airport owner) provides the remaining 5% known as the "match."

Airport Layout Plan (ALP) – The FAA approved drawing which shows the existing and anticipated layout of an airport for the next 20 years. An ALP is prepared using FAA design standards. Future development projects must be consistent with the ALP to be eligible for FAA funding. ALP drawings are typically updated every 7 to 10 years to reflect significant changes, or as needed.

Airport Reference Code (ARC) – An FAA airport coding system that is defined based on the critical or design aircraft for an airport or individual runway. The ARC is an alpha-numeric code based on aircraft approach speed and airplane wingspan (see definitions in glossary). The ARC is used to determine the appropriate design standards for runways, taxiways, and other associated facilities. An airport designed to accommodate a Piper Cub (an A-I aircraft) requires less room than an airport designed to accommodate a Boeing 747 (a D-V aircraft).

Airport Reference Point (ARP) – The approximate mid-point of an airfield that is designated as the official airport location.

Aircraft Rescue and Fire Fighting (ARFF) – On airport emergency response required for certificated commercial service airports (see FAR Part 139).

Airside – The portion of an airport that includes aircraft movement areas (runways, taxiways, etc.)

Airspace – The area above the ground in which aircraft travel. It is divided into enroute and terminal airspace, with corridors, routes, and restricted zones established for the control and safety of air traffic.

Alternate Airport – An airport that is available for landing when the intended airport becomes unavailable. Required for instrument flight planning in the event that weather conditions at destination airport fall below approach minimums (cloud ceiling or visibility).

Annual Service Volume (ASV) – An estimate of how many aircraft operations an airport can handle based upon the number, type and configuration of runways, aircraft mix (large vs. small, etc.), instrumentation, and weather conditions with a "reasonable" amount of delay. ASV is a primary planning standard used to determine when a runway (or an airport) is nearing its capacity, and may require new runways or taxiways. As operations levels approach ASV, the amount of delay per operation increases; once ASV is exceeded, "excessive" delay generally exists.

Approach End of Runway - The end of the runway used for landing. Pilots generally land into the wind and choose a runway end that best aligns with the wind.

Approach Light System (ALS) – Configurations of lights positioned symmetrically beyond the runway threshold and the extended runway centerline. The ALS visually augments the electronic navigational aids for the runway.

Approach Reference Code (APRC) – The APRC is composed of three components: AAC, ADG, and visibility minimums. Visibility minimums are expressed as Runway Visual Range (RVR) values in feet of 1600, 2400, 4000, and 5000 (nominally corresponding to lower than 1/2 mile, lower than 3/4 mile but not lower than 1/2 mile, not lower than 3/4 mile, and not lower than one mile, respectively).

Approach Surface (Also FAR Part 77 Approach) – An imaginary (invisible) surface that rises and extends from the ends of a runway to provide an unobstructed path for aircraft to land or take off. The size and slope of the approach surface vary depending upon the size of aircraft that are accommodated and the approach capabilities (visual or instrument).

Apron - An area on an airport designated for the parking, loading, fueling, or servicing of aircraft (also referred to as tarmac and ramp).

Aqueous Film Forming Foam (AFFF) – A primary fire- fighting agent that is used to create a blanket that smothers flame or prevents ignition (fuel spills, etc.). AFFF is also used to foam runways during emergency landings.

Asphalt or Asphaltic Concrete (AC) – Flexible oil-based pavement used for airfield facilities (runways, taxiways, aircraft parking apron, etc.); also commonly used for road construction.

GLOSSARY OF AVIATION TERMS

Automated Surface Observation System (ASOS) and Automated Weather Observation System (AWOS) – Automated observation systems providing continuous on-site weather data, designed to support aviation activities and weather forecasting.

AVGAS – Highly refined gasoline used in airplanes with piston engines. The current grade of AVGAS available is 100 Octane Low Lead (100LL).

Avigation Easement – A grant of property interest (airspace) over land to ensure unobstructed flight. Typically acquired by airport owners to protect the integrity of runway approaches. Restrictions typically include maximum height limitations for natural (trees, etc.) or built items, but may also address permitted land uses by the owner of the underlying land that are compatible with airport operations.

Back-Taxiing – The practice of aircraft taxiing on a runway before takeoff or after landing, normally, in the opposite direction of the runway's traffic pattern. Back-taxiing is generally required on runways without taxiway access to both runway ends.

Based Aircraft – Aircraft permanently stationed at an airport usually through some form of agreement with the airport owner. Used as a measure of activity at an airport.

Capacity – A measure of the maximum number of aircraft operations that can be accommodated on the runways of an airport in an hour.

Ceiling – The height above the ground or water to base of the lowest cloud layers covering more than 50 percent of the sky.

Charter – Operations of aircraft "for hire" for specific trips, commonly referred to an aircraft available for charter.

Circle to Land or Circling Approach – An instrument approach procedure that allows pilots to "circle" the airfield to land on any authorized runway once visual contact with the runway environment is established and maintained throughout the procedure.

Commercial Service Airport – An airport designed and constructed to serve scheduled or unscheduled commercial airlines. Commercial service airports are certified under FAR Part 139.

Common Traffic Advisory Frequency (CTAF) – A frequency used by pilots to communicate and obtain airport advisories at an uncontrolled airport.

Complimentary Fire Extinguishing Agent – Fire extinguishing agents that provide rapid fire suppression, which may be used in conjunction with principal agents (e.g., foam). Examples include sodium-based and potassium-based dry chemicals, Halocarbons, and Carbon dioxide. Also recommended for electrical and metal fires where water-based foams are not used. Complimentary agents are paired with principal agents based on their compatibility of use.

Conical Surface – One of the FAR Part 77 "Imaginary" Surfaces. The conical surface extends outward and upward from the edge of the horizontal surface at a slope of 20:1 to a horizontal distance of 4,000 feet.

Controlling Obstruction – The highest obstruction relative to a defined plane of airspace (i.e., approach surface, etc.).

Critical Aircraft – Aircraft which controls one or more design items based on wingspan, approach speed and/or maximum certificated take-off weight. The same aircraft may not be critical to all design items (i.e., runway length, pavement strength, etc.). Also referred to as "design aircraft."

Crosswind – Wind direction that is not parallel to the runway or the path of an aircraft.

Crosswind Runway – An additional runway (secondary, tertiary, etc.) that provides wind coverage not adequately provided by the primary runway. Crosswind runways are generally eligible for FAA funding when a primary runway accommodates less than 95 percent of documented wind conditions (see wind rose).

Decision Height (DH) – For precision instrument approaches, the height (typically in feet or meters above runway end touchdown zone elevation) at which a decision to land or execute a missed approach must be made by the pilot.

Declared Distances – The distances the airport owner declares available for airplane operations (e.g., takeoff run, takeoff distance, accelerate-stop distance, and landing distance). In cases where runways meet all FAA design criteria without modification, declared distances equal the total runway length. In cases where any declared distances are less than full runway length, the dimension should be published in the FAA Airport/Facility Directory (A/FD).

Departure Reference Code (DPRC) – The DPRC represents aircraft that can take off from a runway while any aircraft are present on adjacent taxiways, under particular meteorological conditions with no special operational procedures necessary.

GLOSSARY OF AVIATION TERMS

Departure Surface – A surface that extends upward from the departure end of an instrument runway that should be free of any obstacle penetrations. For instrument runways other than air carrier, the slope is 40:1, extending 10,200 feet from the runway end. Air carrier runways have a similar surface designed for one-engine inoperative conditions with a slope of 62.5: 1.

Design Aircraft – Aircraft which controls one or more design items based on wingspan, approach speed and/or maximum certificated takeoff weight. The same aircraft may not represent the design aircraft for all design items (i.e., runway length, pavement strength, etc.). Also referred to as "critical aircraft."

Displaced Threshold – A landing threshold located at a point other than on the runway end, usually provided to mitigate close-in obstructions to runway approaches for landing aircraft. The area between the runway end and the displaced threshold accommodates aircraft taxi and takeoff, but not landing.

Distance Measuring Equipment (DME) – Equipment that provides electronic distance information to enroute or approaching aircraft from a land-based transponder that sends and receives pulses of fixed duration and separation. The ground stations are typically co-located with VORs, but they can also be co-located with an ILS.

Distance Remaining Signs – Airfield signs that indicate to pilots the amount of useable runway remaining in 1,000-foot increments. The signs are located along the side of the runway, visible for each direction of runway operation.

DNL – Day-night sound levels, a mathematical method of measuring noise exposure based on cumulative, rather than single event impacts. Night time operations (10pm to 7AM) are assessed a noise penalty to reflect the increased noise sensitivity that exists during normal hours of rest. Previously referred to as Ldn.

Easement – An agreement that provides use or access of land or airspace (see avigation easement) in exchange for compensation.

Enplanements – Domestic, territorial, and international revenue passengers who board an aircraft in the states in scheduled and non-scheduled service of aircraft in intrastate, interstate, and foreign commerce and includes intransit passengers (passengers on board international flights that transit an airport in the US for non-traffic purposes).

Entitlements – Distribution of Airport Improvement Plan (AIP) funds by FAA from the Airport & Airways Trust Fund to commercial service airport sponsors based on passenger enplanements or cargo volumes and smaller fixed amounts for general aviation airports (Non-Primary Entitlements).

Experimental Aircraft – See homebuilt aircraft.

Federal Aviation Administration (FAA) – The FAA is the branch of the U.S. Department of Transportation that is responsible for the development of airports and air navigation systems.

FAR Part 77 – Federal Air Regulations (FAR) which establish standards for determining obstructions in navigable airspace and defines imaginary (airspace) surfaces for airports and heliports that are designed to prevent hazards to air navigation. FAR Part 77 surfaces include approach, primary, transitional, horizontal, and conical surfaces. The dimensions of surfaces can vary with the runway classification (large or small airplanes) and approach type of each runway end (visual, non-precision instrument, precision instrument). The slope of an approach surface also varies by approach type and runway classification. FAR Part 77 also applies to helicopter landing areas.

FAR Part 139 – Federal Aviation Regulations which establish standards for airports with scheduled passenger commercial air service. Airports accommodating scheduled passenger service with aircraft more than 9 passenger seats must be certified as a "Part 139" airport. Airports that are not certified under Part 139 may accommodate scheduled commercial passenger service with aircraft having 9 passenger seats or less.

Final Approach Fix (FAF) – The fix (location) from which the final instrument approach to an airport is executed; also identifies beginning of final approach segment.

Final Approach Point (FAP) – For non-precision instrument approaches, the point at which an aircraft is established inbound for the approach and where the final descent may begin.

Fixed Base Operator (FBO) – An individual or company located at an airport providing aviation services. Sometimes further defined as a "full service" FBO or a limited service. Full service FBOs typically provide a broad range of services (flight instruction, aircraft rental, charter, fueling, repair, etc.) where a limited service FBO provides only one or two services (such as fueling, flight instruction or repair).

Fixed Wing – A plane with one or more "fixed wings," as opposed to a helicopter that utilizes a rotary wing.

GLOSSARY OF AVIATION TERMS

Flexible Pavement – Typically constructed with an asphalt surface course and one or more layers of base and subbase courses that rest on a subgrade layer.

Flight Service Station (**FSS)** – FAA or contracted service for pilots to contact (on the ground or in the air) to get weather and airport information. Flight plans are also filed with the FSS.

General Aviation (GA) – All civil (non-military) aviation operations other than scheduled air services and non-scheduled air transport operations for hire.

Glide Slope (GS) – For precision instrument approaches, such as an instrument landing system (ILS), the component that provides electronic vertical guidance to aircraft.

Global Positioning System (GPS) – GPS is a system of navigating which uses multiple satellites to establish the location and altitude of an aircraft with a high degree of accuracy. GPS supports both enroute flight and instrument approach procedures.

Helicopter Landing Pad (Helipad) – A designated landing area for rotor wing aircraft. Requires protected FAR Part 77 imaginary surfaces, as defined for heliports (FAR Part 77.29).

Helicopter Parking Area – A designated area for rotor wing aircraft parking that is typically accessed via hover-taxi or ground taxiing from a designated landing area (e.g., helipad or runway-taxiway system). If not used as a designated landing area, helicopter parking pads do not require dedicated FAR Part 77 imaginary surfaces.

Heliport – A designated helicopter landing facility (as defined by FAR Part 77).

Height Above Airport (HAA) – The height of the published minimum descent altitude (MDA) above the published airport elevation. This is normally published in conjunction with circling minimums.

High Intensity Runway Lights (HIRL) – High intensity (i.e., very bright) lights are used on instrument runways to help pilots to see the runway when visibility is poor.

High Speed (Taxiway) Exit – An acute-angled exit taxiway extending from a runway to an adjacent parallel taxiway which allows landing aircraft to exit the runway at a higher rate of speed than is possible with standard (90-degree) exit taxiways.

Hold Line (Aircraft Hold Line) – Pavement markings located on taxiways that connect to runways, indicating where aircraft should stop before entering runway environment. At controlled airports, air traffic control clearance is required to proceed beyond a hold line. At uncontrolled airports, pilots are responsible for ensuring that a runway is clear prior to accessing for takeoff.

Hold/Holding Procedure – A defined maneuver in controlled airspace that allows aircraft to circle above a fixed point (often over a navigational aid or GPS waypoint) and altitude while awaiting further clearance from air traffic control.

Home Built Aircraft - An aircraft built by an amateur from a kit or specific design (not an FAA certified factory built aircraft). The aircraft built under the supervision of an FAA-licensed mechanic and are certified by FAA as "Experimental."

Horizontal Surface - One of the FAR Part 77 Imaginary (invisible) Surfaces. The horizontal surface is an imaginary flat surface 150 feet above the established airport elevation (typically the highest point on the airfield). Its perimeter is constructed by swinging arcs (circles) from each runway end and connecting the arcs with straight lines. The oval-shaped horizontal surface connects to other Part 77 surfaces extending upward from the runway and also beyond its perimeter.

Initial Approach Point/Fix (IAP/IAF) – For instrument approaches, a designated point where an aircraft may begin the approach procedure.

Instrument Approach Procedure (IAP) – A series of defined maneuvers designed to enable the safe transition between enroute instrument flight and landing under instrument flight conditions at a particular airport or heliport. IAPs define specific requirements for aircraft altitude, course, and missed approach procedures. See precision or non-precision instrument approach.

Instrument Flight Rules (IFR) – IFR refers to the set of rules pilots must follow when they are flying in bad weather. Pilots are required to follow these rules when operating in controlled airspace with visibility (ability to see in front of themselves) of less than three miles and/or ceiling (a layer of clouds) lower than 1,000 feet.

Instrument Landing System (ILS) – An ILS is an electronic navigational aid system that guides aircraft for a landing in bad weather. Classified as a precision instrument approach, it is designed to provide a precise approach path for course alignment and vertical descent of aircraft. Generally consists of a localizer, glide slope, outer marker, and middle marker. ILS runways are generally equipped with an approach lighting system (ALS) to maximize approach capabilities. A Category I ILS allows aircraft to descend as low as 200 feet above runway elevation with ½ mile visibility.

GLOSSARY OF AVIATION TERMS

Instrument Meteorological Conditions (IMC) – Meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling less than minima specified for visual meteorological conditions.

Instrument Runway – A runway equipped with electronic navigational aids that accommodate straight-in precision or non-precision instrument approaches.

Itinerant Operation – All aircraft operations at an airport other than local, i.e., flights that come in from another airport.

Jet Fuel – Highly refined grade of kerosene used by turbine engine aircraft. Jet-A is currently the common commercial grade of jet fuel.

Knot (Nautical Mile) – one nautical mile = 1.152 statute miles.

Landing Area – That part of the movement area intended for the landing and takeoff of aircraft.

Landing Distance Available (LDA) – The length of runway which is available and suitable for the ground run of an airplane landing.

Landside – The portion of an airport that includes aircraft parking areas, fueling, hangars, airport terminal area facilities, vehicle parking and other associated facilities.

Larger than Utility Runway – As defined under FAR Part 77, a runway designed and constructed to serve large planes (aircraft with maximum takeoff weights greater than 12,500 pounds).

Ldn – Noise measurement metric (see DNL)

Left Traffic – A term used to describe which side of a runway the airport traffic pattern is located. Left traffic indicates that the runway will be to the pilot's left when in the traffic pattern. Left traffic is standard unless otherwise noted in facility directories at a particular airport.

Large Aircraft – An aircraft with a maximum takeoff weight more than 12,500 lbs.

Light Sport Aircraft (LSA) – A basic aircraft certified by FAA that can be flown by pilots with limited flight training (Sport Pilot certificates), but also provide lower cost access to basic aircraft for all pilot levels. LSA design limits include maximum a gross takeoff weight of 1,320 pounds (land planes) and a maximum of two seats.

Local Area Augmentation System (LAAS) – GPS-based instrument approach that utilizes ground-based systems to augment satellite coverage to provide vertical (glideslope) and horizontal (course) guidance.

Local Operation – Aircraft operation in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.

Localizer – The component of an instrument landing system (ILS) that provides electronic lateral (course) guidance to aircraft. Also used to support non-precision localizer approaches.

LORAN C – A navigation system using land based radio signals, which indicates position and ground speed, but not elevation. (See GPS)

Localizer Performance with Vertical Guidance (LPV) – Satellite navigation (SATNAV) based GPS approaches providing "near category I" precision approach capabilities with course and vertical guidance. LPV approaches are expected to eventually replace traditional step- down, VOR and NDB procedures by providing a constant, ILS glideslope-like descent path. LPV approaches use high-accuracy WAAS signals, which allow narrower glideslope and approach centerline obstacle clearance areas.

Magnetic Declination – Also called magnetic variation, is the angle between magnetic north and true north. Declination is considered positive east of true north and negative when west. Magnetic declination changes over time and with location. Runway end numbers, which reflect the magnetic heading/alignment (within 5 degrees +/-) occasionally require change due to declination.

MALSR – **M**edium-intensity **A**pproach **L**ighting **S**ystem with **R**unway alignment indicator lights. An approach lighting system (ALS) which provides visual guidance to landing aircraft.

Medevac – Fixed wing or rotor-wing aircraft used to transport critical medical patients. These aircraft are equipped to provide life support during transport.

Medium Intensity Runway Lights (MIRL) – Runway edge lights which are not as intense as HIRLs (high intensity runway lights). Typical at medium and smaller airports which do not have sophisticated instrument landing systems.

GLOSSARY OF AVIATION TERMS

Microwave Landing System (MLS) – An instrument landing system operating in the microwave spectrum, which provides lateral and vertical guidance to aircraft with compatible equipment. Originally developed as the "next-generation" replacement for the ILS, the FAA discontinued the MLS program in favor of GPS-based systems.

Minimum Descent Altitude (MDA) – The lowest altitude in a non-precision instrument approach that an aircraft may descend without establishing visual contact with the runway or airport environment.

Minimums – Weather condition requirements established for a particular operation or type of operation.

Missed Approach Procedure – A prescribed maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. Usually requires aircraft to climb from the airport environment to a specific holding location where another approach can be executed or the aircraft can divert to another airport.

Missed Approach Point (MAP) – The defined location in a non-precision instrument approach where the procedure must be terminated if the pilot has not visually established the runway or airport environment.

Movement Area – The runways, taxiways and other areas of the airport used for taxiing, takeoff and landing of aircraft, i.e., for aircraft movement.

MSL - Elevation above Mean Sea Level.

National Plan of Integrated Airport Systems (NPIAS) – The NPIAS is the federal airport classification system that includes public use airports that meet specific eligibility and activity criteria. A "NPIAS designation" is required for an airport to be eligible to receive FAA funding for airport projects.

Navigational Aid (Navaid) – Any visual or electronic device that helps a pilot navigate. Can be for use to land at an airport or for traveling from point A to point B.

Noise Contours – Continuous lines of equal noise level usually drawn around a noise source, such as runway, highway or railway. The lines are generally plotted in 5-decibel increments, with higher noise levels located nearer the noise source, and lesser exposure levels extending away from the source.

Non-Directional Beacon (NDB) – Non-Directional Beacon which transmits a signal on which a pilot may "home" using equipment installed in the aircraft.

Non-Precision Instrument (NPI) Approach - A non-precision instrument approach provides horizontal (course) guidance to pilots for landing. NPI approaches often involve a series of "step down" sequences where aircraft descend in increments (based on terrain clearance), rather than following a continuous glide path. The pilot is responsible for maintaining altitude control between approach segments since no "vertical" guidance is provided.

Obstacle Clearance Surface (OCS) – As defined by FAA, an approach surface that is used in conjunction with alternative threshold siting/clearing criteria to mitigate obstructions within runway approach surfaces. Dimensions, slope and placement depend on runway type and approach capabilities. Also known as Obstacle Clearance Approach (OCA).

Obstruction – An object (tree, house, road, phone pole, etc.) that penetrates an imaginary surface described in FAR Part 77.

Obstruction Chart (OC) – A chart that depicts surveyed obstructions that penetrate a FAR Part 77 imaginary surface surrounding an airport. OC charts are developed by the National Ocean Service (NOS) based on a comprehensive survey that provides detailed location (latitude/longitude coordinates) and elevation data in addition to critical airfield data.

Parallel Taxiway – A taxiway that is aligned parallel to a runway, with connecting taxiways to allow efficient movement of aircraft between the runway and taxiway. The parallel taxiway effectively separates taxiing aircraft from arriving and departing aircraft located on the runway. Used to increase runway capacity and improve safety.

Passenger Facility Charge (PFC) – A user fee charged by commercial service airports for enplaning passengers. Airports must apply to the FAA and meet certain requirements in order to impose a PFC.

Pavement Condition Index (PCI) – A scale of 0-100 that is used to rate airfield pavements ranging from failed to excellent based on visual inspection. Future PCIs can be predicted based on pavement type, age, condition and use as part of a pavement maintenance program.

Pavement Strength or Weight Bearing Capacity – The design limits of airfield pavement expressed in maximum aircraft weight for specific and landing gear configurations (i.e., single wheel, dual wheel, etc.) Small general aviation airport pavements are typically designed to accommodate aircraft weighing up to 12,500 pounds with a single-wheel landing gear.

GLOSSARY OF AVIATION TERMS

Portland Cement Concrete (PCC) – Rigid pavement used for airfield facilities (runways, taxiways, aircraft parking, helipads, etc.).

Precision Approach Path Indicator (PAPI) – A system of lights located by the approach end of a runway that provides visual approach slope guidance to aircraft during approach to landing. The lights typically show green if a pilot is on the correct flight path, and turn red of a pilot is too low.

Precision Instrument Runway (PIR) – A runway equipped with a "precision" instrument approach (descent and course guidance), which allows aircraft to land in bad weather.

Precision Instrument Approach – An instrument approach that provides electronic lateral (course) and vertical (descent) guidance to a runway end. A non-precision instrument approach typically provides only course guidance and the pilot is responsible for managing defined altitude assignments at designated points within the approach.

Primary Runway – That runway which provides the best wind coverage, etc., and receives the most usage at the airport.

Primary Surface – One of the FAR Part 77 Imaginary Surfaces, the primary surface is centered on top of the runway and extends 200 feet beyond each end. The width is from 250' to 1,000' wide depending upon the type of airplanes using the runway.

Principal Fire Extinguishing Agent – Fire extinguishing agents that provide permanent control of fire through a fire-smothering foam blanket. Examples include protein foam, aqueous film forming foam and fluoroprotein foam.

Procedure Turn (PT) – A maneuver in which a turn is made away from a designated track followed by a turn in an opposite direction to permit an aircraft to intercept the track in the opposite direction (usually inbound).

Area Navigation (RNAV) – is a method of instrument flight navigation that allows an aircraft to choose a course within a network of navigation beacons rather than navigating directly to and from the beacons. Originally developed in the 1960, RNAV elements are now being integrated into GPS-based navigation.

Relocated Threshold – A runway threshold (takeoff and landing point) that is located at a point other than the (original) runway end. Usually provided to mitigate nonstandard runway safety area (RSA) dimensions beyond a runway end. When a runway threshold is relocated, the published length of the runway is reduced and the pavement between the relocated threshold and to the original end of the runway is not available for aircraft takeoff or landing. This pavement is typically marked as taxiway, marked as unusable, or is removed.

Required Navigation Performance (RNP) – A type of performance-based navigation system that that allows an aircraft to fly a specific path between two 3-dimensionally defined points in space. RNP approaches require on-board performance monitoring and alerting. RNP also refers to the level of performance required for a specific procedure or a specific block of airspace. For example, an RNP of .3 means the aircraft navigation system must be able to calculate its position to within a circle with a radius of 3 tenths of a nautical mile. RNP approaches have been designed with RNP values down to .1, which allow aircraft to follow precise 3 dimensional curved flight paths through congested airspace, around noise sensitive areas, or through difficult terrain.

Rigid Pavement – Typically constructed of Portland cement concrete (PCC), consisting of a slab placed on a prepared layer of imported materials.

Rotorcraft – A helicopter.

Runway – A defined area intended to accommodate aircraft takeoff and landing. Runways may be paved (asphalt or concrete) or unpaved (gravel, turf, dirt, etc.), depending on use. Water runways are defined takeoff and landing areas for use by seaplanes.

Runway Bearing – The angle of a runway centerline expressed in degrees (east or west) relative to true north.

Runway Design Code (RDC) – The RDC is comprised of the AAC, ADG, and approach visibility minimums of a particular runway. The RDC provides the information needed to determine applicable design standards. The AAC is based on aircraft approach speed. The ADG is based on either the aircraft wingspan or tail height; (whichever is most restrictive) of the largest aircraft expected to operate on the runway and taxiways adjacent to the runway. The approach visibility minimums represent RVR values in feet of 1,200, 1,600, 2,400, 4,000, and 5,000 (corresponding to lower than 1/4 mile, lower than 1/2 mile but not lower than 1/4 mile, lower than 3/4 mile but not lower than 1/2 mile, lower than 1 mile but not lower than 3/4 mile, and not lower than 1 mile, respectively).

Runway Designation Numbers – Numbers painted on the ends of a runway indicating runway orientation (in degrees) relative to magnetic north. "20" = 200 degrees magnetic, which means that the final approach for Runway 20 is approximately 200 degrees (+/- 5 degrees).

GLOSSARY OF AVIATION TERMS

Runway End Identifier Lights (**REILs)** – Two high-intensity sequenced strobe lights that help pilots identify a runway end during landing in darkness or poor visibility.

Runway Object Free Area (OFA) – A defined area surrounding a runway that should be free of any obstructions that could in interfere with aircraft operations. The dimensions for the OFA increase for runways accommodating larger or faster aircraft.

Runway Protection Zone (RPZ) – A trapezoid-shaped area located beyond the end of a runway that is intended to be clear of people or built items. The geometry of the RPZ often coincides with the inner portion of the runway approach surface. However, unlike the approach surface, the RPZ is a defined area on the ground that does not have a vertical slope component for obstruction clearance. The size of the RPZ increases as runway approach capabilities or aircraft approach speeds increase. Previously defined as "clear zone."

Runway Safety Area (RSA) – A symmetrical ground area extending along the sides and beyond the ends of a runway that is intended to accommodate inadvertent aircraft passage without causing damage. The dimensions for the RSA increase for runways accommodating larger or faster aircraft. FAA standards include surface condition (compaction, etc.) and absence of obstructions. Any items that must be located within an RSA because of their function (runway lights, airfield signage, wind cones, etc.) must be frangible (breakable) to avoid significant aircraft damage.

Segmented Circle – A system of visual indicators designed to show a pilot in the air the direction of the traffic pattern at that airport.

Small Aircraft – An aircraft that weighs 12,500 lbs. or less.

Straight-In Approach – An instrument approach that directs aircraft to a specific runway end.

Statute Mile – 5,280 feet (a nautical mile = 6,080 feet)

Stop and Go – An aircraft operation where the aircraft lands and comes to a full stop on the runway before takeoff is initiated.

T-Hangar – A rectangular aircraft storage hangar with several interlocking "T" units that minimizes - building per storage unit. Usually two-sided with either bi-fold or sliding doors.

Takeoff Distance Available (TODA) – the length of the takeoff run available plus the length of clearway, if available.

Takeoff Run Available (TORA) – the length of runway available and suitable for the ground run of aircraft when taking off.

Taxilane – A defined path used by aircraft to move within aircraft parking apron, hangar areas and other landside facilities.

Taxiway – A defined path used by aircraft to move from one point to another on an airport.

Threshold – The beginning of that portion of a runway that is useable for landing.

Taxiway Design Group (TDG) – The TDG is based on the undercarriage dimensions of the aircraft. TDG is used to determine taxiway/taxilane width and fillet standards, and in some instances, runway to taxiway and taxiway/taxilane separation requirements.

Threshold Lights – Components of runway edge lighting system located at the ends of runways and at displaced thresholds. Threshold lights typically have split lenses (green/red) that identify the beginning and ends of usable runway.

Through-the-Fence – Term used to describe how off-airport aviation users (private airparks, hangars, etc.) access an airport "through-the-fence," rather than having facilities located on airport property.

Tiedown – A place where an aircraft is parked and "tied down." Surface can be grass, gravel or paved. Tiedown anchors may be permanently installed or temporary.

Touch and Go – An aircraft operation involving a landing followed by a takeoff without the aircraft coming to a full stop or exiting the runway.

Traffic Pattern – The flow of traffic that is prescribed for aircraft landing and taking off from an airport. Traffic patterns are typically rectangular in shape, with upwind, crosswind, base and downwind legs and a final approach surrounding a runway.

Traffic Pattern Altitude – The established altitude for a runway traffic pattern, typically 800 to 1,000 feet above ground level (AGL).

Transitional Surfaces – One of the FAR Part 77 Imaginary Surfaces, the transitional surface extend outward and upward at right angles to the runway centerline and the extended runway centerline at a slope of 7:1 from the sides of the primary surface and from the sides of the approach surfaces.

GLOSSARY OF AVIATION TERMS

Universal Communications (UNICOM) – Is an air-ground communication facility operated by a private agency to provide advisory service at uncontrolled airports.

Utility Runway – As defined under FAR Part 77, a runway designed and constructed to serve small planes (aircraft with maximum takeoff weights of 12,500 pounds or less).

Vertical Navigation (VNAV) – Vertical navigation descent data or descent path, typically associated with published GPS instrument approaches. The use of any VNAV approach technique requires operator approval, certified VNAV-capable avionics, and flight crew training.

VOR - Very High Frequency Omnidirectional Range – A ground based electronic navigational aid that transmits radials in all directions in the VHF frequency spectrum. The VOR provides azimuth guidance to aircraft by reception of radio signals.

VORTAC – VOR collocated with ultra high frequency tactical air navigation (TACAN)

Visual Approach Slope Indicator (VASI) – A system of lights located by the approach end of a runway which provides visual approach slope guidance to aircraft during approach to landing. The lights typically show some combination of green and white if a pilot is on the correct flight path, and turn red of a pilot is too low.

Visual Flight Rules (VFR) – Rules that govern the procedures to conducting flight under visual conditions. The term is also used in the US to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

Visual Guidance Indicator (VGI) – Equipment designed to provide visual guidance for pilots for landing through the use of different color light beams. Visual Approach Slope Indicators (VASI) and Precision Approach Path Indicators (PAPI) defined above are examples.

Waypoint – A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation.

Wide Area Augmentation System (WAAS) – GPS-based instrument approach that can provide both vertical (glideslope) and horizontal (course) guidance. WAAS-GPS approaches are able to provide approach minimums nearly comparable to a Category I Instrument Landing System (ILS).

Wind Rose – A diagram that depicts observed wind data direction and speed on a 360-degree compass rose. Existing or planned proposed runway alignments are overlain to determine wind coverage levels based on the crosswind limits of the design aircraft.

Wind Cone – A device located near landing areas used by pilots to verify wind direction and velocity. Usually manufactured with brightly colored fabric and may be lighted for nighttime visibility. Also referred to as “wind sock.”

LIST OF ABBREVIATIONS

AC – Advisory Circular

AC – Asphaltic Concrete

ACM – Airport Certification Manual

ADG – Airplane Design Group

ADO – Airport District Office

AGL – Above Ground Level

AIP – Airport Improvement Program

ALP – Airport Layout Plan

ALS – Approach Lighting System

AOA – Airport Operations Area

APL – Aircraft Parking Line

APRC – Approach Reference Code

ARC – Airport Reference Code

ARFF – Aircraft Rescue and Fire Fighting

ARP - Airport Reference Point

ASDA – Accelerate-Stop Distance Available

ASV – Annual Service Volume

ATC –Air Traffic Control

ATCT – Airport Traffic Control Tower

ASOS – Automated Surface Observation System

AWOS – Automated Weather Observation System

BRL – Building Restriction Line

CFR – Code of Federal Regulations

CTAF – Common Traffic Advisory Frequency

DPRC – Departure Reference Code

DME – Distance Measuring Equipment

FAA – Federal Aviation Administration

FAR – Federal Air Regulation

FBO – Fixed Base Operator

GIS – Geographic Information System

GS – Glide Slope

GPS – Global Positioning System

HIRL – High Intensity Runway Lighting

IFR – Instrument Flight Rules

ILS – Instrument Landing System

IMC – Instrument Meteorological Conditions

LDA – Landing Distance Available

LDA - Localizer Directional Aid

LIRL – Low Intensity Runway Lighting

LOC – Localizer

MALSR – Medium Intensity Approach Lighting System (MALS) with Runway Alignment Indicator Lights (RAIL)

MIRL – Medium Intensity Runway Lighting

MITL – Medium Intensity Taxiway Lighting

MTOW – Maximum Takeoff Weight

NAVAID – Navigation Aid

NDB – Non-Directional Beacon

NEPA – National Environmental Policy Act

NGS – National Geodetic Survey

NPIAS – National Plan of Integrated Airport Systems

OCS – Obstacle Clearance Surface

ODALS – Omnidirectional Airport Lighting System

OFA – Object Free Area

OFZ – Obstacle Free Zone

PAPI – Precision Approach Path Indicator

PCC – Portland Cement Concrete

PCI – Pavement Condition Index

PCN – Pavement Condition Number

POFZ – Precision Obstacle Free Zone

RAIL – Runway Alignment Indicator Lights

RDC – Runway Design Code

REIL – Runway End Identifier Lights

RNAV – Area Navigation

ROFA – Runway Object Free Area

ROFZ – Runway Obstacle Free Zone

RPZ – Runway Protection Zone

RSA – Runway Safety Area

RVR – Runway Visual Range

LIST OF ABBREVIATIONS

RVZ – Runway Visibility Zone

TDG – Taxiway Design Group

TSA- Taxiway Safety Area

TSA – Transportation Security Administration

TODA – Takeoff Distance Available

TOFA – Taxiway/Taxilane Object Free Area

TORA – Takeoff Run Available

TSS – Threshold Siting Surface

TVOR – Terminal Very High Frequency Omni-directional Range

UAS – Unmanned Aircraft Systems

UGA – Urban Growth Area

UGB – Urban Growth Boundary

UHF – Ultra-High Frequency

USDA – United States Department of Agriculture

USGS – U.S. Geological Survey

UNICOM – Universal Communications

VASI – Visual Approach Slope Indicator

VFR – Visual Flight Rules

VGI - Visual Guidance Indicators

VOR – Very High Frequency Omni-Directional Range

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