ASHLAND MUNICIPAL AIRPORT

AIRPORT MASTER PLAN

CITY OF ASHLAND, OREGON **JANUARY 2020**

CENTURY WEST ENGINEERING

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Appendix A – Environmental Technical Memorandum

Glossary of Aviation Terms

List of Abbreviations

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Chapter 1

Introduction & Project Overview

Chapter 1 – Introduction and Project Overview

The City of Ashland, in cooperation with the Federal Aviation Administration (FAA), is in the process of updating the Ashland Municipal Airport (FAA airport identifier – S03) Airport Master Plan to address the airport's needs for the next twenty years. The airport master plan will 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 Ashland Municipal Airport - Airport Master Plan is to define the current, short-term, and long-term needs of the airport through a comprehensive evaluation of facilities, existing facilities, site conditions, and current FAA airport planning and design standards. The study addresses elements of local planning (land use, transportation, environmental, economic development, etc.) that have the potential to affect the planning, development, and operation of the airport. This project updates the 2004 Airport Layout Plan.[1] Since the last airport layout plan was completed, the FAA has identified several areas of emphasis for airports that affect airport planning; including land use compatibility in runway protection zones (RPZ) and airfield design standards compliance.

Project Need

Ashland Municipal Airport is included in the federal airport system—the National Plan of Integrated Airport Systems (NPIAS). Inclusion in the NPIAS is limited to public use airports that meet specific FAA activity thresholds. The FAA requires all NPIAS airports to maintain current planning, with periodic updates of their master plans and airport layout plans (ALP). These updates maintain current planning

[1] Airport Layout Plan – Ashland Municipal Airport (Final Report, October 2005; Century West Engineering Inc., Aron Faegre & Associates, and Gazeley & Associates).

consistent with applicable FAA technical standards, policies, and regulations that change over time, and maintain overall funding eligibility with FAA.

There are currently 3,332 existing NPIAS facilities including airports, heliports, and seaplane bases.[2] The FAA recognizes that NPIAS airports are vital to serving the air transportation needs of the public and that access to the nation's air transportation system is not limited to commercial service airports. The majority of NPIAS airports are designated "Primary" or "Non-primary." The 382 Primary airports provide the majority of commercial air service within the system. The 2,950 Non-primary airports include General Aviation, Reliever, and Non-primary Commercial Service airports (airports that enplane 2,500 to 9,999 annual passengers). Ashland Municipal Airport is designated as a Non-primary General Aviation airport.

NPIAS airports may qualify for federal funding of eligible improvements through FAA programs such as the Airport Improvement Program (AIP). The AIP is a dedicated fund administered by the FAA with the specific purpose of maintaining and improving the nation's public use airports. The AIP is funded exclusively through general aviation and commercial aviation user fees. These funds are only available for use on AIP eligible projects.

Project Funding

Funding for the airport master plan was provided through an FAA Airport Improvement Program (AIP) grant (90%), ODA Critical Oregon Airport Relief (COAR) grant (8%), with local match (2%) provided by the airport sponsor.

Airport Ownership

The City of Ashland is the owner of Ashland Municipal Airport. As the airport owner (sponsor) of record, the City is responsible for conforming to all applicable FAA regulations, design standards, and grant assurances.

[2] 2017-2021 NPIAS Report

History of the Airport and Development[3]

1940s Local pilot Sumner Parker developed and leased an airstrip to the City of Ashland for use as a public airport. The airstrip, which is the current airport site, is located approximately 3 miles from downtown Ashland;

1963 The City established an airport committee and conducted a feasibility study to determine the best location for an airport. The leased airstrip was determined to be the most feasible location. The City then began negotiations to purchase the airstrip. This is the current airport site location;

1964 The FAA approved the airport site and the property was acquired by the City shortly after the approval. Following acquisition by the City, the airport was renamed Ashland Municipal Airport – Sumner Parker Field;

1983 Land acquisition for development, runway extension, construction and rehabilitation of the apron;

1984 Runway and taxiway extension project;

1994 Access road improvements, airport drainage improvements, installed VASIs, apron and taxiway expansion, and airport master plan update;

2004 Installed taxiway lighting and rehabilitated runway lighting;

2007 Installed Super AWOS system and rehabilitated the parking lot;

2010 Rehabilitated runway and installed PAPIs; and

2014 Constructed taxiway to access hangar area.

Study Organization

Work completed during the airport master plan was documented in a series of technical memoranda (presented as draft chapters). These chapters were prepared to document progress in the study, facilitate the review of preliminary results, and obtain input throughout the master planning process. The draft chapters were updated and incorporated into the draft and final airport master plan technical report at the study's conclusion.

The draft chapters and supporting documents were prepared over a period of approximately 18 months. Each draft chapter was reviewed locally, by the FAA, and the Oregon Department of Aviation (ODA) for consistency with federal and state regulations, policies, and standards.

[3] 2004 Ashland Municipal Airport Layout Plan, Century West Engineering Inc., Aron Faegre & Associates, and Gazeley & Associates.

The 2017-2037, Ashland Municipal Airport -Airport Master Plan will include the following chapters:

- *Chapter 1 – Introduction and Project Overview*
- *Chapter 2 – Inventory of Existing Conditions*
- *Chapter 3 – Aviation Activity Forecasts*
- *Chapter 4 – Airport Facility Requirements*
- *Chapter 5 – Airport Development Alternatives*
- *Chapter 6 – Airport Layout Drawings*
- *Chapter 7 – Airport Compatible Land Use Planning*
- *Chapter 8 – Capital Improvement and Implementation Plan*
- *Chapter 9 –Recycling and Solid Waste Management Plan*
- *Appendix – Environmental Technical Memorandum*

Local Citizen Participation

The City of Ashland is committed to an inclusive, transparent planning process and made all project work products available for public review. The public involvement element of the airport master plan provided several ways for all interested individuals, organizations, or groups to participate in the project:

- All draft work products were available for public review and comment. Links to the documents were posted on the City's webpage to allow for convenient access, review, and comment;

- A series of public meetings were held during the project to facilitate public participation including;

    - A local planning advisory committee (PAC) was formed by the City of Ashland to assist the project team in reviewing draft technical working papers and to provide input into the planning process. The composition of the PAC was intended to provide an effective blend of community members, airport commission, and city and county planners. Representatives from the FAA Seattle Airports District Office and ODA served as ex officio members of the PAC. The PAC met periodically during the project, provided review and comment on draft work products, discussed key project issues, and provided local knowledge and expertise to the planning process. The PAC meetings were open to the public.

    - Periodic study sessions and briefings with City staff, project meetings, and open houses were conducted, as required.

Summary

The FAA-defined airport master planning process requires a sequential, systematic approach, which leads to the selection of a preferred airport development option. The preferred development option was then integrated into the ALP and Airport Capital Improvement Program (ACIP). To meet this goal, the airport master plan:

- *Provided an updated assessment of existing facilities and activity;*
- *Forecasted airport activity measures (design aircraft, based aircraft, aircraft operations, etc.) for the current 20-year planning period;*
- *Examined previous planning recommendations (2005 Airport Layout Plan) based on ability to meet current FAA airport design standards and policies;*
- *Determined current and future facility requirements for both demand-driven development and conformance with FAA design standards;*
- *Evaluated airside and landside facility improvement options in the form of development alternatives;*
- *Provided consistency between airport planning and land use planning/zoning to promote maximum compatibility between the airport and surrounding areas;*
- *Prepared an updated Airport Layout Plan (ALP) drawing set to accurately reflect current conditions and master plan facility recommendations; and*
- *Develop an Airport Capital Improvement Program (ACIP) that prioritizes improvements and estimates project development costs and funding eligibility for the 20-year planning period.*

The preparation of this document may have been supported, in part, through the Airport Improvement Program financial assistance from the Federal Aviation Administration 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 with appropriate public laws.

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Chapter 2

Inventory of Existing Conditions

Chapter 2 – Inventory of Existing Conditions

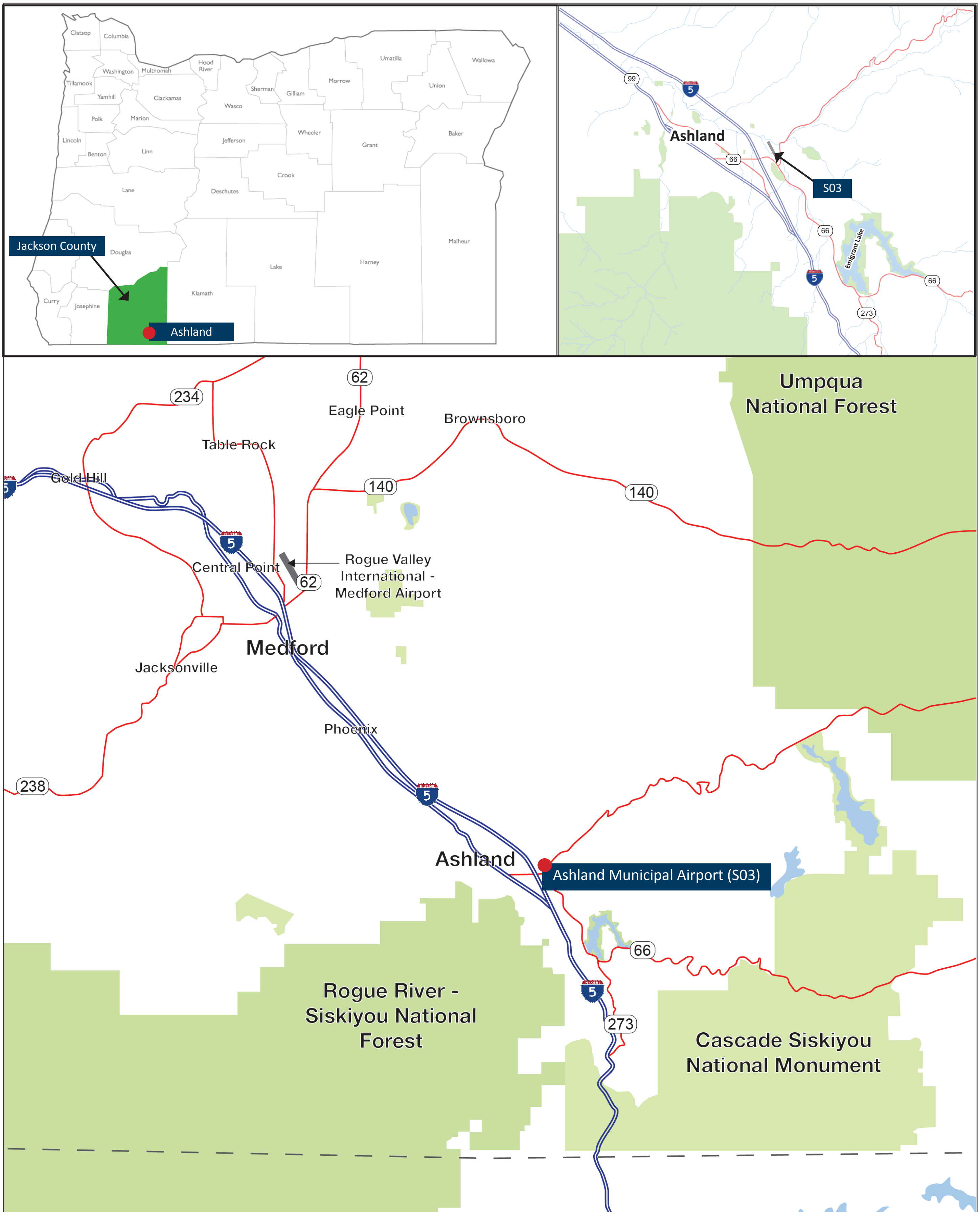
The purpose of this chapter is to document the existing facilities and conditions at Ashland Municipal Airport (Airport Identifier Code: S03).

The inventory section of the Airport Master Plan summarizes existing conditions of the facilities at Ashland Municipal Airport – Sumner Parker Field (S03). The inventory also summarizes other pertinent information relating to the community, airport background, airport role, surrounding environment, various operational parameters and other significant characteristics. The information in this chapter provides a baseline for determining future facility needs at Ashland Municipal Airport. Information was obtained through site visits, consultant research, review of existing documents, and airport management input.

Airport Setting & Geography

Ashland is an incorporated city located in Jackson County, in southwest Oregon. Ashland is located near the south end of the Rogue Valley, adjacent to U.S. Interstate 5 (I-5), the primary north-south interstate highway that extends from Washington to California. Ashland is approximately 13 miles south of Medford and 21 miles north of the Oregon-California border on I-5.

Ashland Municipal Airport is located near the eastern corner of the Ashland city limits and urban growth boundary (UGB), east of I-5. The airport is located at the base of mountainous terrain that forms the eastern side of the valley. The airport is surrounded predominately by unincorporated Jackson County land, with the City of Ashland urban area located to the west. A location and vicinity map is provided in **Figure 2-1**.



LOCATION MAP
FIGURE 2-1

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Climate

Ashland's climate is directly affected by the mountainous terrain that forms each side of the Rogue Valley. The local area has warm, dry summers and cool, moist winters, with moderate amounts of precipitation and snowfall. Historic climatic data[1] for Ashland indicates the average maximum temperature is 86.9 degrees Fahrenheit (July) and the average minimum temperature is 29.7 degrees Fahrenheit (January). Ashland averages 19.43 inches of precipitation and 6.9 inches of snowfall annually. Prevailing winds generally follow the valley contours, which is similar to the alignment of Runway 12/30.

Soils and Geology

The airport site is composed of a combination of sandy loam and clay soils. A review of current soil survey mapping[2] identifies four soil types account for the majority of the airport:

- **31A - Central Point sandy loam (0 to 3 percent slopes)** – The majority of the runway, south apron, and main vehicle parking lot. Primary characteristics: stream terraces, sandy loam and gravely sandy loam, depth to restrictive feature more than 80 inches, well drained, high capacity to transmit water, depth to water table about 48 to 72 inches. About 40 percent of the airport area.

- **27B - Carney clay (1 to 5 percent slopes)** – The majority of the lower and uphill landside development area (Brim Hangar, T-Hangars, FBO). Primary characteristics: alluvial fans, clay and weathered bedrock, depth to restrictive feature 20 to 40 inches (paralithic bedrock), moderately well drained, very low to moderately low capacity to transmit water, depth to water table about 36 to 42 inches. About 28 percent of the airport area.

- **23A - Camas-Newberg-Evans complex (0 to 3 percent slopes)** – Neil Creek and Emigrant Creek drainages, portions of south runway safety area and runway end, portions of north section of parallel taxiway and aircraft hold area. Primary characteristics: flood plains, gravely sandy loam and extremely gravelly coarse sand, depth to restrictive feature 9 to 17 inches (to strongly contrasting textural stratification), excessively drained, high capacity to transmit water, depth to water table more than 80 inches. About 17 percent of the airport area.

- **127A - Medford silty clay loam (0 to 3 percent slopes)** – Middle section of parallel taxiway, segmented circle, north section of apron, and aircraft fuel area. Primary characteristics: alluvial fans and stream terraces, silty lay loam and silty clay, depth to restrictive feature more than 80 inches, moderately well drained, moderately high capacity to transmit water, depth to water table about 48 to 72 inches. About 12 percent of the airport area.

[1] Western Regional Climatic Center, Observation Station 350304 (1948-2005)
[2] Natural Resources Conservation Service, Web Soil Survey (11/16/17)

Airport Activity

The primary measures of aviation activity at Ashland Municipal Airport include aircraft operations (takeoffs and landings) and based aircraft. An aircraft operation is defined as either a takeoff or landing. A "touch-and-go" is counted as two operations. Operations are categorized as local and itinerant.

According to the FAA, local operations are defined as operations performed by aircraft that:

- Operate in the local traffic pattern or within sight of the airport, or
- Are known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the airport, or
- Execute simulated instrument approaches or low passes at the airport.

Itinerant operations are all aircraft operations, other than local operations.

The FAA's 5010-1 Airport Master Record is the official record kept by the FAA for public-use airport activity and facility conditions. The 5010 based aircraft data are populated by periodic airport management reporting through the FAA's www.basedaircraft.com database. Aircraft operations at non-towered airports are periodically estimated by FAA through reference to the FAA's Terminal Area Forecast (TAF).

The most recent FAA Airport Master Record (5010) for Ashland Municipal Airport lists a total of 28 based aircraft, including 23 single-engine, 1 multi-engine aircraft, and four ultra-lights.[3] It is evident that the 5010 based aircraft total is not accurate based on the airport's current hangar and aircraft tiedown occupancy, and current tenants, including Brim Aviation, which bases helicopters and fixed wing aircraft at the airport. An updated airport management based aircraft count is being developed and will be used in preparing the updated forecasts of aviation activity. The 5010 lists 26,050 aircraft operations (estimate) for the 12 months ending 3/17/15.

Table 2-1 summarizes the airport's based aircraft and operations, as indicated on the current FAA 5010 form.

[3] FAA 5010-1 Airport Master Record (8/17/2017)

TABLE 2-1: BASED AIRCRAFT AND OPERATIONS

Activity Type	Activity Level		
Based Aircraft	Updated Airport Count[1] (2017)	Airport Master Record[2] *(12 months ending 3/17/15)*	2004 Airport Master Plan Update[3] (2004 Base Year)
Single-Engine Piston	64	23	79
Multi-Engine Piston	2	1	5
Turboprop	0	0	0
Turbojet	1	0	0
Rotorcraft	5	0	2
Glider	0	0	0
Ultra-Light	2	4	3
Total Based Aircraft	74	28	89
Annual Aircraft Operations	An updated operations estimate will be included in the Forecast Chapter.	26,050	20,878 (2004 Base Year)

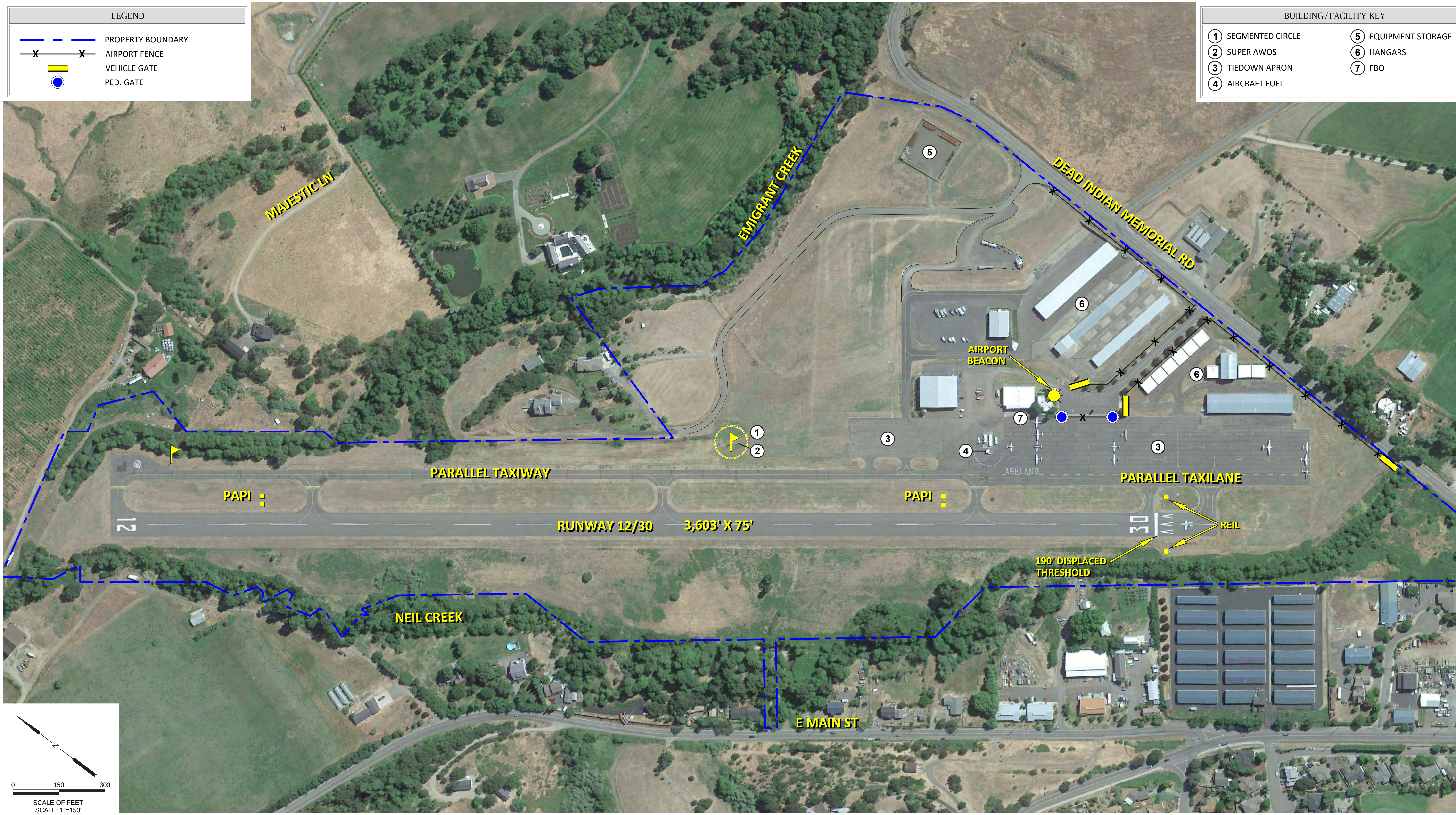
1. Airport Management Records, as of December 2017
2. Airport Master Record (5010) August 17, 2017
3. Airport Layout Plan Report – Ashland Municipal Airport (Final Report, October 2005., Century West Engineering, Aron Faegre & Associates, Gazeley & Associates)

Airfield Facilities

Ashland Municipal Airport has historically served a variety of general aviation users, including business, commercial, government and recreational. The airport can accommodate day and night operations in visual flight rules (VFR) conditions.

The airport has one paved (asphalt) and lighted runway (Runway 12/30) that is oriented in a northwest-southeast alignment. Runway 12/30 has a full-length parallel taxiway/taxilane on its north side. Additional taxiways and taxilanes provide access to aircraft hangars and aircraft parking aprons on the north side of the parallel taxiway.

Figure 2-2 and **2-3** depict the existing airfield facilities. **Table 2-2** summarizes airport data.



EXISTING AIRFIELD CONDITIONS
FIGURE 2-2

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EXISTING AIRFIELD CONDITIONS - LANDSIDE AREA
FIGURE 2-3

ASHLAND MUNICIPAL AIRPORT
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TABLE 2-2: AIRPORT DATA

Airport Name/Designation	Ashland Municipal Airport (S03)
Airport Owner	City of Ashland
Date Established	1940s
Airport Category	National Plan of Integrated Airport Systems (NPIAS): Non-primary Local Service, General Aviation Airport Oregon Aviation Plan (2007): Category III – Regional General Aviation Airports FAA Airport Reference Code: B-I Small (as depicted on 2004 ALP)
Airport Acreage	94 Acres (1989 Exhibit A)
Airport Reference Point (ARP) Coordinates	N 42° 11' 25.02" W 122° 39' 33.26"
Airport Elevation	1,884.8 feet MSL (surveyed)
Airport Traffic Pattern Configuration/Altitude	Left Traffic: Runway 12 & 30 Traffic Pattern Altitude: 2,899.8 feet MSL (1,015 feet AGL)
Airport Communication	Common Traffic Advisory Frequency (CTAF) 122.8 MHz
Airport Weather	SuperAWOS – Pilot Controlled Automated Unicom 122.8 MHz

Runway

Runway 12/30 is 3,603 feet long and 75 feet wide with an asphalt surface. The runway has a 190-foot displaced threshold at the Runway 30 end to improve obstruction clearance (road, trees, and structures). The runway pavement has a published weight bearing capacity of 15,000 pounds for aircraft with single-wheel landing gear configurations.[4] The runway has an effective gradient of 1.1 percent with a high point at the Runway 30 end. The runway pavement is in good condition. The most recent crack filling project was completed in 2014, and last rehabilitation project (3" asphalt overlay, reconstructed sections of pavement, an installation of underdrains) was completed in 2011.

The runway has visual instrument (VIS) markings on both ends. The runway markings (white paint) include runway designation numbers and centerline stripe. The Runway 30 displaced threshold markings include one centerline arrow, three arrowheads, and a threshold bar. Yellow taxiway lead-in/lead-off lines are painted on all the entrance/exit taxiways. The runway markings meet FAA standards for configuration, color, and approach type. The markings were observed to be in generally good condition during a recent site visit.

Runway 12/30 is lighted and equipped with visual guidance indicators at both ends. There are no runway or taxiway hold position signs, runway distance remaining signs, or taxiway location signs on the airport. The runway is served by a full-length east parallel taxiway with six 90-degree exit taxiway connections.

[4] FAA 5010-1 Airport Master Record (8/17/2017);

Table 2-3 summarizes the characteristics of the runway.

TABLE 2-3: RUNWAY DATA

Runway 12/30	
Dimensions	3,603' x 75'; Runway 30: 190' Displaced Threshold
Bearing	N38° 42' 50"W
Effective Gradient	1.1%
Surface/Condition	Asphalt (Good)
Pavement Strength	SW 15,000lbs
Markings	Visual (VIS)
Lighting	Medium Intensity Runway Lighting (MIRL)

Runway Wind Coverage

It is generally preferable for aircraft to land and takeoff directly into the wind, although varying wind conditions may require crosswind operations. Use of the crosswind runway may be preferable when prevailing winds exceed the capabilities of a specific aircraft. At airports with single runways, occasional periods of strong crosswinds can limit operations until conditions improve.

The FAA recommended planning standard is that primary runways should be capable of accommodating at least 95 percent of wind conditions within the prescribed crosswind component. The crosswind component is based on a direct crosswind (90 degrees perpendicular to the direction of flight) with varying speeds depending on the aircraft type: 10.5 knots (12 miles per hour) for small aircraft in Design Group I; and 13 knots (15 miles per hour) for general aviation aircraft in Design Group II. Transport and larger military aircraft are typically designed to accommodate even higher crosswind components. Aircraft are able to tolerate increasingly higher wind speeds as the crosswind angle is reduced and aligns more closely with the direction of flight.

Tabulated wind data is not available for Ashland Municipal Airport. In cases when on-site wind data does not exist, the FAA recommends using data from a nearby airport. It is recognized that this technique provides a general indication of wind conditions, but may not provide an accurate on-site assessment. **Table 2-4** summarizes the recent wind data collected at Rogue Valley International Airport-Medford Airport, located 15 nautical miles northwest, that is applied to the runway alignment at Ashland Municipal Airport.[5] The data is presented for all-weather, visual (VFR), and instrument (IFR) conditions for small and large aircraft.

[5] National Climate Data Center – MFR Data from Automated Surface Observation System (ASOS) (2007-2016)

The data indicates prevailing winds predominately follow a northwest-southeasterly pattern, which is generally aligned with the runway. As noted earlier, the general alignment of the runway and valley in Ashland is similar, which suggests reasonably good wind coverage and terrain avoidance during takeoff and landing. Available data indicates that Runway 12/30 has adequate wind coverage (≥95%) to meet FAA standards for airports with one runway.

TABLE 2-4: RUNWAY WIND COVERAGE

Weather Conditions	Wind Speed	Runway 12/30
All WX	12 MPH (10.5 Knots)	99.4%
	15 MPH (13 Knots)	99.73%
VFR	12 MPH (10.5 Knots)	96.11%
	15 MPH (13 Knots)	97.78%
IFR	12 MPH (10.5 Knots)	99.82%
	15 MPH (13 Knots)	99.82%

Runway 12/30
Source: NOAA National Climatic Center Data for MFR
Period: 2007-2016 with a total of 132,083 (All WX), 94,613 (VFR), and 20,511 (IFR) observations.

Taxiways and Taxilanes

Taxiways are a crucial airport element because they expedite the safe and efficient flow of traffic to and from the runway and can reduce the amount of time aircraft are on the runway. Taxiways also provide an important link between airside and landside facilities. Taxilanes provide access within aircraft apron areas and hangar developments.

The taxiway system at Ashland Municipal Airport is depicted on **Figure 2-2**, presented earlier in this chapter. Runway 12/30 has a full-length east parallel taxiway/taxilane with six 90-degree exit taxiways. The parallel taxilane is located on the outer section of the main apron (south end). For identification purposes, the parallel taxiway is designated "Taxiway A" and the exit taxiways are designated A1-A6, with A1 located at the Runway 30 end.

The airport taxiways are equipped with edge reflectors. Taxiway markings include (yellow) centerline and runway hold position lines on exit taxiways, which are in good to fair condition. The aircraft hold lines are located 125 feet from runway centerline, which coincides with the outer edge of the runway obstacle free zone (OFZ).

RUNWAY 12/30 PARALLEL TAXIWAY/TAXILANE

Taxiway A is full-length parallel taxiway/taxilane for Runway 12/30. Taxiway A is 30 feet wide and constructed of asphalt. It has six exit taxiway connectors to Runway 12/30. Taxiway A provides access to all landside areas on the east side of Runway 12/30. An aircraft hold area is located adjacent to the Runway 12 end and Taxiway A6. A compass rose is painted on the north aircraft hold area.

The parallel taxiway has a runway centerline separation of 162.5 feet. The parallel taxilane has a runway centerline separation of 150 feet. The taxiway/taxilane centerline shift is located adjacent to Taxiway A3. A dashed yellow line is painted along the inside edge of the parallel taxilane to distinguish the taxilane and apron areas.

EXIT TAXIWAYS (RUNWAY 12/30)

The runway has six 90-degree exit taxiways. The exit taxiways are 30 feet wide and constructed of asphalt. The runway exit taxiways include:

- Taxiway A1 - located at the Runway 30 end (at south end of runway - displaced threshold);
- Taxiway A2 - located at the Runway 30 displaced threshold;
- Taxiway A3 - located approximately 775 feet from the Runway 30 end;
- Taxiway A4- located approximately mid-runway;
- Taxiway A5 - located approximately 660 feet from Runway 12 end; and
- Taxiway A6 -located at the Runway 12 end.

TAXILANES

The aircraft parking aprons and hangar areas at Ashland Municipal Airport are served by taxilanes that connect to Taxiway A. The main apron has eleven east-west taxilanes with direct connections to Taxiway A. The apron taxilanes access adjacent aircraft tiedowns, hangars, and the fueling area. An east-west taxilane extending from the north section of the main apron accesses three T-hangars and two conventional hangars located east of the FBO and airport access road.

Main Apron

The main apron at Ashland Municipal Airport supports aircraft parking, FBO operations, aircraft fueling, the aircraft wash rack, and provides access to adjacent tenant hangars. The main apron is located on the east side of the runway near the Runway 30 end and is approximately 1,500 feet long and 150 to 200 feet wide (varies). The main apron directly abuts approximately 1,200 feet of the south parallel taxilane and has two taxilane connections to the adjacent parallel taxiway (north end of apron). One of the north taxilane connections provides access through the apron to aircraft storage hangars that cannot be directly accessed from the main apron. The apron is constructed of asphalt and the pavement is in fair or satisfactory condition.

Airfield Pavement Condition

The Oregon Department of Aviation (ODA) manages the Pavement Evaluation/Maintenance Management Program (commonly referred to as the "PMP"), a program of pavement evaluation and maintenance for Oregon's general aviation airports. The PMP conducts on-site inspections on 3- to 4-year intervals. The PMP inspections assign a pavement condition index (PCI) for each pavement section using a scale of 0-100 (new pavement) based on a variety of visual assessment factors, pavement type, age, etc. The PCI is intended provide a general indication of pavement condition, where "0" is the worst (failed) and 100 is the best (good).

The airfield pavements at Ashland Municipal Airport reflect numerous projects dating back to approximately 1967. The entire runway received an asphalt overlay in 2011. Portions of the runway base and subbase were reconstructed during that project. The parallel taxiway, taxilane, and aprons are among the older pavements requiring rehabilitation. Based on the historical work detail contained in the PMP, the pavement thickness on the runway ranges from 3 to 5 inches; the parallel taxiway varies between 2 to 4 inches; and the aprons range from 3 to 4.5 inches.

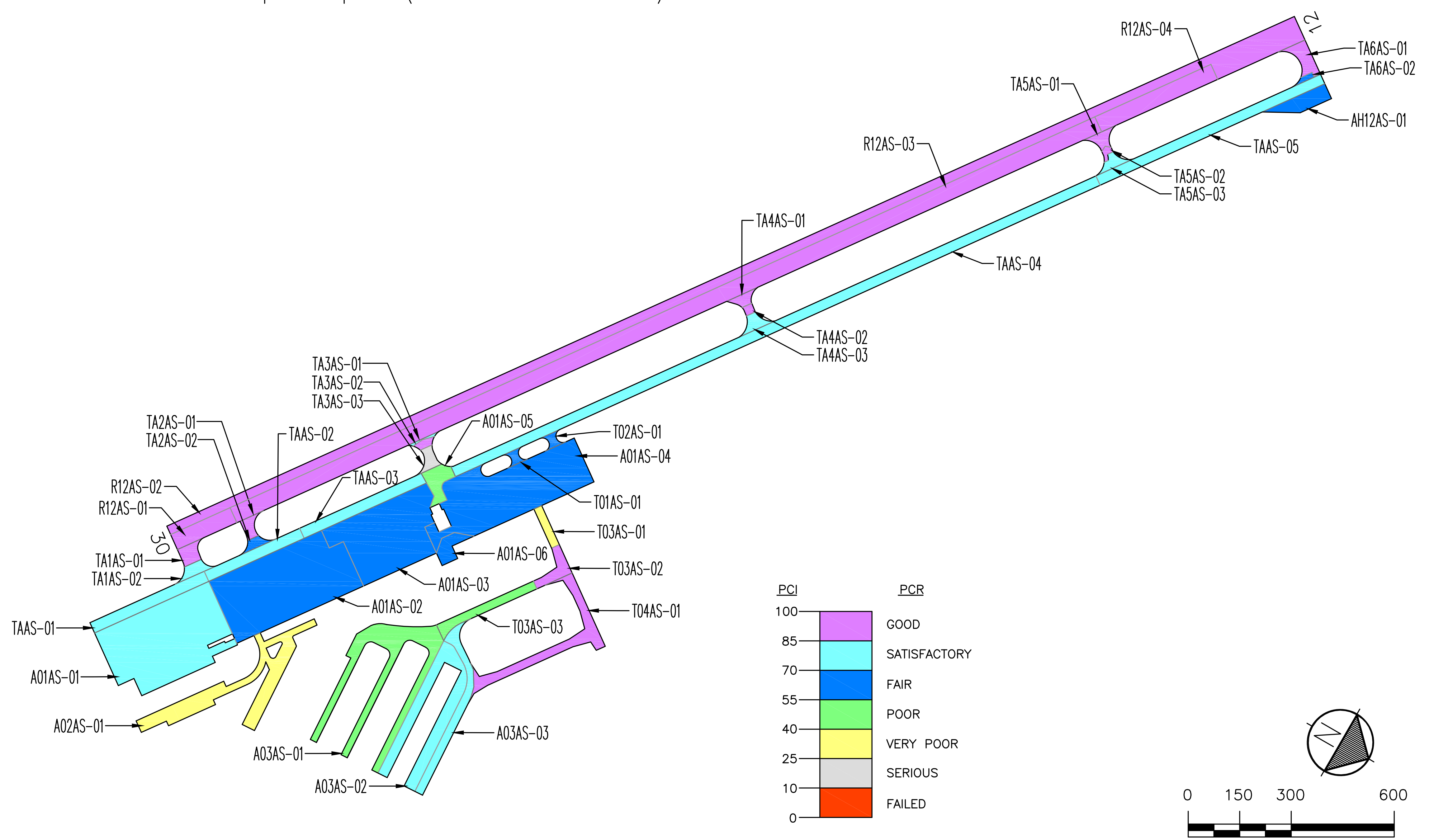
The most recent PMP airfield pavement inspection for Ashland Municipal Airport was conducted in 2016. This inspection reflects recent airfield pavement maintenance or rehabilitation work, including a 2014 runway and parallel taxiway crack seal project and a 2011 runway rehabilitation project (3-inch asphalt overlay). The results from the 2016 on-site inspection are summarized in T**able 2-5** and depicted in **Figure 2-4**.

TABLE 2-5: SUMMARY OF AIRFIELD PAVEMENT CONDITION (2016 INSPECTION)

Section	Date	Work	2016 PCI	Condition
Runway 12/30				
R12AS (Sections 1-4)	2014 2011	Crack Seal 3" AC	94/96/94/93	Excellent
Taxiway A				
TAAS (Sections 1-5)	2014 2003	Crack Seal Slurry Seal	75/72/71/80/75	Fair
Exit Taxiways (Taxiways A1-A6)				
TA1AS (Sections 1-2)	2011	Crack Seal 1.25" AC	96/83	Excellent/Good
TA2AS (Sections 1-2)	2011	1.25" AC	91/56	Excellent/Fair
TA3AS (Sections 1-3)	2011	1.25" to 3" AC	83/90/14	Good/Poor
TA4AS (Sections 1-3)	2011	1.25" AC	88/98/75	Excellent/Fair
TA5AS (Sections 1-3)	2011	1.25" AC	91/100/72	Excellent/Fair
TA6AS (Sections 1-2)	2011	3" AC	92/70	Excellent/Fair
Main Apron				
A01AS-01	2014	Crack Seal	75	Fair
A01AS-02	2014	Crack Seal & Patching	70	Fair
A01AS-03	2014	Crack Seal & Patching	69	Fair
A01AS-04	2014	Crack Seal & Patching	60	Fair

Source: Oregon Department of Aviation, Pavement Evaluation/Maintenance Management Program 2016, Ashland Municipal Airport

Figure AS-3. Pavement Condition in July 2016.
Ashland Municipal Airport (Sumner Parker Field)



PAVEMENT CONSULTANTS INC.

Drawing Date: August 2016

PCI MAP
FIGURE 2-4

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Airport Lighting & Visual Navigational Aids

Table 2-6 summarizes airport lighting and visual aids at Ashland Municipal Airport.

TABLE 2-6: ASHLAND VISUAL NAVIGATIONAL AIDS (NAVAIDS)

General	
UNICOM/Common Traffic Advisory (CTAF) - 122.8 MHz	
Rotating Beacon (clear & green; Photocell Activated)	
(1) Lighted Wind Cone (Photocell Activated); (2) Unlighted Wind Cones	
SuperAWOS™ - 122.8 MHz	
Lighting/Visual NAVAIDs	**Runway 12/30**
MIRL	Yes - Pilot Controlled – CTAF
REIL	RWY 30 - Pilot Controlled – CTAF
PAPI	2-light - Operate Continuously Rwy 12 (P2L: 3.75 degree glide path) Rwy 30 (P2R: 4.00 degree glide path)

AIRPORT LIGHTING

Runway 12/30 is equipped with medium intensity runway edge lighting (MIRL) that includes edge fixtures and threshold lighting at both runway ends, and on the Runway 30 displaced threshold. Runway 30 is equipped with runway end identifier lights (REIL), which consist of two high intensity strobes that flash at a fixed interval when activated. The REIL is installed adjacent to the Runway 30 displaced threshold.

Both runway ends are equipped with visual guidance indicators (VGI) that project an unobstructed approach path to the runway threshold. The VGIs are two-bar precision approach slope indicators (PAPI). The PAPIs were installed in 2011 as part of a runway rehabilitation project and are located between the runway and parallel taxiway/taxilane.

The MIRL and REIL are controlled through a pilot controlled lighting (PCL) system, which is activated via the common traffic advisory frequency (CTAF) 122.8 MHz. The PAPIs operate continuously.

A white-green rotating beacon is located east of the runway adjacent to the FBO building. The beacon operates on a photocell switch between dusk and dawn and during other low-light conditions.

The airport has one lighted wind cone located in the segmented circle on the east side of the runway, near midfield. The wind cone lighting is activated by a photocell switch. Two unlighted wind cones are installed near the runway ends, on the east side.

AIRPORT WEATHER OBSERVATION

Ashland Municipal Airport has an on-site Super Automated Weather Observation System (SuperAWOS™) that provides 24-hour weather information. The SuperAWOS is located on the east side of the runway in the segmented circle. The SuperAWOS provides altimeter setting and visibility. The SuperAWOS is operated on an Automatic Unicom using frequency 122.8 MHz.

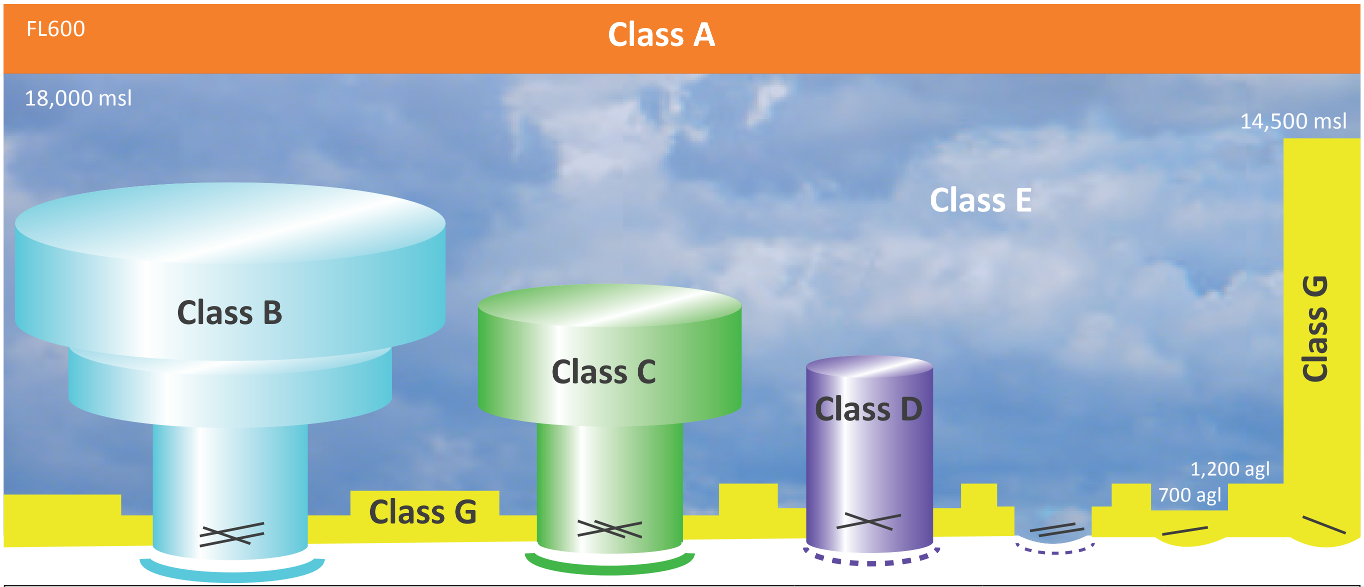
Landside Facilities

Ashland accommodates a variety of landside facilities on the east side of Runway 12/30 including aircraft storage and mixed-use hangars, the FBO building, aircraft fueling, aircraft parking, and the aircraft wash rack. **Figure 2-2** and **2-3**, presented earlier in this chapter depicts the existing airport buildings. **Table 2-7** summarizes existing aviation use buildings located at the airport.

TABLE 2-7: AIRPORT BUILDINGS

Building # as identified on Figure 2-3	Building Type	Building Ownership
395	T-hangar	Private
399	Hangar	Private*
403	FBO Building	City
405	Hangar	Private
407	Hangar	Private*
409	Hangar	Private*
411	Hangar	Private*
413	Hangar	Private*
415	Hangar	Private*
417	Hangar	Private*
419	Hangar	Private*
421	Hangar	Private*
423	Electrical Building	City
425	FBO Hangar	City
429	Commercial Hangar	Private
439	Commercial Hangar	Private
431	T-hangar (open door)	City
433	T-hangar/1 Commercial Hangar Unit	City
437	T-hangar	City

Note: *Reversionary became property of the city at the end of the initial lease term.



COMMUNICATION REQUIREMENTS AND WEATHER MINIMUMS	Class A	Class B	Class C	Class D	Class E	Class 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.

Airspace and Navigational Aids

AIRSPACE CLASSIFICATIONS

The FAA classifies airspace within the United States 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.

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 service airports in high traffic areas. Uncontrolled airspace is typically found in remote areas or is limited to a 700 or 1,200-foot AGL layer above the surface and below controlled airspace.

Figure 2-5 illustrates and describes the characteristics of FAA airspace classifications.

NAVIGATIONAL AIDS

A Navigational Aid (NAVAID) is defined by the FAA as "*any facility used in the aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio direction-finding, or for radio or other electronic communication, and any other structure or mechanism having similar purpose and controlling flight in the air or the landing or takeoff of aircraft.*"

Visual NAVAIDs located at Ashland Municipal Airport are described in a previous section of this chapter. There are no electronic NAVAIDs located on-site or in the immediate vicinity of Ashland Municipal Airport. The nearest electronic NAVAIDs in the area include the Medford NDB, located 15.5 NM northwest; the Rogue Valley VORTAC located 20.7 NM northwest; and the Montague NDB (Yreka) located 28.9 NM south-southeast. **Table 2-7** summarizes electronic navigational aids in the vicinity of Ashland Municipal Airport.

TABLE 2-8: NEARBY GROUND BASED NAVIGATION AIDS

Type	Name/Identifier	Frequency	Distance	Radial
NDB	Medford/MEF	356 kHz	15.5 NM	125°
VORTAC	Rogue Valley/OED	113.6 MHz	20.7 NM	128°
NDB	Montague/MOG	404 kHz	28.9 NM	329°

LOCAL AREA AIRSPACE STRUCTURE

Figure 2-6 depicts nearby airports, notable obstructions, special airspace designations, and instrument flight rules (IFR) routes in the vicinity of Ashland Municipal Airport, as identified on current FAA aeronautical charts.[6]

The nearest Low Altitude Enroute Instrument (Victor) Airway in the vicinity of Ashland Municipal Airport is V287, which passes north-south, approximately 2 nautical miles west of the airport (the Klama reporting point). The section of V287 north of Klama has a Minimum Enroute Altitude (MEA) of 8,000 feet above mean sea level (MSL) between Ashland and Medford. V287 south of Klama has a MEA of 12,000 feet MSL and a Minimum Obstruction Clearance Altitude (MOCA) of 9,800 feet MSL.

The instrument airways are designed to provide defined paths (fixed courses and minimum altitudes) for enroute aircraft that are clear of terrain and other potential hazards for aircraft operating without the benefit of visual contact. Aircraft transition between enroute and terminal airspace through the use of defined instrument approach and departure procedures.

Ashland is located in an area of Class G airspace that begins at the surface and extends upward to 700 feet MSL where it then becomes Class E airspace. An area of Class E that extends from the surface upward is located approximately 1.5 nautical miles west of Ashland Municipal Airport. These sections of Class E airspace are associated with Rogue Valley International – Medford Airport. Radio communication is not required for VFR operations in Class E airspace, although pilots are encouraged to use the common traffic advisory frequency (CTAF) when operating at the airport. Aircraft are required to obtain an ATC clearance prior to operating in Class E airspace during IFR conditions.

Instrument Procedures

There are no published instrument approach procedures at Ashland.

VFR TRAFFIC PATTERN

Runway 12 and 30 have standard left traffic patterns with a pattern altitude of 2,899.8 feet above mean sea level (MSL), which is approximately 1,015 feet above ground level (AGL). The runway traffic patterns at Ashland are depicted in **Figure 2-7**.

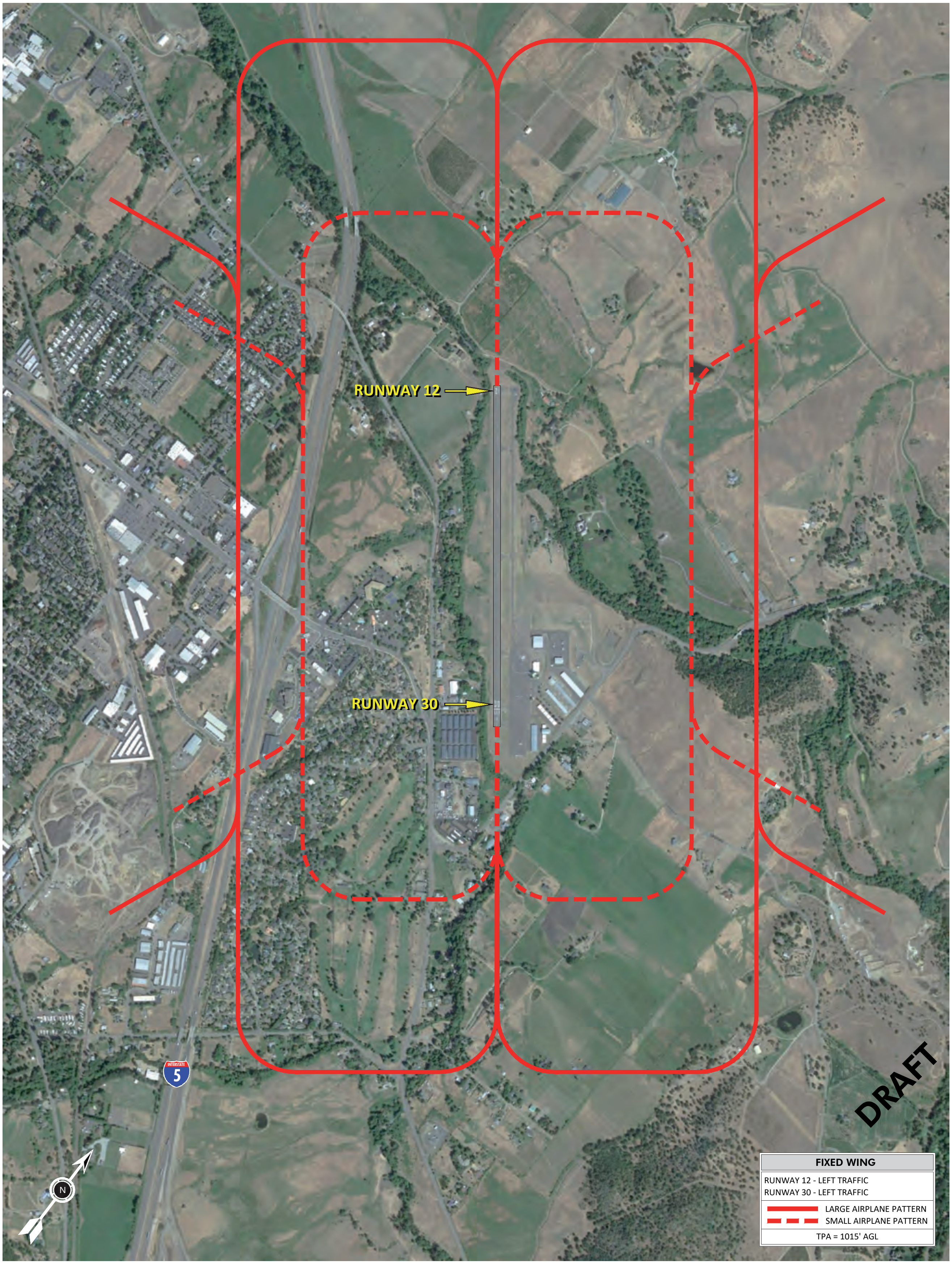
[6] Klamath Falls Sectional Chart and the IFR Enroute Low Altitude Chart (L-1/L-2)

LEGEND

	Airports with other than hard-surface runways		Class D Airspace
	Airports with hard-surfaced runways 1,500 ft. to 8,069 ft.		Class E Airspace with floor 700' above surface
	VOR/ VORTAC		Military Operations Area (MOA)
	Compass Rose (VOR/DME or VORTAC)		Prohibited, Restricted, Warning, and Alert Areas
	VOR or RNAV Airways		Airports with hard-surfaced runways greater than 8,069 ft. or some multiple runways less than 8,069 ft
	Class E Airspace (surface)		

AREA AIRSPACE
FIGURE 2-6

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN



TRAFFIC PATTERNS
FIGURE 2-7

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Airport Support Facilities and Services

AIRCRAFT FUEL

The City of Ashland owns two aboveground double-wall aviation fuel tanks. These tanks provide storage for 100 low lead (100LL) aviation gasoline (AVGAS) and Jet-A (jet fuel). The tanks are equipped with a dispensing system which provides 24-hour credit card self-service access. The FBO manages the fueling operations, fuel purchases, and fuel sales. An airport tenant (Brim Aviation) owns and operates three mobile fuel storage tanks for 100LL and Jet-A. **Table 2-8** summarizes the aviation fuel storage tanks at the airport.

TABLE 2-9: AVIATION FUEL TANKS

Fuel Type	Tank Capacity (Gallons)	Location	Tank Ownership
100LL	12,000	Fuel Apron	City
Jet-A	10,000	Fuel Apron	City
Jet-A	6,000	Brim Aviation	Private
Jet-A	4,000	Brim Aviation	Private
Jet-A	3,800	Brim Aviation	Private
Note: Brim Aviation purchases 100LL through the FBO.			

FIXED BASE OPERATOR (FBO)

Ashland Municipal Airport has one FBO (Skinner Aviation) who leases the FBO building, apron, and fuel facilities from the City of Ashland. The FBO provides aircraft fuel, tiedowns, aircraft maintenance services, restrooms, and flight planning facilities. The FBO owner, Robert Skinner, also provides on-site airport management services to the City of Ashland.

PUBLIC RESTROOMS

Public restrooms are located in the FBO building. Several airport tenants also have restroom facilities in their hangars.

FENCING

Portions of the airport's property line is fenced with 6-foot chain link fencing. The section of fencing that extends along the east property line abutting Dead Indian Memorial Highway also has 3-strand barbed wire along the top. Additional chain link fencing is located along the airport entrance access road to the FBO building and vehicle parking area. Other portions of the airport property line have wire field fencing.

Two vehicle swing gates are located adjacent to access roads serving adjacent hangar areas. Pedestrian gates are located along the fence between the vehicle parking lot and the FBO building, and the main apron. There are no electronic or combination lock controls on the existing gates.

Vehicle Access and Parking

Vehicle access to Ashland Municipal Airport is provided by Ashland Street/Green Springs Highway 66 (OR-66) and Dead Indian Memorial Road, with two paved airport access road connections. U.S. Interstate 5 (I-5) Exit 14 (north and south) connects to Ashland Street. The main airport entrance road provides access to the FBO building, terminal area, public vehicle parking lot, and hangars. The second airport access road is located approximately 700 feet north of the main airport entrance and provides access to landside facilities and two adjacent residences (easements).

Public Protection

POLICE

The City of Ashland provides public safety protection for the airport. The City Police Department is located in downtown Ashland, approximately 3.3 miles northeast of the airport.

FIRE AND RESCUE

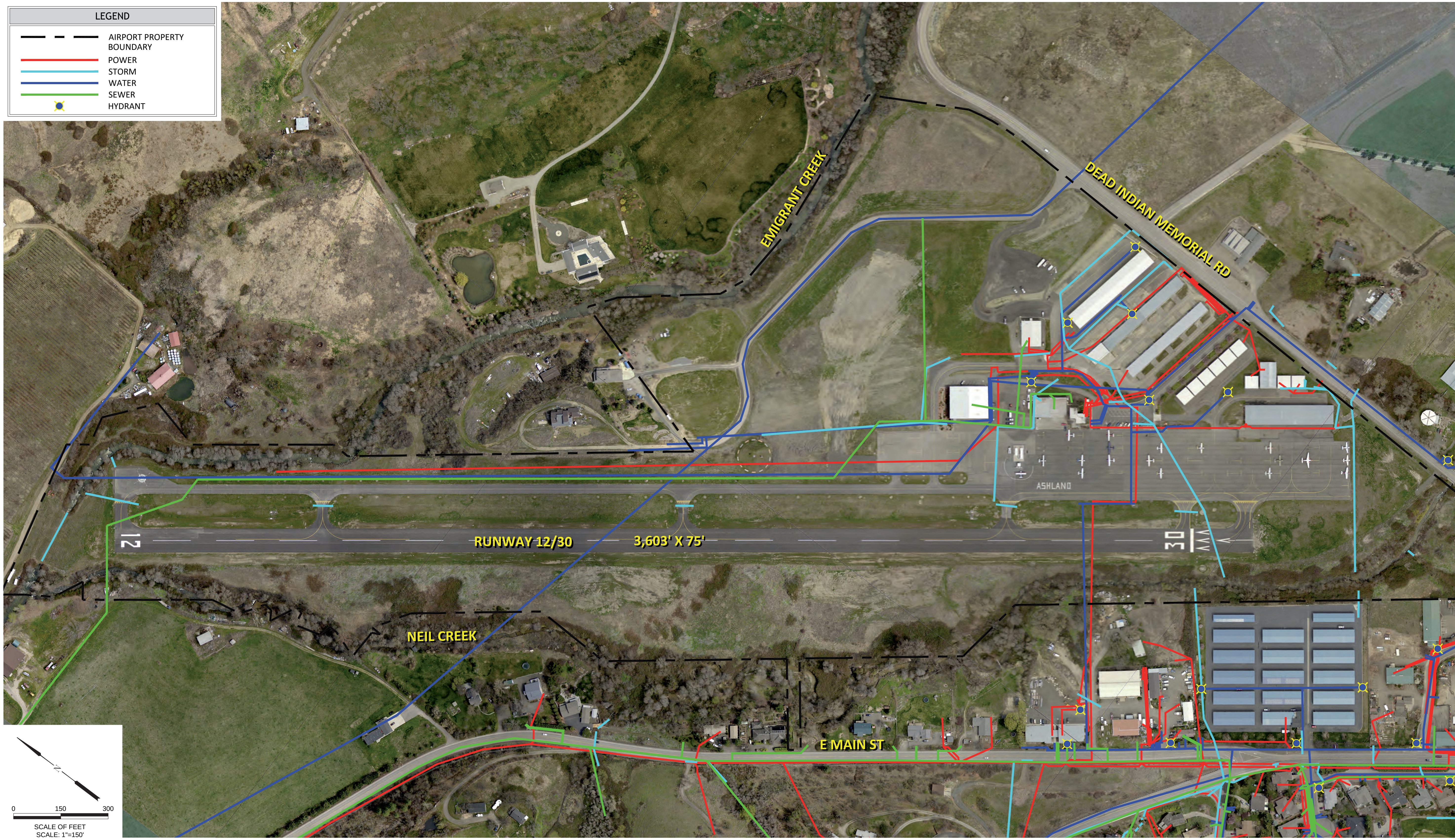
City of Ashland Fire District provides airport fire protection to the airport and has two fire stations located around the city. The nearest fire station is Fire Station 2 located 2.4 miles west of the airport on Ashland Street (OR-66). Fire Station 1 is located 3.8 miles west of the airport on Siskiyou Blvd (OR-99).

Utilities

Several utility providers serve the developed areas at Ashland Municipal Airport. The airport has water, sewer, electrical, natural gas, and telephone service. Refuse and recycling services are provided at the airport by Recology Ashland Sanitary Service. **Table 2-9** summarizes the current utilities and service providers at Ashland. **Figure 2-8** depicts the utility service on, and in the vicinity of the airport.

TABLE 2-10: AIRPORT UTILITIES AND SERVICE PROVIDERS

Utility	Service Provider
Water	City of Ashland
Sewer	City of Ashland
Electricity	Ashland Municipal Electric Utility
Natural Gas	Avista Natural Gas
Phone	Spectrum
Internet	Spectrum
Refuse	Recology Ashland Sanitary Service



UTILITY MAP
FIGURE 2-8

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST
ENGINEERING

Population and Socioeconomic Data

Preliminary July, 1, 2017 population estimates prepared by Portland State University (PSU) indicate that Jackson County population is 216,900, up 1.5 percent from 2016. PSU estimates City of Ashland population is 20,700, up 0.4 percent from 2016. Jackson County includes 11 incorporated cities and 34 unincorporated communities. The county seat is Medford.

The top employment sectors for Jackson County include Health Care, Retail and Manufacturing, and Government.[7] The top employment sectors in Ashland are Health Care & Social Assistance, Leisure & Hospitality, and Retail Trade.[8]

Additional population and economic data will be presented in the updated Aviation Activity Forecasts chapter to support the analysis.

Land Use Planning and Zoning

The City of Ashland has land use jurisdiction for the airport; however, some of the runway protection areas and the Part 77 surfaces extend beyond city limits and the Ashland urban growth boundary into unincorporated Jackson County. The City of Ashland Part 18 Land Use Code establishes the zoning guidelines for airport land. The airport is zoned Employment District (E-I).[9] The Employment District is "*designed to provide for a variety of uses such as office, retail, or manufacturing in an aesthetic environment and having a minimal impact on surrounding uses.*" The airport has been zoned E-I since prior to the 2001 Airport Layout Plan Report, but has no specific references to airport activities found in the description.

Both the City of Ashland and Jackson County have created Airport Overlay Zoning to protect Ashland Municipal Airport. The City of Ashland Airport Overlay (A)[10] protects the FAR Part 77 surfaces for the runway and provides regulations and controls on buildings or development within the zone. Jackson County has established an Airport Approach (AA) and Airport Concern (AC) overlay for airports and heliports in the county. It establishes protective zones and height limitations to protect the FAR Part 77 surfaces of the runway.

A detailed description of current zoning, airport overlay zoning, and land use will be presented in the Airport Land Use (Chapter 8). **Figure 2-9** depicts the current zoning for the City of Ashland. **Figure 2-10** illustrates local land use jurisdictions with responsibilities to protect the FAR Part 77 airspace associated with Runway 12/30 at Ashland Municipal Airport.

[7] Jackson County Economy (http://jacksoncountyor.org/County/About-Us).
[8] Ashland Economic Opportunities Analysis (April 2007) ECONorthwest
[9] City of Ashland - Part 18 Land Use Code (Employment District)
[10] City of Ashland - Part 18 Land Use Code (Section 18.3.7 Airport Overlay)

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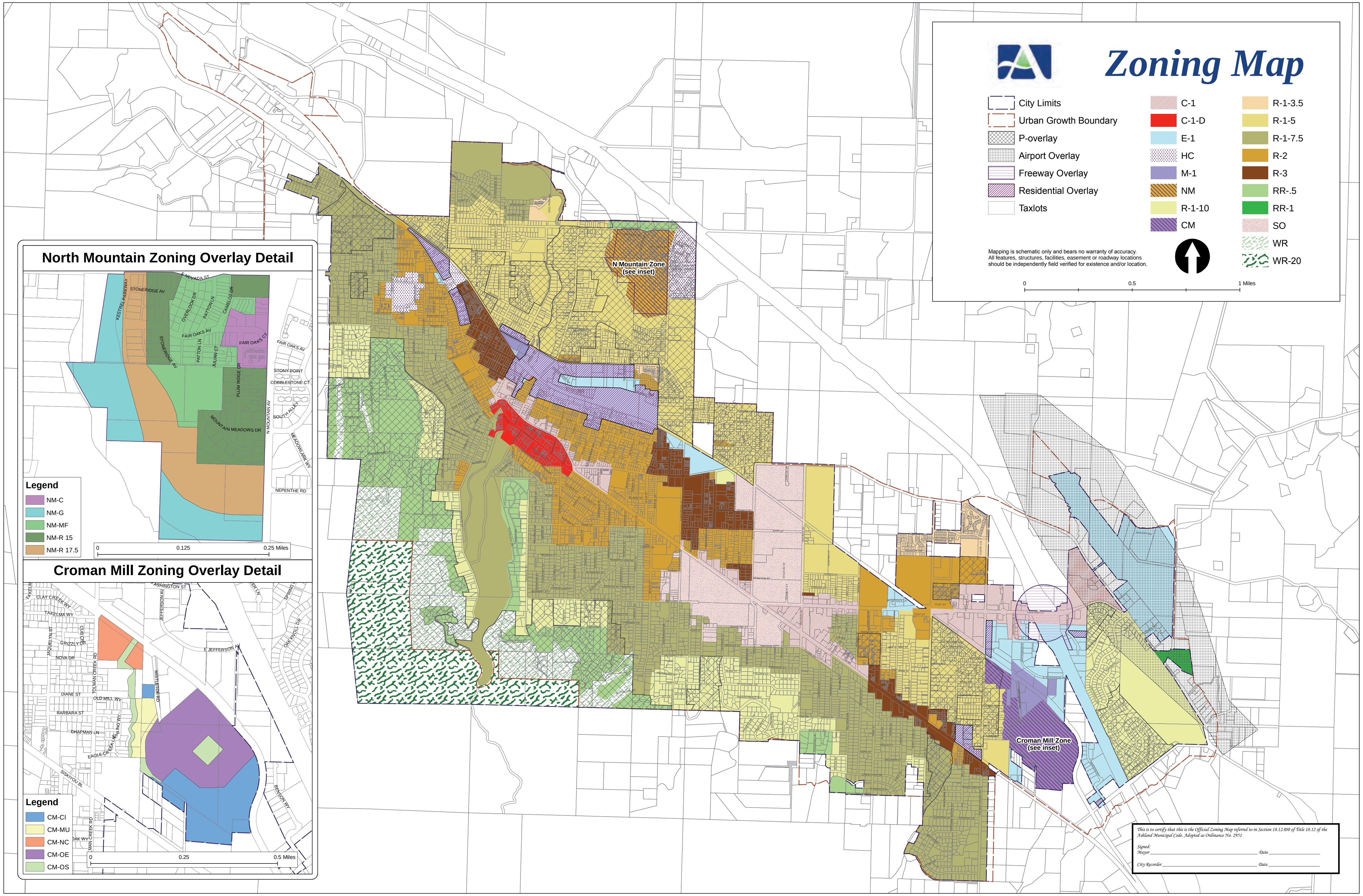
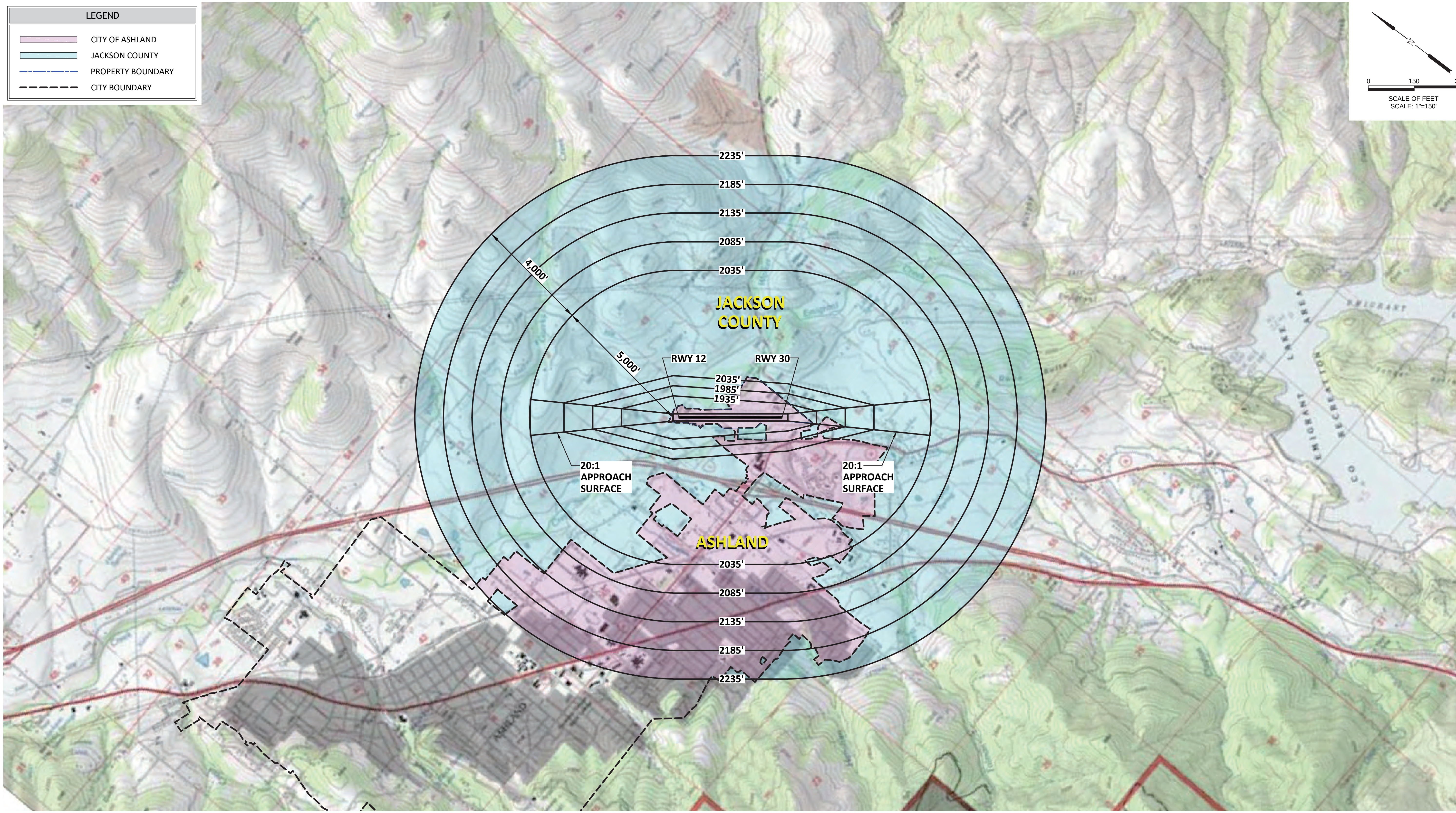


ASHLAND ZONING MAP
FIGURE 2-9

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING



LAND USE JURISDICTION
FIGURE 2-10

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Airport Environmental Inventory

INTRODUCTION

An environmental review was conducted as a component of the master plan to identify physical or environmental conditions of record, which may affect the recommended improvements at Ashland Municipal Airport. This review included land use, water resources (wetlands, stormwater), species of concern, federal lands, and essential fish habitat.

The scope of work for this element is limited to compiling, reviewing, and briefly summarizing information of record from applicable local, federal, and state sources for the airport site and its environs. The environmental memorandum is included in **Appendix A** and is briefly summarized below.

PROTECTED SPECIES AND HABITAT

The U.S. Fish and Wildlife (USFWS) and the National Marine Fisheries Service websites were queried to determine any species or critical habitat that is protected under the Endangered Species Act could occur in the vicinity of the airport. The gray wolf (endangered), the northern spotted owl (threatened) and the gentner's fritillary (endangered) have potential to occur within or near the airport.

WETLANDS

Wetlands are under the jurisdiction of both Oregon Department of State Lands (DSL) and the US Army Corps of Engineers (Corps) and are protected under the State of Oregon Removal Fill Law and Section 404 of the Clean Water Act.

A wetland inventory was conducted for the City of Ashland and adopted by DSL in 2005. The LWI indicates that one potential wetland could occur on the northeast corner of airport property, on the east side of Emigrant Creek. The LWI also identified Emigrant Creek and Neil Creek as occurring on airport property.

FLOODPLAINS

The airport is located within the floodplains of both Emigrant Creek and Neil Creek. The development standards for floodplains are regulated under Chapter 18.3.10.080 of the Ashland Municipal code. According to the City's Flood Insurance Rate Map (FIRM), there is approximately seven percent of airport property is located in flood zone AE, the regulatory floodway of Emigrant Creek, which is an area determined by base flood elevations to have a one percent annual chance of flooding. In addition, a small portion of the airport's western boundary is within the FEMA floodplain of Neil Creek.

Chapter 3

Aviation Activity Forecasts

Chapter 3 – Aviation Activity Forecasts

The overall goal of aviation activity forecasting is to provide reasonable projections of future activity that can be translated into specific airport facility needs anticipated during the next twenty years and beyond.

Overview and Purpose

This chapter provides updated aviation activity forecasts for Ashland Municipal Airport (S03) for the twenty-year master plan horizon (2017-2037). The most recent Federal Aviation Administration (FAA) approved aviation activity forecasts for Ashland Municipal Airport were developed in the 2004 Airport Layout Plan Report.

The forecasts presented in this chapter are consistent with current and historic role as a community/regional general aviation airport. Ashland Municipal Airport is capable of accommodating a full range of general aviation activity, including business class turboprops, small business jets and helicopters. This level of capability expands the airport's role beyond the local community and accommodates users throughout the region, which is acknowledged in the 2007 Oregon Aviation Plan (OAP).

Ashland Municipal Airport is designated a **Category III - Regional General Aviation** airport in OAP 2007. The definition for Category III airports is: "*These airports support most twin and single-engine aircraft and may accommodate occasional business jets. These airports support a regional transportation need.*"

The forecasts of activity are unconstrained and assume the City of Ashland will be able to make the facility improvements necessary to accommodate the anticipated demand unless specifically noted. The City of Ashland will consider if any unconstrained demand will not or cannot be reasonably met through the evaluation of airport development alternatives later in the master plan.

FAA FORECASTING PROCESS

The FAA provides aviation activity forecasting guidance for airport master planning projects. FAA Advisory Circular (AC) 150/5070-6B, Airport Master Plans, outlines seven standard steps involved in the forecast process:

1) **Identify Aviation Activity Measures**: The level and type of aviation activities likely to impact facility needs. For general aviation, this typically includes based aircraft and operations.
2) **Previous Airport Forecasts**: May include the FAA Terminal Area Forecast (TAF), state or regional system plans, and previous master plans.
3) **Gather Data**: Determine what data are required to prepare the forecasts, identify data sources, and collect historical and forecast data.
4) **Select Forecast Methods**: There are several appropriate methodologies and techniques available, including regression analysis, trend analysis, market share or ratio analysis, exponential smoothing, econometric modeling, comparison with other airports, survey techniques, cohort analysis, choice and distribution models, range projections, and professional judgment.
5) **Apply Forecast Methods and Evaluate Results**: Prepare the actual forecasts and evaluate for reasonableness.
6) **Summarize and Document Results**: Provide supporting text and tables as necessary.
7) **Compare Forecast Results with FAA's TAF**: Follow guidance in FAA Order 5090.3C, Field Formulation of the National Plan of Integrated Airport Systems. In part, the Order indicates that forecasts should not vary significantly (more than 10 percent) from the TAF. When there is a greater than 10 percent variance, supporting documentation should be supplied to the FAA. The aviation demand forecasts are then submitted to the FAA for their approval.

KEY ACTIVITY ELEMENTS

As noted above, general aviation airport activity forecasting focuses on two key activity segments: **based aircraft** and **aircraft operations** (takeoffs & landings). Detailed breakdowns of these activity segments include:

- Aircraft fleet mix;
- Peak activity;
- Distribution of local and itinerant operations; and
- Determination of the critical aircraft (also referred to as the design aircraft).

The critical aircraft represents the most demanding aircraft type or family of aircraft that uses an airport on a regular basis (a minimum of 500 annual takeoffs & landings). The critical aircraft is used to establish a variety of FAA design categories, which then establish design standards for airfield facilities. FAA airport design standard groupings reflect the physical requirements of specific aircraft types and sizes. Design items, such as runway length evaluations, are determined by the requirements of current/future critical aircraft. The activity forecasts also support the evaluation of several demand-based facility requirements including runway and taxiway capacity, aircraft parking, and hangar capacity.

Airport Service Area

An airport service area refers to the geographic area surrounding an airport that has the greatest influence on its activity. The population and economic conditions, and the number and type of airports within a service area can directly influence individual airport activity. For general aviation airports, a 30- or 60-minute surface travel time is often used to approximate the boundaries of its service area.

A significant portion of general aviation airport activity is normally generated by aircraft that are owned and operated by individuals, businesses, or government agencies located within its service area. Other activity is generated by transient aircraft that chose to operate at the airport, instead of a nearby competing airport. Transient aircraft activity includes both enroute and origin-destination travel. In many cases, the airport itself is the destination, when the purpose of flight is to access FBO and related services, fuel, an airport restaurant, or specific flight training needs.

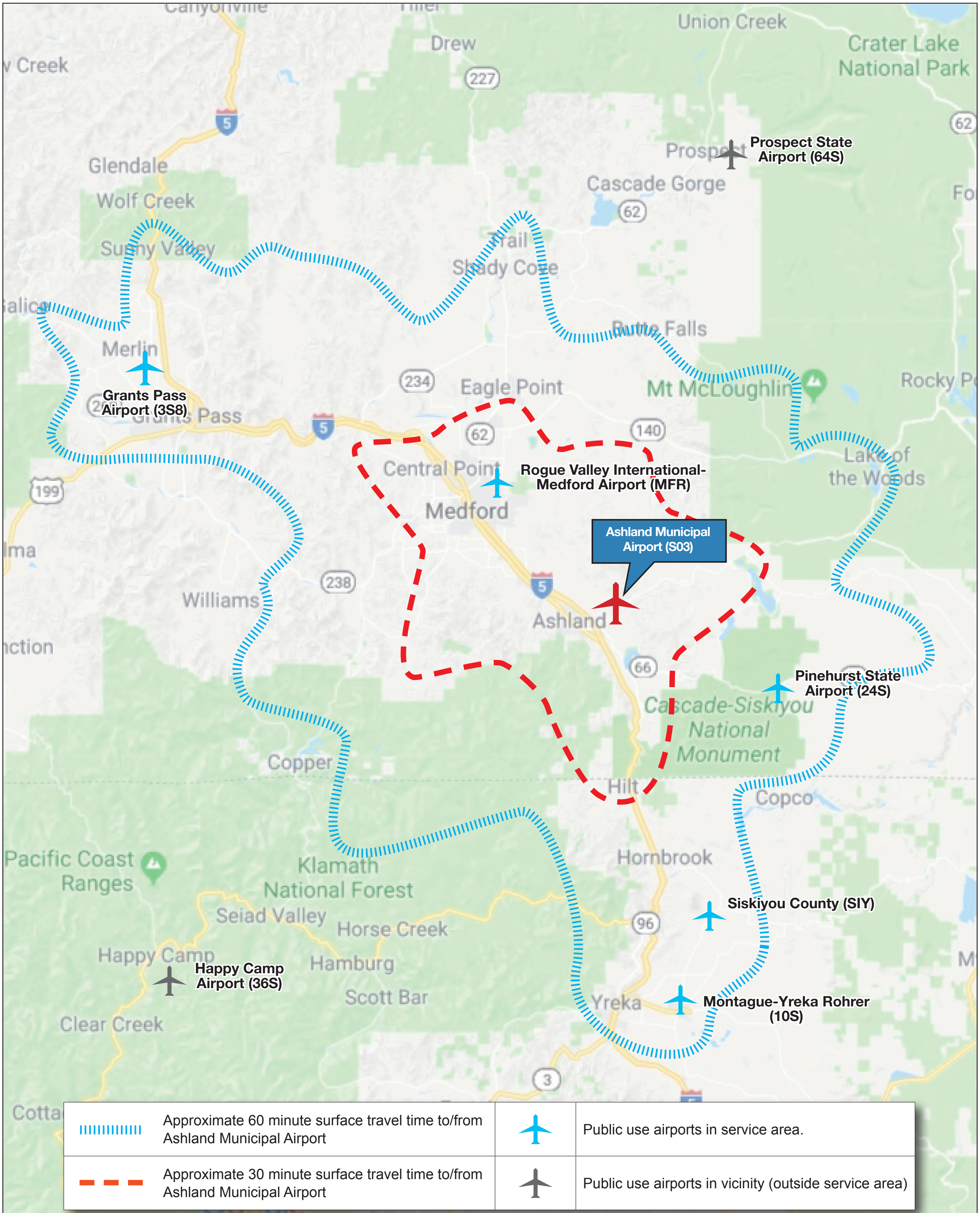
Convenience, choice, and cost are three primary considerations that every airport user weighs when making their consumer choice. Surface travel time to or from an airport is a primary measure of convenience, although facility capabilities, available services, and user costs may outweigh convenience for many users.

Table 3-1 lists the public use airports within a 35 nautical mile (air miles) radius of Ashland Municipal Airport, which incorporates the majority of the defined service area for the airport. **Figure 3-1** illustrates the approximate service area boundaries for Ashland Municipal Airport.

Service areas for commercial airports often extend well beyond a one-hour drive time due to the relatively small number of airports with scheduled airline service. Ashland Municipal Airport is located within the service areas (approximately a two-hour drive time) defined for two commercial airports: Rogue Valley International Medford Airport (approximately 30 minute drive time) and Crater Lake Klamath Regional Airport (approximately 1.5-hour drive time).

TABLE 3-1: PUBLIC USE AIRPORTS IN VICINITY OF ASHLAND MUNICIPAL AIRPORT
(WITHIN 35 NAUTICAL MILES)

Airport	Location	Runway Length(s) (Feet)	Surface	Lighted Runway	Fuel Available
Rogue Valley International-Medford Airport (MFR)	15NM NW	8,800	Asphalt	HIRL	100LL Jet-A
Pinehurst State (24S)	13NM SE	2,800	Asphalt	N/A	N/A
Siskiyou County Airport (SIY)	26 NM S	7,490	Asphalt	MIRL	100LL Jet-A
Montague-Yreka Rohrer Field (105)	28 NM S	3,360	Asphalt	MIRL	100LL
Butte Valley Airport (A32)	35 NM SE	4,000	Asphalt	N/A	N/A



AIRPORT SERVICE AREA
FIGURE 3-1

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Economic Conditions and Population

Historically, downturns in general aviation activity often occur during periods of weak economic conditions while growth typically coincides with favorable economic conditions. The recent economic recession and the slow recovery that followed, has constrained general aviation activity locally, statewide, and throughout the national airport system. However, the FAA's national long-term aviation forecasts[1] reflect overall strength in both the U.S. and regional economies. This forecast economic strength is expected to sustain modest growth in aviation activity over the long-term.

AREA ECONOMY

The economy for the City of Ashland has both local and regional components. The City actively pursues and promotes local economic development activities while supporting broader regional initiatives. In 2007, the City of Ashland supported Jackson County's expansion of commercial and industrially zoned properties in the Jackson County Enterprise Zone. The Ashland City Council adopted the city's current Economic Development Strategy in 2011 and is now engaged in implementation. The purpose of the strategy addressed four elements including diversifying the economic base of the community; supporting growth in businesses that provide local and regional products; increasing family-wage jobs in the community; and leveraging Ashland's tourism and repeat visitor strengths. Several key economic sectors were identified:

- Southern Oregon University;
- Oregon Shakespeare Festival;
- Lodging, restaurants and specialty retail;
- Value added specialty manufacturing; and
- Specialty food and beverage innovation.

The economic strategy recommended focused efforts to build on current successes, while also addressing several economic challenges or weaknesses. Examples include seasonality of tourism, high housing costs, land supply required to support industrial employment, distance to major economic markets, and an older age demographic.

The City of Ashland conducted a buildable lands inventory in 2011 to quantify land development opportunities and constraints within the city limits and urban growth boundary (UGB). Ashland Municipal Airport is included in the inventory with 9 developable parcels listed; no net buildable acreage within the airport is listed, instead referring to the airport specific site planning ("Per Airport Master Plan"). Although the airport represents a small percentage of developable lands in the Ashland UGB, it provides an inventory of developable land that is capable of supporting targeted airport-compatible

[1] FAA Aerospace Forecast (Fiscal Years 2016-2036)

commercial or light industrial uses. These activities may generate aviation activity or complement the common range of aeronautical activities.

The economy of Jackson County has a diverse group of sectors including trade, transportation, and utilities; education and health services; government; leisure and hospitality; and manufacturing. The nearby Medford metropolitan area supports a wide range of consumer services and employment opportunities that results in a strong economic connection with Ashland.

EMPLOYMENT

Oregon Employment Department data indicates total employment for Jackson County in 2016 was 87,110 employees. In 2016 the average income among all industry segments in Jackson County was $40,323 compared to Oregon's statewide average of $49,467. The leading employment sectors and average annual wages for Jackson County are summarized in **Table 3-2** and **Table 3-3**.

TABLE 3-2: LEADING EMPLOYMENT SECTORS IN JACKSON COUNTY (2016)

JACKSON COUNTY		
Sector	**Total Employment by Sector**	**% of Total Employment**
1. Trade, Transportation, and Utilities	20,900	24%
2. Education and Health Services	15,280	17.5%
3. Government	12,880	14.8%
4. Leisure and Hospitality	10,520	12.1%
5. Manufacturing	7,610	8.7%
All other industries	19,920	22.9%
Total Employment	87,110	100%
Source: State of Oregon Employment Department, Jackson County 2016		

TABLE 3-3: LEADING EMPLOYMENT SECTORS WAGES IN JACKSON COUNTY (2016)

Sector	Jackson County Annual Average Wage	Oregon Annual Average Wage
1. Trade, Transportation, and Utilities	$35,676	$41,405
2. Education and Health Services	$50,644	$49,269
3. Government	$47,992	$52,766
4. Leisure and Hospitality	$18,711	$20,165
5. Manufacturing	$46,390	$67,493
Source: State of Oregon Employment Department, Jackson County and State of Oregon 2016		

POPULATION

The population within an airport's service area, in broad terms, affects the type and scale of aviation facilities and services that can be supported. Changes in population often reflect broader economic conditions that may also affect airport activity. The airport service area for Ashland Municipal Airport extends beyond the City of Ashland and Jackson County along the Interstate 5 corridor and includes portions of Klamath County in Oregon and Siskiyou County in California. However, for the purpose of forecasting aviation activity, an evaluation of local city and Jackson County population trends will provide a reasonable indication of activity.

Historic Population

Certified estimates of population for Oregon counties and incorporated cities are developed annually by the Population Research Center at Portland State University (PRC-PSU). The annual PRC-PSU estimates, coupled with U.S. Census conducted every ten years, provide an indication of local area population trends over an extended period.[2] The 2017 PRC-PSU certified population estimate for the City of Ashland was 20,700 and the estimate for Jackson County was 216,900.

The City of Ashland's population has increased slightly since the 2000 Census. Annual population growth over the last 25 years has been modest, averaging just below 0.5 percent, compared to statewide average growth that is typically just above 1 percent per year. Jackson County grew at a rate nearly double that of the City of Ashland, averaging just above 1 percent since 2000. Recent historic population data and average growth rates for the City of Ashland, Jackson County, and Oregon are summarized in **Table 3-4.**

[2] Portland State University Population Research Center (July 1, 2017); Estimates 1990, 2000, 2010 U.S. Census

TABLE 3-4: HISTORIC POPULATION DATA

Year	Jackson County	City of Ashland (Incorporated Area)	City Share (%) of Jackson County	Oregon
1990[1]	146,389	16,252	11.1%	2,842,321
2000[1]	181,269	19,610	10.8%	3,421,399
2010[1]	203,206	20,078	9.9%	3,831,074
2017[2]	216,900	20,700	9.5%	4,141,100
Average Annual Rates (AAR) of Growth (%)				
Year	Jackson County	City of Ashland (Incorporated Area)		Oregon
1990-2000	2.16%	1.90%		1.87%
2000-2010	1.14%	0.24%		1.14%
2000-2017	1.06%	0.32%		1.13%
2010-2017	0.94%	0.44%		1.11%

Sources:
1. U.S. Census Data (April 1)
2. Portland State University, Certified Population Estimate (July 1, 2017)

POPULATION FORECASTS

Population Research Center – Portland State University

The Oregon legislature recently assigned development of coordinated population forecasts for Oregon counties and cities to the Population Research Center at Portland State University (PRC-PSU). Previously, long-term population forecasts were prepared by the Oregon Office of Economic Analysis (OEA) to support local and statewide planning. The current PRC forecast for Jackson County was published in June 2015.[3]

The current PRC forecast provides a fifty-year projection (2065), with one intermediate projection (2035). The 2035 projection approximates the end of the current airport master plan planning period (2017-2037) and provides relevant information about future population expectations for the City of Ashland Urban Growth Boundary (UGB) and Jackson County. The PRC forecast projects modest, sustained population growth for the Ashland UGB and more rapid growth for Jackson County through 2065. The PRC forecasts indicate that Ashland's share of Jackson County population will decrease slightly during this period, while still experiencing growth. The PRC population forecasts are summarized below and in **Table 3-5**.

[3] Coordinated Population Forecast 2015 through 2065 Jackson County Urban Growth Boundaries (UGB), and Area of outside UGBs. Population Research Center Portland State University, June 2015.

City of Ashland

Ashland's population is projected to increase from 20,905 in 2015 to 24,138 in 2065. The forecast reflects a 15 percent increase in population over the next fifty years, with an average annual growth rate of approximately 0.3 percent. Slightly higher annual growth (0.5% AAR) is anticipated through the first thirty years (between 2015 and 2035), followed by slower growth (0.1%) over the latter twenty years.

Jackson County

Jackson County's population is projected to increase from 211,275 in 2015 to 306,858 in 2065. The forecast reflects a 45 percent increase in population over the next fifty years, with an average annual growth rate of approximately 0.75 percent. As with the Ashland forecast, a slightly higher annual growth (1.0% AAR) is anticipated between 2015 and 2035, followed by slower growth (0.6% AAR) over the latter twenty years.

TABLE 3-5: POPULATION FORECASTS

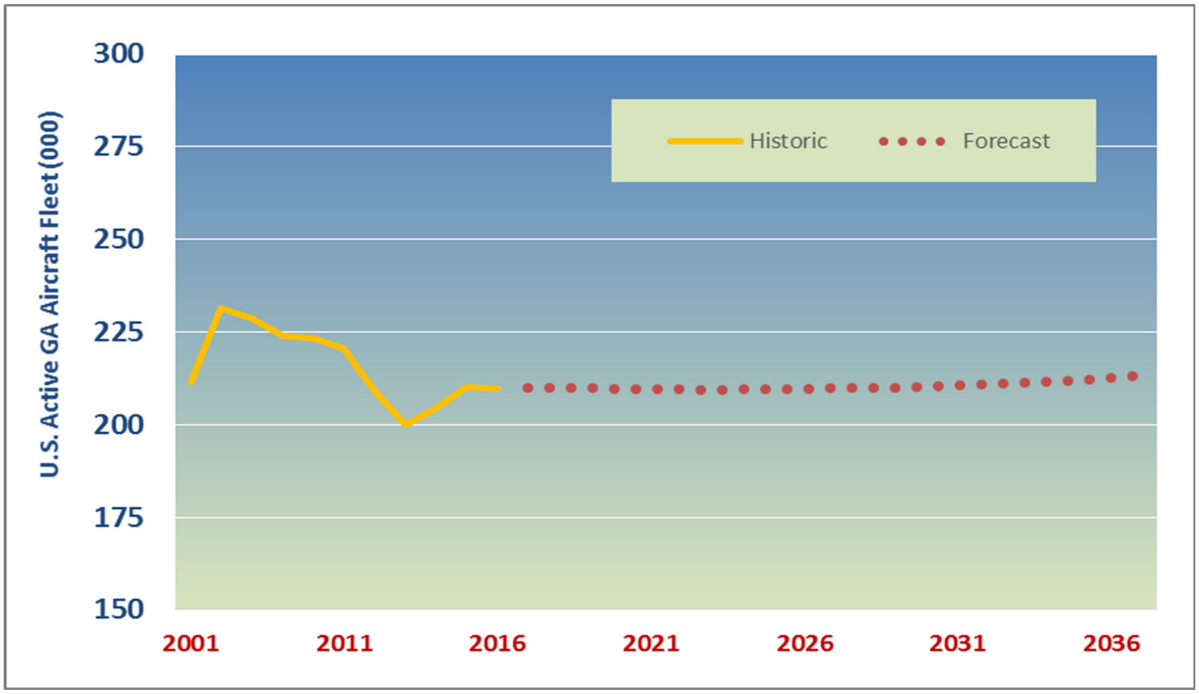
Year	Jackson County	City of Ashland (UGB)	City Share (%) of County
2015	211,275	20,905	9.9%
2035	255,840	23,183	9.1%
2065	306,858	24,138	7.9%
Annual Average Growth Rate (AAR %)			
2015-2065	0.75%	0.3%	--
2015-2035	1.0%	0.5%	--
2035-2065	0.6%	0.1%	--

National General Aviation Activity Trends

The early years of the 21st Century have presented numerous challenges for general aviation (GA). On a national level, most measures of GA activity declined sharply during "The Great Recession" and have only modestly improved in recent years.

As depicted in **Figure 3-2**, the active U.S. GA fleet has fluctuated within a slight overall decline since 2001. This trend coincides with other GA industry trends including annual aviation fuel consumption, hours flown, IFR enroute air traffic, operations at towered airports, active pilots, etc.

FIGURE 3-2: US ACTIVE GENERAL AVIATION FLEET



The FAA performs an annual assessment of U.S. civil aviation through its FAA Aerospace Forecast.[4] The twenty-year forecasts are updated annually by evaluating recent events and established trends affecting a wide range of commercial and general aviation segments. Broad economic conditions and current forecasts are examined in order to provide reasonable expectations for aviation within the broader U.S. and global economy. The FAA forecasts examine in detail several key aviation industry indicators including fuel prices, production and supply; aircraft manufacturing trends; aircraft ownership trends; fleet and pilot attrition; flight training trends; advances in fuel, engine, avionics, and airspace technology (ADS-B NextGen, etc.); and on-demand air travel. This array of factors is reflected in the FAA's overall assessment of future U.S. aviation activity.

The FAA currently predicts that the active GA aircraft fleet will grow at an average annual rate of approximately 0.1 percent between 2016 and 2037. Although the FAA maintains a modestly favorable long-term outlook for general aviation, many of the activity segments associated with piston engine aircraft and AVGAS consumption are not projected to return to "pre-recession" levels within the 20-year forecast. It should be noted however, that the FAA forecasts do include some bright spots for specific activity segments that are relevant to Ashland Municipal Airport. Key takeaways from the FAA 2017-2037 Aerospace Forecast Highlights are summarized below:

[4] FAA Aerospace Forecast Fiscal Years 2017-2037.

Positive

- Turbine aircraft (turboprop, turbojet, helicopter) fleet and hours flown will grow;
- Sport and Experimental aircraft fleet and hours flown will grow;
- Piston Rotorcraft fleet and hours flown will grow;
- Jet fuel consumption will grow;
- Student, Sport, Airline Transport, Rotorcraft, and Instrument rated pilots will grow;
- GA enroute IFR air traffic will grow; and
- GA Operations at towered airports will grow.

Negative

- Fixed wing Piston aircraft fleet and hours flown will shrink;
- AVGAS consumption will shrink; and
- The number of Private and Commercial pilots will shrink.

Neutral

- Overall GA fleet will grow by less than 2% over the next 20 years.

The FAA's annual growth assumptions for individual general aviation activity segments are summarized in **Table 3-6.**

TABLE 3-6: FAA LONG RANGE FORECAST ASSUMPTIONS (U.S. GENERAL AVIATION)

Activity Component	Forecast Annual Average Growth Rate (2016-2037)
Aircraft in U.S. Fleet	
Single Engine Piston Aircraft in U.S. Fleet	-0.9%
Multi-Engine Piston Aircraft in U.S. Fleet	-0.5%
Turboprop Aircraft in U.S. Fleet	1.4%
Turbojet Aircraft in U.S. Fleet	2.3%
Experimental Aircraft in U.S. Fleet	1.0%
Sport Aircraft in U.S. Fleet	4.1%
Piston Helicopters in U.S. Fleet	1.3%
Turbine Helicopters in U.S. Fleet	1.8%
Active GA Fleet (# of Aircraft)	0.1%
Active Pilots in U.S.	
Private Pilots	-0.7%
Commercial Pilots	-0.6%
Airline Transport Pilots	0.5%
Instrument Rated Pilots	0.3%
Sport Pilots	4.1%
Student Pilots (Indicator of flight training activity)	0.4%
Active GA Pilots (All Ratings)	0.1%
Hours Flown in U.S.	
Piston AC	-0.8%
Turbine AC	2.5%
Experimental AC	2.0%
Sport AC	4.6%
Total GA Fleet Hours	0.9%
Fuel Consumption in U.S.	
AVGAS (Gallons consumed - GA only)	-0.4%
Jet Fuel (Gallons consumed – GA only)	1.9%
Source: FAA Long Range Aerospace Forecasts (FY 2016-2037)	

Overview of Recent Local Events

AVIATION FUELING ACTIVITY

Historic fuel sale volumes often provide an indication of airport activity trends over time. The Fixed Base Operator (FBO) at Ashland Municipal Airport provides self-service 100 low lead (100LL) aviation gasoline (AVGAS) and Jet-A. A review of historic FBO fueling records for 2013 to 2017 shows relatively stable consumption of 100LL with mostly minor annual fluctuations. Jet fuel volumes experienced significantly more fluctuation, although over the five-year period jet fuel accounted for approximately 11 percent of total FBO aviation fuel sales volume. The data indicate that no clear upward or downward trend is identified for aviation gasoline or jet fuel sales at Ashland Municipal Airport in the most recent five years. The historic FBO fueling data for Ashland Municipal Airport are summarized in **Table 3-7.**

It is noted that one airport tenant (Brim Aviation) self-fuels their turbine aircraft from private mobile storage and dispensing facilities. Brim reports 29,547 gallons of on-airport jet fuel usage in 2016. Brim's jet fuel activity alone accounted for approximately 55 percent of total airport fueling activity (FBO and tenant) at Ashland Municipal Airport in 2016. Brim purchases 100LL from the FBO for their piston aircraft.

TABLE 3-7: S03 - AIRCRAFT FUELING ACTIVITY

Year	100LL (Gallons)	Net Change % Year to Year	Jet-A (Gallons)	Net Change % Year to Year	Combined (Gallons)	Net Change % Year to Year
2013	28,000	-	2,971	-	30,971	-
2014	27,013	-3.5%	5,678	+91.1%	32,691	+6.4%
2015	22,370	-17.2%	2,086	-63.3%	24,456	-25.2%
2016	22,372	+0.1%	1,631	-21.8%	24,003	-1.9%
2017	24,257	+8.4%	3,426	+100.6%	27,683	+15.3%
5-Year Average	24,802 *(2013-2017 Mean)*	*-3.07% (Average Annual Fluctuation)*	3,158 *(2013-2017 Mean)*	*+26.65% (Average Annual Fluctuation)*	27,961 *(2013-2017 Mean)*	*+1.35% (Average Annual Fluctuation)*

HANGAR CONSTRUCTION

A review of current aerial photography and the most recent Airport Layout Plan drawing (October 2005) indicates that one new 14-unit T-hangar (building 437) and one small conventional hangar (building 399) have been constructed at Ashland Municipal Airport since late 2004.

INSTRUMENT FLIGHT ACTIVITY

The FAA tracks flight activity data using the Traffic Flow Management System Counts (TFMSC) for aircraft operating under instrument flight rules (IFR) in the national airspace system. The data captures all civil aircraft filing instrument flight plans with the originating and the destination airport. Aircraft may cancel IFR flight plans enroute, so not every flight plan actually results in an instrument operation. As noted in the Inventory chapter, Ashland Municipal Airport does not have a published instrument approach procedure, which limits its instrument activity.

Instrument flight plan data for Ashland Municipal Airport was obtained and analyzed for 2012-2016 to assist in evaluating overall air traffic. The 2012-2016 data are summarized in **Table 3-8** by Airport Reference Code (ARC). 2017 activity is summarized by ARC and aircraft type in **Table 3-9**. The mix of air traffic includes single-engine and multi-engine piston aircraft, business jets and turboprops. A portion of the turboprop activity was attributed to air cargo/express aircraft diverted from Medford.

TABLE 3-8: INSTRUMENT ACTIVITY (2012-2016)

ARC	2012	2013	2014	2015	2016
A-I	231	351	406	304	213
A-II	30	19	8	12	8
B-I	29	98	96	68	76
B-II	14	26	75	98	76
C-I	0	0	0	0	0
C-II	0	0	0	0	0
D-I	0	0	0	0	0
D-II	0	0	0	0	0
HELI	0	0	0	0	0
UNKNOWN	0	0	0	0	0
	304	494	585	482	373
Source: FAA TFMSC Data (normalized)					

TABLE 3-9: INSTRUMENT ACTIVITY DETAIL – S03 (2017)

Aircraft Type	ARC	2017
Single Engine Piston	A-I	280
Multi-Engine Piston	B-I	32
Single Engine Turboprop	A-II	22
Multi-Engine Turboprop	B-I /B-II	34
Business Jet	B-I / B-II	40
Helicopter	--	4
Total Aircraft Operations Related to Instrument Flight Plans		412

BASED AIRCRAFT FLEET (REVISED DATA)

The updated aviation activity forecasts for Ashland Municipal Airport presented in the draft chapter (March 2018) used a fall 2017 airport management count of 74 based aircraft. Several discrepancies were subsequently identified between the airport estimate and the FAA based aircraft database (www.basedaircraft.com). Additional review of the airport's based aircraft records was conducted to physically verify actual aircraft on the field and to ensure that the FAA database accurately reflected all verifiable aircraft. The review identified a total of 60 qualified aircraft located at the airport in May 2018:

- 59 active powered aircraft
- 1 active glider not previously included in the FAA database

A total of 15 aircraft were eliminated from the recent based aircraft count:

- 9 inactive powered aircraft located at the airport (without active FAA registration)
- 6 powered aircraft previously counted could not be accounted for.

The FAA requires aircraft to have current registration to be included an airport's based aircraft count. According to airport management, the inactive aircraft at the airport include several with one owner (now decreased) that are in the process of being sold. Several other aircraft are undergoing major repair or restoration. Some of these aircraft are expected to return to service early in the planning period and will be reflected in the initial 5-year forecast of based aircraft (2022).

Table 3-10 summarizes the May 2018 verified count of based aircraft at Ashland Municipal Airport. The current mix of aircraft is predominantly single-engine piston and helicopters. The airport also has one light piston twin, one business jet, and one glider.

TABLE 3-10: 2017 BASED AIRCRAFT – S03 (VERIFIED MAY 2018)

Aircraft Type	2017
Single Engine Piston	53
Multi-Engine Piston	1
Turboprop	0
Business Jet	1
Helicopter	4
Glider	1
Total Based Aircraft	60
Source: Airport management & FAA verified count (5/2018) as entered into FAA www.basedaircraft.com database.	

A 2004 aerial photo (Figure 2-2) in the 2005 Airport Layout Plan Report depicts existing buildings and parked aircraft in the terminal area. Approximately 46 "hangar units" in 16 separate structures are identified in the figure. A total of 24 aircraft are identified parked on the aircraft apron. Although some variations in counts would be expected, the combination of hangar units and observed parked aircraft is more than 20 percent below the 2004 estimate of 89 based aircraft for the airport. As noted earlier, the recent verification of based aircraft at the airport indicates that some overestimating may have occurred, perhaps extending back many years. It is difficult to verify whether the annual updates of based aircraft on the FAA's Airport Master Record (Form 5010-1) submitted by the airport to FAA, consistently captured actual activity or were often pushed forward without change. As noted earlier, the FAA TAF relies on data provided by airport sponsors through 5010 updates.

Since the accuracy of the 2004 estimate of 89 based aircraft cannot be verified, it does not provide a reliable baseline to measure recent trends at Ashland Municipal Airport. The current based aircraft count of 60 suggests a decline in activity, however, this cannot be definitively quantified with available data. The absence of reliable data eliminates the ability to assess local trends beyond recent fuel sales and hangar construction activity.

Moving forward, the required annual update/verification of the airport's based aircraft count by the City for 5010 and FAA database (www.basedaircraft.com) updates, will improve accuracy of based aircraft counts over previous estimating methods. More accurate 5010 data will also improve the accuracy of the FAA TAF.

Existing Aviation Activity Forecasts

Updating aviation activity forecasts for the master plan requires an updated assessment of current conditions and a review of existing aviation activity forecasts. Several existing forecasts relevant to Ashland Municipal Airport are available for review, including the 2005 Airport Layout Plan Report, the 2007 Oregon Aviation Plan (OAP), and the 2018 FAA Terminal Area Forecast (TAF). **Table 3-11** summarizes the based aircraft and operations forecasts currently available for Ashland Municipal Airport.

It is important to note that all of the forecasts generated for Ashland Municipal Airport in the 2004-2005 time period (2004 TAF, 2007 OAP and 2005 ALP Report) shared common based aircraft data that originated with airport estimates of activity as reported through 5010 Airport Master Record form updates. The updates were subsequently used in the TAF, which was then cited as a primary data source in the other forecasts. As noted earlier, reported 5010 based aircraft totals appear to have been inadvertently overestimated during this period, which subsequently skewed the TAF and the other dependent forecasts upward.

As with based aircraft data, the FAA indicates that the TAF relies on aircraft operations data supplied by airport sponsors for non-towered airports. However, it is recognized that an airport sponsor's ability to accurately estimate aircraft operations is very limited (at a non-towered airport). With few exceptions, aircraft takeoffs and landings operations are estimates only, and the associated forecasts are heavily dependent on the accuracy of the estimates, which can vary widely. The resulting limitations should be considered when evaluating forecasts that are dependent on non-statistical estimates. Acoustical activity counts performed at airport during the stated period provided statistically-valid estimates of annual aircraft operations that were periodically reflected in the TAF. This program has been discontinued and is currently unavailable to airport sponsors as a method of accurately estimating activity.

The 2018 TAF update now reflects the recently-verified based aircraft count and applies a modest growth rate to provide a reasonable long-term based aircraft forecast. However, there is no indication that the TAF historical (2007 to 2016) or forecast (2017 to 2045) aircraft operations data were adjusted to reflect the impacts of the recent economic recession (see below). Despite this, the small range of aircraft operations involved suggests that the current TAF is adequate for comparison with the updated aircraft operations forecasts.

Aviation activity forecasts prepared prior to "The Great Recession," that began in Q4 of 2007, became largely obsolete due to the effects of the severe economic downturn. General aviation airports routinely saw sustained, double-digit declines in annual activity during the recession that was characterized by closed businesses, reduced fuel sales, loss of based aircraft, increased hangar vacancy rates, lower aircraft utilization, and a dearth of new hangar construction. In general, the recovery of airport activity segments has been slower than their preceding declines. None of these conditions were anticipated in forecasts prepared prior to the recession, and as a result, tend to overestimate activity compared to actual events.

With these limitations in mind, the 2007 OAP and 2005 ALP based aircraft forecasts are presented for reference only since they do not support reliable analysis. The OAP and ALP aircraft operations forecasts were comparable to the 2004 TAF, which reflected the pre-recession activity verified through the acoustical counts.

TABLE 3-11: EXISTING BASED AIRCRAFT & GA OPERATIONS FORECASTS

Forecast	2017	2022	2027	2032	2037	AAR
2018 FAA Terminal Area Forecast (TAF) Operations	26,357	27,887	29,431	31,050	32,757	1.10%[1]
2018 FAA Terminal Area Forecast (TAF) Based Aircraft	59	65	70	75	80	1.54%[1]
Operations Per Based Aircraft (OPBA)	447	429	420	414	410	-
2007 Oregon Aviation Plan Annual Operations	24,584[4]	25,943[4]	27,376[5]	-	-	1.24%[2]
2007 Oregon Aviation Plan Based Aircraft	105[4]	111[4]	118[5]	-	-	1.27%[2]
Operations Per Based Aircraft (OPBA)	234	234	232	-	-	-
2005 Airport Layout Plan Report Annual Operations	26,730[4]	28,607[4]	30,563[5]	-	-	1.72%[3]
2005 Airport Layout Plan Report Based Aircraft	114[4]	123[4]	131[5]	-	-	1.71%[3]
Operations Per Based Aircraft (OPBA)	235	233	233	-	-	-

1. AAR: annual average rate of growth (2016-2037)
2. AAR: annual average rate of growth (2005-2025)
3. AAR: annual average rate of growth (2004-2024)
4. Interpolation of original forecast to fit current forecast year
5. Extrapolation of original forecast to fit current forecast year

ASHLAND MUNICIPAL AIRPORT – AIRPORT LAYOUT PLAN REPORT (2005)

Assessment: The forecasts of aviation activity are skewed by earlier based aircraft estimates and pre-recession assumptions about future growth. The based aircraft forecast is currently running approximately 90 percent above the most recent airport management count and is no longer considered valid.

The Airport Layout Plan Report provides airport activity forecasts for a 2004-2024 planning period. The forecasts include based aircraft, based aircraft fleet mix, annual aircraft operations, activity peaking, and local/itinerant traffic distributions. The analysis of critical aircraft was developed in the facility requirements element of the master plan, using overall numbers contained in the forecast.

Based Aircraft

As indicated above, this forecast is no longer valid. The based aircraft forecast projected an increase from 89 to 125 at Ashland Municipal Airport between 2004 and 2024, which translates into an annual average growth rate of **1.71 percent** over the twenty-year period. The forecasts for 2014 and 2019 (109 and 117) are well above the fall 2017 based aircraft count of 74.

Annual Aircraft Operations

As indicated above, this forecast is no longer valid. The annual aircraft operations forecast for Ashland Municipal Airport began with a base year (2004) estimate of 20,878 annual operations and projected an increase to 29,375 in 2024, which translates into an annual average growth rate of **1.72 percent** over the twenty-year period. The annual aircraft operations forecast reflected a fixed operations to based aircraft (OPBA) ratio of 235.

FAA TERMINAL AREA FORECAST (2018-2038)

Assessment: The January 2018 FAA TAF has been updated to reflect the currently-verified based aircraft count provided by airport management. The TAF based aircraft forecast provides a reasonable estimate of long term activity for comparison with other updated forecasts. The accuracy of the aircraft operations numbers contained in the TAF cannot be determined, however the TAF provides a reasonable estimate of long term activity for comparison with other updated forecasts.

The FAA Terminal Area Forecast (TAF) for Ashland Municipal Airport was reviewed as one of the estimates of activity currently available for the airport. The current TAF base year is 2016, with projections extending through the planning horizon defined for the current airport master plan referenced in this analysis.

Based Aircraft

The TAF for Ashland Municipal Airport projects an increase from 58 (2016) to 80 based aircraft in 2037 (the end of current master planning period). This forecast translates into an annual average growth rate of **1.54 percent** over the 21-year period (2016-2037).

Annual Aircraft Operations

The TAF for Ashland Municipal Airport projects an increase in annual aircraft operations from a base estimate of 26,050 in 2016 to 32,757 in 2037. This forecast translates into an annual average growth rate of **1.1 percent** over the period.

For reference, the TAF 2017 forecast (26,357 annual operations) corresponds to an operation to based aircraft ratio (OPBA) of 447, when paired with the 2017 TAF based aircraft forecast of 59.

OREGON AVIATION PLAN (2007)

Assessment: The OAP forecasts of aviation activity are skewed by earlier based aircraft estimates and pre-recession assumptions about future growth. The based aircraft forecast is currently running approximately 75 percent above the most recent airport management count and is no longer considered valid.

The OAP provides aviation activity forecasts for a 2005-2025 planning period. Forecasts were developed for general aviation activity (based aircraft and annual aircraft operations) individual airports and statewide.

Based Aircraft

As indicated above, this forecast is no longer valid. The OAP based aircraft forecast projected an increase from 89 to 115 at Ashland Municipal Airport between 2005 and 2025, which translates into an annual average growth rate of **1.29 percent** over the twenty-year period.

Annual Aircraft Operations

As indicated above, this forecast is no longer valid. The OAP forecast of annual aircraft operations at Ashland Municipal Airport projected an increase from 20,954 to 26,793 between 2005 and 2025, which reflects an average annual rate of **1.24 percent** over the twenty-year period.

Updated Aviation Activity Forecasts

As noted earlier, the initial aviation activity forecasts developed with the original based aircraft data are obsolete. Revised forecasts were developed using the updated based aircraft information and also reflecting FAA review comments.

Based Aircraft

Four new based aircraft forecasts were originally developed for comparison with the existing forecasts described earlier. The issues related to the changes in the based aircraft count have been described earlier. In addition, the FAA provided input on the methodology used in the forecasts.

Three of the forecasts were based on Ashland Municipal Airport's market share within the FAA's seven state Northwest-Mountain Region,[5] utilizing the FAA's current long-term based aircraft forecast for the region.[6] During its review, the FAA indicated that the absence of direct data (airport vs. region) over an extended period does not support variable market share assessments.

The fourth forecast applied the Oregon Aviation Plan (OAP) 2005-2025 forecast growth rate assigned to Ashland Municipal Airport to the updated (2017) based aircraft count for Ashland Municipal Airport. During its review, the FAA indicated that the original 2007 OAP forecast were too old to provide a reliable basis for forecasting airport activity. By extension, developing updated forecasts that use the OAP growth rate assumptions would not be valid.

Based on FAA input, the four forecasts have been dropped from consideration and a new projection was developed to reflect the FAA's forecast growth for the seven state Northwest-Mountain Region contained in the Terminal Area Forecast.[7] The absence of reliable historic airport-specific data make trend analyses

[5] ANM – FAA Northwest Mountain Region (WA, OR, ID, MT, WY, UT, CO)

[6] Terminal Area Forecast Summary Fiscal Years 2016-2045

[7] Terminal Area Forecast Summary Fiscal Years 2016-2045

difficult. However, there are no site conditions or other local or regional factors to suggest that future growth at Ashland Municipal Airport will deviate significantly from FAA-defined growth for the region. The updated based aircraft forecast and the previous existing forecasts are summarized in **Table 3-12** and depicted on **Figure 3-3.**

A review of historic local and regional population and based aircraft activity at Ashland Municipal Airport did not identify any statistical correlations that supported using population as the basis for estimating future based aircraft activity at Ashland Municipal Airport. As a result, no population-based projections of airport demand were developed. Despite the absence of a statistical correlation and a measurable cause and effect, it is important to emphasize that population growth is generally recognized as one of many factors needed to contribute to growth in airport activity.

FAA NORTHWEST-MOUNTAIN REGION (ANM) LONG TERM GROWTH RATE

The FAA projects the based aircraft fleet in the Northwest-Mountain Region to grow at an average annual rate of **0.93 percent** between 2015 and 2045. This rate exceeds the growth rate projected for five of the nine FAA regions and it is well above the annual projected growth for the nation (0.63 percent). The overall takeaway is that although the forecast rate of growth is modest, the region is expected to be among the strongest in the nation for general aviation based aircraft fleet growth over the next thirty years.

The twenty-year projection is based on the current count of 60 based aircraft and includes a one-time increase of 4 based aircraft in the first forecast year (2022) from the group of 9 inactive aircraft currently at the airport. As noted earlier, it is assumed that several of the inactive aircraft will return to active status in next year and remain on the airport. The adjustment is combined with the annual growth rate of 0.93 percent for the 2022 forecast. Beyond 2022, based aircraft are projected to grow at an average annual rate of 0.93 percent. The projection results in an increase from 60 to 77 based aircraft (+17) by 2037, which represents an average annual growth rate of **1.26 percent**.

Summary (Recommended Based Aircraft Forecast)

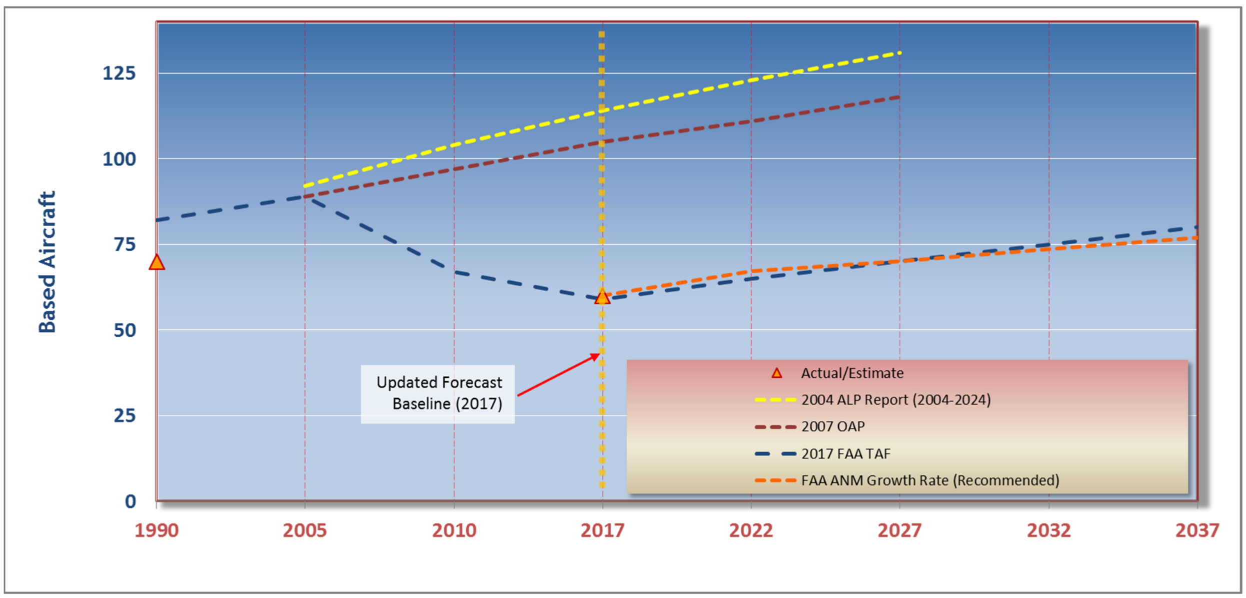
The **FAA Northwest-Mountain Region Growth Rate** forecast is recommended as the preferred based aircraft forecast for use in the airport master plan. This projection assumes that Ashland Municipal Airport will be able sustain growth in its based aircraft fleet that is in line with the FAA's anticipated growth in the Northwest-Mountain region. The selected forecast results in a net increase of 17 based aircraft over the twenty-year planning period (2017-2037), which reflects an average annual growth of **1.26 percent.** The recommended based aircraft forecast is summarized in **Table 3-12** and depicted on **Figure 3-3.**

TABLE 3-12: BASED AIRCRAFT FORECAST SUMMARY

Projection	2017	2022	2027	2032	2037	AAR
2005 ALP Forecast	114	123	131	-	-	1.71%[1]
2007 OAP Forecast (Unadjusted)	105	111	118	-	-	1.29%[2]
2017 FAA Terminal Area Forecast (TAF)	59	65	70	75	80	1.54%[3]1.
ANM 20-Year Growth Rate (Recommended)	60	67	70	74	77	26%[4]
Selected Forecast	60	67	70	74	77	1.26%[4]

1. AAR: annual average rate of growth (2004-2024)
2. AAR: annual average rate of growth (2005-2025)
3. AAR: annual average rate of growth (2016-2037)
4. AAR: annual average rate of growth (2017-2037)

FIGURE 3-3: BASED AIRCRAFT FORECASTS



The primary purpose of the based aircraft forecast is to define future related facility needs, particularly aircraft storage (aircraft parking and hangar space). The use of development reserves is recommended for defining activity-dependent facility needs that may exceed forecast activity. An aircraft storage development reserve equal to 100 percent of the projected net increase in based aircraft (+17) is recommended for planning landside facilities in the planning period.

Based Aircraft Fleet Mix

The airport's current mix of based aircraft consists of single-engine and multi-engine piston aircraft, multi-engine turbine aircraft, and helicopters. **Table 3-13** summarizes the forecast based aircraft fleet mix for the planning period. **Figures 3-4** and **3-5** depict the current (2017) and long-term (2037) distribution of based aircraft by type. The based aircraft fleet mix during the planning period is expected to become slightly more diverse to include light sport aircraft, additional turbine aircraft, and helicopters.

TABLE 3-13: FORECAST BASED AIRCRAFT FLEET MIX

Aircraft Type	2017	2022	2027	2032	2037
Single Engine Piston	53	58	60	62	63
Multi-Engine Piston	1	2	2	2	2
Turboprop	0	0	2	3	3
Business Jet	1	1	1	1	2
Helicopter	4	5	5	5	6
Glider	1	1	1	1	1
Total Based Aircraft	60	67	71	74	77

FIGURE 3-4: BASED AIRCRAFT FLEET MIX (2017)

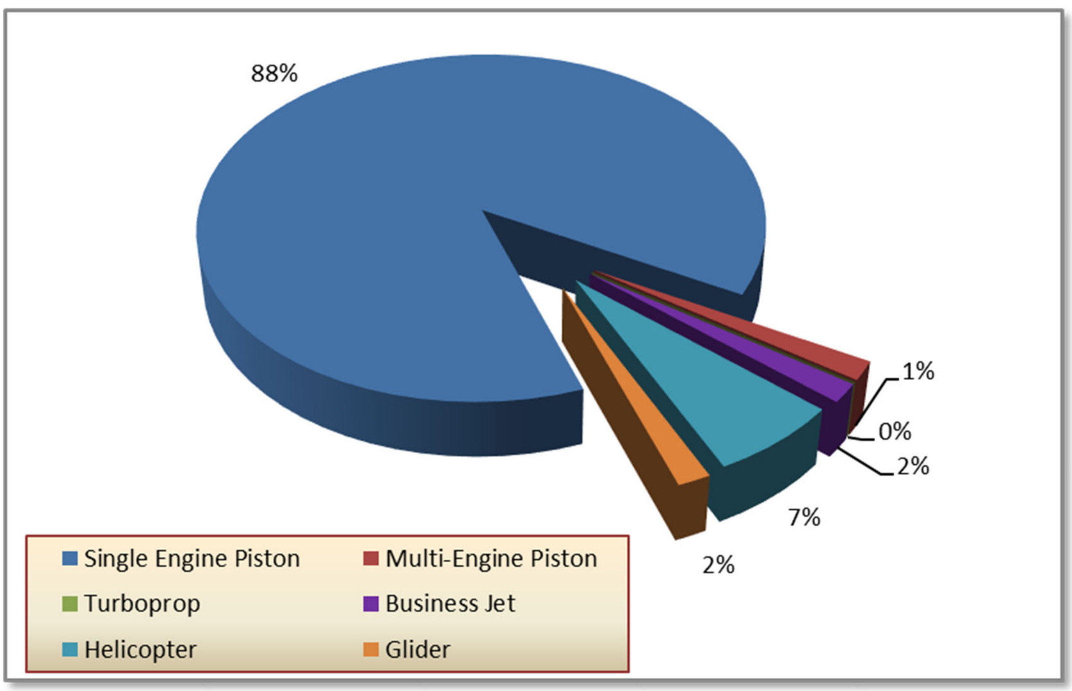
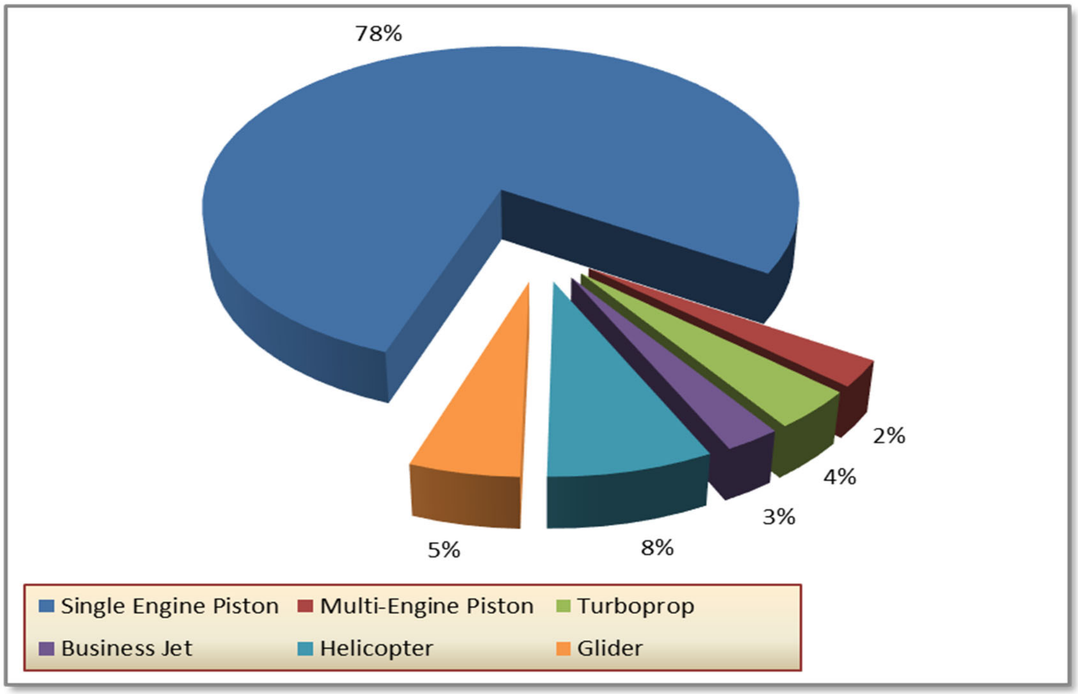


FIGURE 3-5: FORECAST BASED AIRCRAFT FLEET MIX (2037)



Aircraft Operations

As a non-towered airport, overall operational data (total number of takeoffs and landings) for Ashland Municipal Airport is limited to estimates. Due to limited data, defining current and future operations levels presents a significant challenge and the projections should not be interpreted as precise.

Three new forecasts were prepared for the master plan to compare with the existing forecasts presented earlier. As noted earlier, two of the existing forecasts (the 2005 ALP and the 2007 OAP) are not considered valid due to issues with accuracy of historic based aircraft counts, which also affects the corresponding aircraft operations levels. These forecasts will not be compared with the updated projections. The 2018 TAF was recently updated and is adequate for comparison with the updated aircraft operations forecasts.

One of the new aircraft operations forecasts utilizes a mathematical regression model developed for FAA that incorporates several airport-specific and regional inputs to generate a baseline operations estimate. Future year forecasts were then developed based on the recommended based aircraft forecast and by using fixed growth in population and other inputs defined in the model. Two additional forecasts were developed using operations per based aircraft (OPBA) formulas recognized by FAA for estimating activity at general aviation airports.

The preliminary aircraft operations forecasts included one projection that utilized historic activity ratios captured through aircraft activity counts conducted at the airport over a 22-year period between 1983 and 2001. The FAA in its review, concluded that the on-airport counts were not relevant due to their age. The projection also became obsolete with the changes to the based aircraft forecasts noted earlier. This forecast has been discarded rather than updated based on the FAA opinion of relevancy.

The updated aircraft operations forecasts and the 2018 FAA TAF are summarized in **Table 3-14** and depicted on **Figure 3-6**.

2018 FORECAST – FAA REGRESSION MODEL FOR ESTIMATING AIRCRAFT OPERATIONS AT NON-TOWERED AIRPORTS

This forecast uses a statistical regression model approved by the FAA to estimate operations at non-towered airports. The report, entitled Model for Estimating General Aviation Operations at Non-Towered Airports Using Towered and Non-Towered Airport Data (GRA, Inc., 2001) presents the methodology and formula for the model. Several independent variables are used in the model, including airport characteristics, demographics, and geographic features. The model was created by using a combined data set for small towered and non-towered general aviation airports with the addition of a dummy variable to distinguish the two airport types. The following variables are included in the model:

- Based Aircraft (at the subject airport);
- Percent of aircraft based at the airport among general aviation airports within 100 miles;
- Number of FAR Part 141 flight training schools at the airport;
- Population within 100 miles; and
- Ratio of population within 25 miles and 100 miles.

The model is designed to consider a variety of elements that directly and indirectly affect airport activity. This forecast uses the current year analysis of the model to estimate annual aircraft operations. The accompanying forecast of operations is developed from the based aircraft forecast and reflects several key assumptions: 1 percent annual population growth; no changes in the number of FAR Part 141 flight schools at the airport; and no change in the number of airports located in the 100 mile radius surrounding the airport. The worksheet for the regression analysis is provided on the following page.

The regression model developed for Ashland Municipal Airport produced 17,400 aircraft operations for 2017. The associated forecast increases annual aircraft operations to 21,300 by 2037, which reflects an average annual growth rate of **1.02 percent** between 2017 and 2037.

Ashland Municipal Airport – Aircraft Operations Estimate
Prepared by Century West Engineering 7/5/18
GA Operations Regression Equation 15, Data for Non-Towered GA Airports[8]

$$Operations = 775 + 241(BA) - 0.14(BA2) + 31{,}478(\%in100mi) + 5{,}777(VITFSnum) + 0.001(Pop100) - 3{,}736(WACAORAK) + 12{,}121\left(\frac{Pop25}{Pop100}\right)$$

Independent Variable Definitions

- BA = Total based aircraft at an airport
- BA2 = Total based aircraft at an airport squared
- %in100mi = Percentage of based aircraft among based aircraft at GA airports within 100 miles
- VITFSnum = Number of FAR 141 pilot schools on airport
- Pop100 = Population within 100 miles
- WACAORAK = 1 if airport is in Washington, California, Oregon, or Alaska; otherwise, 0.
- Pop25/Pop100 = Ratio of population within 25 miles to population within 100 miles

Independent Variable Values

- BA = 60
- BA2 = 3,600
- %in100mi = 60/854 = 0.070258
- VITFSnum = 0
- Pop100 = 578,128
- WACAORAK = 1
- Pop25/Pop100 = 170,895/578,128 = 0.295601

Total Estimated Annual Operations at Ashland (2017)

$$Operations = 775 + 241(60) - 0.14(3{,}600) + 31{,}478(0.070258) + 5{,}777(0) + 0.001(578{,}128) - 3{,}736(1) + 12{,}121(0.295601)$$
$$Operations = 775 + 14{,}460 - 504 + 2{,}212 + 0 + 578 - 3{,}736(1) + 3{,}583$$
$$\boldsymbol{Operations\ (Rounded\ Total\ ) = 17{,}400}$$

Future Year Estimates

Assumptions:

- Based aircraft forecast
  - 2022 = 67
  - 2027 = 70
  - 2032 = 74
  - 2037 = 77
- %in100mi is constant throughout future year projections (0.086651)
- No future flight schools (VITFSnum = 0 for all years)
- Average population growth = 1.0% for Pop100 and Pop25 variables

Year	Estimated Operations (Rounded)
2022	**19,000**
2027	**19,700**
2032	**20,600**
2037	**21,300**

[8] *Model for Estimating General Aviation Operations at Non-Towered Airports Using Towered and Non-Towered Airport Data,* GRA, Inc., 2001. Accessed December 20, 2017.
https://www.faa.gov/data_research/aviation_data_statistics/general_aviation/media/GAModel3F.doc

2018 FORECAST – FAA NPIAS FORMULA

FAA Order 5090.3C. Field Formulation of the National Plan of Integrated Airport Systems, suggests a forecast methodology for non-towered airports that relies on a general formula for estimating operations by utilizing an activity ratio that is applied to current and forecast based aircraft. The Order 5090.3C identifies a typical range of 250 to 450 operations per based aircraft (OPBA) for different types of general aviation airports. The FAA recognizes that these ratios approximate activity, and that individual airports may vary.

The projection **(NPIAS 1)** uses a fixed OPBA of 350, which is applied to the updated based aircraft forecast presented earlier. The OPBA is within the FAA's range for general aviation airports with moderate levels of itinerant traffic. This assumption is consistent with Ashland Municipal Airport's ability to attract business aviation and general aviation activity within the region and the Airport's functional role (Category III - Regional General Aviation) defined in the current Oregon Aviation Plan (OAP).

The formula establishes base year (2017) activity at 21,000 annual operations (60 BAC x 350 OPBA) and projects general aviation operations to increase to 26,974 by 2037, which reflects an average annual growth rate of **1.26 percent.**

Summary (Aircraft Operations Forecast)

The recommended forecast of aircraft operations for Ashland Municipal Airport is the **FAA Regression Model.** This forecast projects average annual growth in aircraft operations of **1.03 percent**.

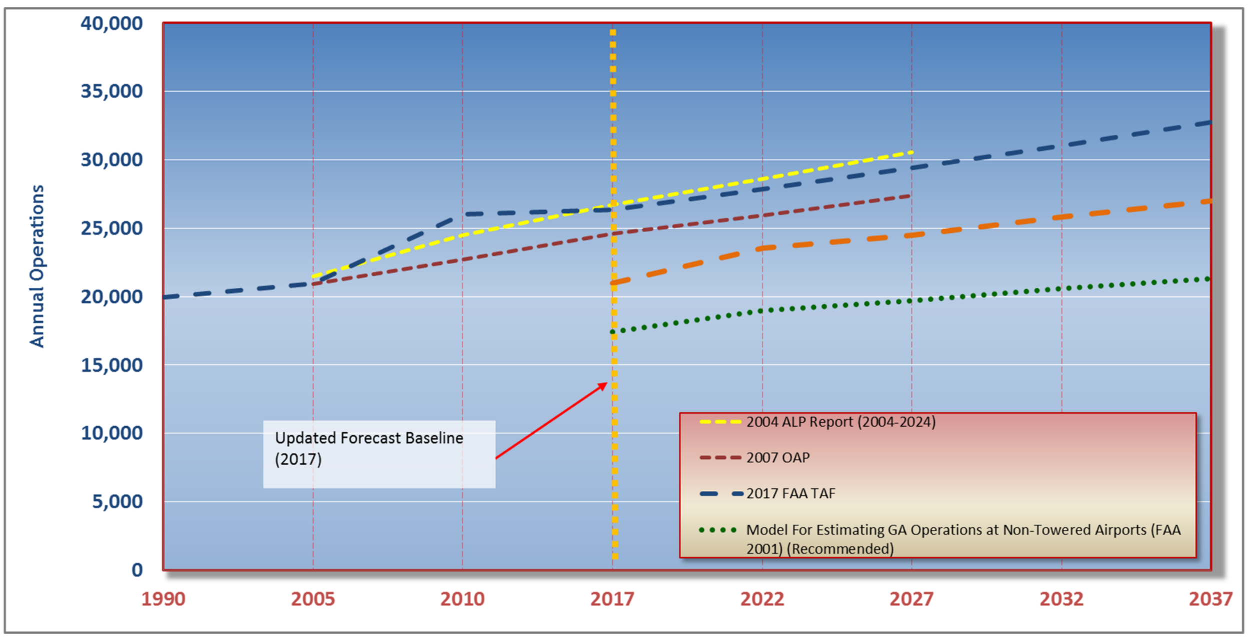
The absence of reliable historic based aircraft counts at the airport makes the use of conventional operations per based aircraft (OPBA) ratios to estimate annual operations unreliable. Both the current FAA TAF and the OPBA-derived projections cannot be readily verified without an actual aircraft activity count. However, it is noted that any level of activity within the range of forecasts presented in **Table 3-14** will have a nominal effect on defining future airport facility needs based on the recommended forecast.

TABLE 3-14: UPDATED GA AIRCRAFT OPERATIONS FORECASTS

Projection	2017	2022	2027	2032	2037
2018 FAA Terminal Area Forecast (1.10% AAR 2016-2037)	26,357	27,887	29,431	31,050	32,757
NPIAS Formula (OPBA 350) (1.26% AAR 2017-2037)	21,000	23,559	24,550	25,805	26,974
FAA Non-Towered Equation[2] (1.02% AAR 2017-2037)	17,400	19,000	19,700	20,600	21,300
Selected Forecast – FAA Non-Tower Equation (1.02% AAR 2017-2037)	**17,400**	**19,000**	**19,700**	**20,600**	**21,300**

[1] FAA Field Formulation for NPIAS,
[2] Model for Estimating General Aviation Operations at Non-Towered Airports (FAA 2001)
AAR: Average Annual Rate (Growth)

FIGURE 3-6: GENERAL AVIATION OPERATIONS FORECAST



Local and Itinerant Operations

General aviation (GA) operations consist of aircraft takeoffs and landings conducted by GA aircraft. All aircraft operations are classified as local or itinerant. **Local operations** are conducted in the vicinity of an airport and include flights that begin and end at the airport. These include aerial applicators, flight training, touch and go operations, and other flights that do not involve a landing at another airport. **Itinerant operations** include flights between airports, including cross-country flights. Itinerant operations reflect specific travel between multiple points, often associated with business and personal travel.

The aircraft operations data presented in the current FAA TAF for Ashland Municipal Airport reflects a 17/83[9] percent split between local and itinerant aircraft operations. This operational distribution was similar to the 15/85 percent split reflected in the 2005 Airport Layout Plan forecasts. It is recommended that the TAF's 17/83 percent - local/itinerant air traffic distribution be applied to forecast aircraft operations during the current planning period. The local and itinerant distribution for each forecast year is summarized in the forecast summary (**Table 3-20**), located at the end of the chapter.

Aircraft Operations Fleet Mix

Single engine piston aircraft (including light sport and experimental) currently account for nearly 90 percent of airport operations, followed by helicopters, multi-engine piston, single-engine and multi-engine turboprops, and business jets. It is expected that the mix of air traffic at Ashland Municipal Airport will shift slightly during the twenty-year planning period to include more turbine aircraft (turboprops, jets, and helicopters) based on current trends in aircraft manufacturing and the composition of airport users. The growing popularity of single-engine turboprops for personal and business use is also expected to affect the operational fleet mix at Ashland Municipal Airport. Piston helicopter activity is also expected to increase for both transportation and flight training purposes. The aircraft operations fleet mix forecast is summarized in **Table 3-15.**

[9] Airport Master Record - Itinerant operations include General Aviation and Air Taxi for 12 months ending 03/17/2015.

TABLE 3-15: GA AIRCRAFT OPERATIONS FLEET MIX

Aircraft Type	2017	%	2022	%	2027	%	2032	%	2037	%
Single Engine Piston*	14,775	85	16,040	84	16,360	83	16,930	82	17,100	80
Multi Engine Piston	400	2	450	2	500	2	520	2	550	2
Turboprop	155	<1	220	1	320	<2	400	<2	460	2
Jet	70	<1	90	<1	120	<1	150	<1	190	<1
Helicopter	2,000	11	2,200	12	2,400	12	2,600	13	3,000	14
Total Operations	**17,400**	**100**	**19,000**	**100**	**19,700**	**100**	**20,600**	**100**	**21,300**	**100**

*Includes Sport and LSA
Note: Percentages may not sum due to independent rounding

Critical Aircraft (FAA Planning Guidance)

As noted earlier, the selection of design standards for airfield facilities is based upon the characteristics of the aircraft that are expected to use the airport. This aircraft or aircraft type is designated as the "critical aircraft." The FAA provides the following definitions:

"The critical aircraft is the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport. Regular use is 500 annual operations, including both itinerant and local operations, but excluding touch-and-go operations. An operation is either a takeoff or landing." [10]

The FAA group aircraft into five categories (A-E) based upon their approach speeds. Aircraft Approach Categories A and B include small propeller aircraft, many small or medium business jet aircraft, and some larger aircraft with approach speeds of less than 121 knots (nautical miles per hour). Categories C, D, and E consist of the remaining business jets as well as larger jet and propeller aircraft generally associated with commercial and military use with approach speeds of 121 knots or more. The FAA also establishes six airplane design groups (I-VI), based on the wingspan and tail height of the aircraft. The categories range from Airplane Design Group (ADG) I, for aircraft with wingspans of less than 49 feet, to ADG VI for the largest commercial and military aircraft. A list of typical general aviation and business aviation aircraft and their respective design categories is presented in **Table 3-16.**

[10] FAA Advisory Circular (AC) 150/5000-17 Critical Aircraft and Regular Use Determination

TABLE 3-16: GA AIRCRAFT & DESIGN CATEGORIES

Aircraft	Aircraft Approach Category	Airplane Design Group	Maximum Gross Takeoff Weight (lbs)
Cessna 182 (Skylane)	A	I	3,100
Cirrus Design SR22	A	I	3,400
Beechcraft Bonanza A36	A	I	3,650
Socata/Daher TBM 700-930	A	I	6,579-7,394
Beechcraft Baron 58	B	I	5,500
Cessna 340	B	I	5,990
Cessna Citation Mustang	B	I	8,645
Embraer Phenom 100	B	I	10,472
Cessna Citation CJ1+	B	I	10,700
Beech King Air A100	B	I	11,800
Beechcraft 400A/Premier I	B	I	16,100
Piper Malibu (PA-46)	A	II	4,340
Cessna Caravan 675	A	II	8,000
Pilatus PC-12	A	II	10,450
Cessna Citation CJ2+	B	II	12,500
Cessna Citation II	B	II	13,300
Cessna Citation CJ3	B	II	13,870
Beech King Air 350	B	II	15,000
Cessna Citation CJ4	B	II	16,950
Embraer Phenom 300	B	II	17,968
Cessna Citation XLS+	B	II	20,200
Dassault Falcon 20/200	B	II	28,660
Bombardier Learjet 55	C	I	21,500
Beechcraft Hawker 800XP	C	II	28,000
Gulfstream 150	C	II	26,100
Cessna Citation X	C	II	36,100
Bombardier Challenger 300	C	II	37,500
Gulfstream III	C	II	69,700
Learjet 35A/36A	D	I	18,300
Gulfstream G450	D	II	73,900
Bombardier Global Express 5000	C	III	92,750

Source: AC 150/5300-13, as amended; aircraft manufacturer data.

The combination of airplane design group and aircraft approach speed for the critical aircraft creates the Airport Reference Code (ARC), which is used to define applicable airfield design standards. **Figure 3-7** illustrates representative aircraft in various design groups based on ARC.

A-I

12,500 lbs. or less (small)

Beech Baron 55
Beech Bonanza
Cessna 182
Piper Archer
Piper Seneca

B-I

12,500 lbs. or less (small)

Beech Baron 58
Beech King Air 100
Cessna 402
Cessna 421
Piper Navajo
Piper Cheyenne
Cessna Citation I

A-II, B-II

12,500 lbs. or less (small)

Super King Air 200
Pilatus PC-12
DHC Twin Otter
Cessna Caravan
King Air C90

B-II

Greater than 12,500 lbs.

Super King Air 300, 350
Beech 1900
Cessna Citation Excel
Falcon 20, 50
Falcon 200, 900
Citation II, Bravo XLS+
Citation CJ3

A-III, B-III

Greater than 12,500 lbs.

DHC Dash 7, Dash 8
Q-200, Q-300
DC-3
Convair 580
Fairchild F-27
ATR 72
ATP

C-I, D-I

Lear 25, 35, 55, 60
Israeli Westwind
HS 125-700

C-II, D-II

Gulfstream II, III, IV
Canadair 600
Canadair Regional Jet
Lockheed JetStar
Citation X
Citation Sovereign
Hawker 800 XP

C-III, D-III

Boeing Business Jet
Gulfstream 650
B 737-300 Series
MD-80, DC-9
Q-400
A319, A320
Gulfstream V
Global Express

C-IV, D-IV

B-757
B-767
DC - 8-70
DC - 10
MD - 11
L 1011

D-V

B - 747 Series
B - 777

AIRPORT REFERENCE CODES (ARC)
FIGURE 3.7

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST
ENGINEERING

Current and Future Critical Aircraft

The identification of the existing and future critical aircraft for the airport is required to define the appropriate design standards for various airport facilities. **Table 3-17** summarizes the selected operations forecast at Ashland Municipal Airport by aircraft type; aircraft approach speed (AAC), and airplane design group (ADG).

TABLE 3-17: GA FORECAST ACTIVITY FLEET MIX (BY AAC + ADG)

Aircraft Type (Representative)	AAC + ADG	Historic	Forecast			
		2017	2022	2027	2032	2037
Cessna 172	A-I	14,775	16,040	16,360	16,930	17,100
TBM 900	A-I	50	80	120	150	180
Beechcraft Baron 58	B-I	400	450	500	520	550
Piper Cheyenne II (PA-31T)	B-I	45	60	80	90	100
Cessna Citation CJ1	B-I	20	30	50	70	100
Pilatus PC-12/Cessna Caravan	A-II	60	80	120	160	180
Cessna 550 - Citation Bravo	B-II	50	60	70	80	90
Bombardier Learjet 60	C-I	0	0	0	0	0
Gulfstream G150	C-II	0	0	0	0	0
Total Operations (Fixed Wing)		**15,400**	**16,800**	**17,300**	**18,000**	**18,300**
Helicopter		2,000	2,200	2,400	2,600	3,000
TOTAL – GA OPERATIONS		**17,400**	**19,000**	**19,700**	**20,600**	**21,300**
Subtotals by AAC (FW + Heli)	A	16,885	18,400	19,000	19,840	20,460
	B	515	600	700	760	840
	C	0	0	0	0	0
	D	0	0	0	0	0
Subtotals by ADG (FW only)	I	15,290	16,660	17,110	17,760	18,030
	II	110	140	190	240	270

Source: Aircraft operations by segment estimated based on available information including: based aircraft fleet, transient aircraft activity, FAA TFMSC data, fuel data, and FBO interviews.

Ashland Municipal Airport accommodates a wide range of ADG I and II transient multi-engine piston and turbine aircraft in addition to local aircraft activity. One multi-engine piston aircraft and one medium business jet (Cessna Citation II/Bravo) are currently based at the airport.

A review of 2017 instrument flight plan data identified 40 business jet and 56 turboprop operations at Ashland Municipal Airport. However, as noted earlier instrument flight plan activity for the airport is limited by the absence of a published instrument approach. As a result, historic instrument flight plan data may not fully reflect turbine aircraft activity. The airport accommodates occasional small package express/air cargo flights (from Medford) when localized fog conditions require a weather diversion. This activity varies greatly, but is typically less than 100 operations per year.

Critical Aircraft Conclusions

As indicated in the updated aviation activity forecast, Ashland Municipal Airport accommodates a variety of aircraft types. Fixed-wing activity can be divided into two large groups: single-engine piston aircraft (approximately 96 percent of fixed-wing operations) and everything else (multi-engine piston, single and multi-engine turboprops, and business jets).

The largest segment of the more demanding aircraft activity category is a multi-engine piston aircraft included in Airplane Design Group I (ADG I). Current estimates place this activity just below the 500 annual operations required to meet the FAA regular use criteria. However, when combined more demanding ADG I and II turbine aircraft, current Approach Category B activity exceeds the 500 operations threshold. Based on the composite of activity, the most appropriate choice for current design aircraft is a light multi-engine aircraft included in the Aircraft Approach Category B and Airplane Design Group I (ADG I).

Table 3-18 summarizes the current and future critical aircraft and airport reference code (ARC) for Ashland Municipal Airport. An analysis of aircraft use and applicable design standards will be performed in the facility requirements analysis to address specific facility needs.

TABLE 3-18: SUMMARY OF CRITICAL AIRCRAFT & ARC

Current and Future "Airport" ARC: B-I
Based on the recommended master plan forecasts, the current and future critical aircraft for Ashland Municipal Airport is a multi-engine piston aircraft included in **Airport Reference Code (ARC) B-I**: **Existing/Future Critical Aircraft:** **Beechcraft Baron G58 (**representative AC type, multi-engine piston) • Aircraft Approach Category B • Airplane Design Group I • Maximum Takeoff Weight: 5,524 Pounds (small aircraft)

Operational Peaks

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 occurs during the summer when weather conditions and daylight are optimal. The peak month at Ashland Municipal Airport is estimated to account for approximately 11 percent of annual aircraft operations. This level of peaking is consistent with other airports with similar levels of flight training and transient activity.

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 30. For planning purposes, the **Busy Day** is often estimated to be 25 percent higher than the average day in the peak month (Design Day x 1.25), unless the airport routinely experiences significant seasonal or daily surges in traffic.

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 percent of Design Day operations (Design Day x 0.20).

The operational peaks for each forecast year are summarized in **Table 3-19**. This level of peaking is consistent with the mix of airport traffic and is expected to remain relatively unchanged during the planning period. These measures of activity are considered when calculating runway/taxiway capacity and transient aircraft parking requirements. No significant runway or taxiway capacity issues have been identified based on current or forecast activity levels.

TABLE 3-19: PEAK GENERAL AVIATION OPERATIONS FORECAST

Activity	2017	2022	2027	2032	2037
Annual Operations (GA)	17,400	19,000	19,700	20,600	21,300
Peak Month Operations (11%)	1,914	2,090	2,167	2,266	2,343
Design Day Operations (average day in peak month)	64	70	72	76	78
Busy Day Operations (assumed 125% of design day)	80	87	90	94	98
Design Hour Operations (assumed 20% of design day)	13	14	15	15	16

Military Activity

The FAA Terminal Area Forecast (TAF) lists no military flight activity at Ashland Municipal Airport. However, occasional military use with helicopters or small fixed-wing aircraft in support of emergency response, search and rescue, and training activities would be consistent with activity (Oregon Army National Guard, etc.) experienced at other Oregon general aviation airports. Military flight activity at the airport is limited by available airfield capabilities and is assumed at 100 annual operations during the planning period.

Air Taxi Activity

Air taxi activity includes for-hire charter flights and some scheduled commercial air carriers operating under FAR Part 135. Ashland Municipal Airport accommodates a limited number air cargo/express flight diversions from Medford due to localized weather conditions. These aircraft are operated by a FedEx or UPS contract carrier under FAR Part 135. Additional charter flight activity at Ashland Municipal Airport would also be conducted under Part 135.

The FAA Terminal Area Forecast (TAF) estimates current air taxi activity at Ashland Municipal Airport at 1,500 annual operations. A static 1,500 air taxi operations projection is maintained through the end of the TAF forecast period (2045). For master planning purposes, this level of activity will be assumed in the recommended aircraft operations forecast.

Forecast Summary

The summary of based aircraft and annual aircraft operations forecasts is provided in **Table 3-20**. The forecast for based aircraft and aircraft operations projects modest sustained growth in activity at Ashland Municipal Airport through the twenty-year planning period that is consistent with the FAA's long-term expectations for general aviation. Based aircraft are forecast to increase at an average annual rate of **1.26 percent** between 2017 and 2037. Annual aircraft operations are forecast to increase at an average annual rate of **1.03 percent** during the same period.

TABLE 3-20: FORECAST SUMMARY

Activity	2017	2022	2027	2032	2037
Itinerant Operations					
General Aviation	12,925	14,253	14,834	15,581	16,162
Air Taxi/Commercial	1,500	1,500	1,500	1,500	1,500
Military	100	100	100	100	100
Total Itinerant Operations	14,525	15,853	16,434	17,181	17,762
Local Operations	2,975	3,247	3,366	3,519	3,638
Total Local & Itinerant Operations	**17,500**	**19,100**	**19,800**	**20,700**	**21,400**
Based Aircraft	60	67	70	74	77
Operations Per Based Aircraft (GA)	290	284	281	282	277

Fifty-Year Forecast

Fifty-year demand forecasts were prepared as required in the FAA-approved master plan scope of work by extrapolating the average annual growth rates (AAGR) for the recommended 20-year based aircraft and aircraft operations forecasts. The purpose of the 50-year projection is to provide an estimate of demand that can be used to approximate long-term aviation use land requirements for the airport. **Table 3-21** summarizes the 50-year forecast including the intermediate 30- and 40-year based aircraft and aircraft operations

TABLE 3-21: 50-YEAR FORECAST

Activity	2017	2037	2047	2057	2067
Annual Operations	17,500	21,400	23,709	26,268	29,102
Based Aircraft	60	77	85	93	102

U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Seattle Airports District Office
1601 Lind Avenue S.W., Suite 250
Renton, Washington 98057-3356

August 31, 2018

Mr. Scott Fleury
Engineering Service Manager
City of Ashland
20 E Main Street
Ashland, OR 97520

Dear Mr. Fleury:

Forecast Approval
Ashland Municipal Airport – Sumner Parker Field, Ashland, OR
AIP- 3-41-0002-011-2017

I have reviewed the Forecasts of the Master Plan Update submitted by Century West for Ashland Municipal Airport – Sumner Parker Field. The forecasts of based aircraft and aircraft operations, respectively, are hereby approved and accepted for Federal Aviation Administration (FAA) purposes.

If you have any questions about this forecast approval, please call me at (206) 231-4139.

Sincerely,

Valerie Renee Thorsen
Digitally signed by Valerie Renee Thorsen
Date: 2018.08.31 11:14:29 -07'00'

Valerie Thorsen
Airport Planner, Oregon

cc:
David Miller, Century West

Chapter 4

Airport Facility Requirements

Chapter 4 – Airport Facility Requirements

The evaluation of airport facility requirements is intended to determine the facility needs for Ashland Municipal Airport (S03) for the current twenty-year planning period based on updated aviation activity forecasts and conformance to established airport design criteria.

Introduction

The evaluation of airport facility requirements combines the results of the inventory and forecasts contained in Chapters Two and Three, and established planning criteria to determine the future facility needs for the Airport during the current twenty-year planning period. **Airside** facilities include the airspace around the Airport, runways, taxiways, navigational aids and lighting systems. **Landside** facilities include hangars, terminal, and fixed base operator (FBO) facilities, aircraft parking apron(s), and surface access and automobile parking. **Support Facilities** such as aircraft fueling, security/perimeter fencing, and utilities are also examined. All airfield items are evaluated based on established FAA standards and community derived goals for the Airport.

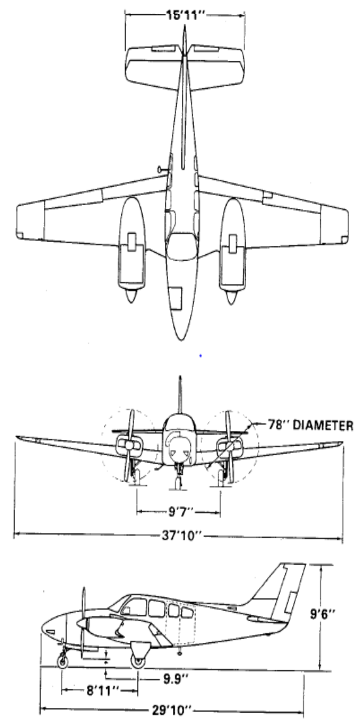
The facility requirements evaluation identifies the adequacy or inadequacy of existing facilities and identifies what new facilities may be needed during the planning period based on forecast demand or conformance to FAA standards. The evaluation of demand-driven elements will reflect in gross numbers, new facility needs such as runway length requirements, hangar space, and aircraft parking positions based on forecast demand and the needs of 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. Potential options for accommodating current and future facility needs will be evaluated in the Airport Development Alternatives (Chapter Five).

Critical Aircraft and Airport Design Standards Discussion

Based on the current and projected level of activity described in Chapter Three, Aviation Activity Forecasts, the existing and future critical aircraft is determined. The critical aircraft establishes existing and future airport planning & design standards that will guide future planning, design, and development of the Airport.

BEECHCRAFT BARON 58 (BE58)

3 VIEW DRAWING



CRITICAL AIRCRAFT AND AIRPORT REFERENCE CODE

The recommended existing and future critical aircraft is the **Raytheon/Beechcraft Baron 58 (Be58).** The design aircraft is intended to represent the most demanding aircraft using the airport on a regular basis and establishes the Airport Reference Code (ARC) of **B-I (small)**, which is an airport designation that signifies the airport's highest Runway Design Code (RDC), minus the third (visibility) component of the RDC. For more information see FAA Advisory Circular 150/5000-17 Critical Aircraft and Regular Use Determination and applicable airport planning & design standards summarized in greater detail below.

RUNWAY DESIGN CODE (RDC)

The Runway Design Code (RDC) is comprised of the selected Aircraft Approach Category (AAC), the Airplane Design Group (ADG), and the approach visibility minimums of a specific runway end. For airports with more than one runway, each runway will have its own RDC. The RDC provides the information needed to determine specific runway design standards. The approach visibility minimums refer to the visibility minimums expressed by runway visual range (RVR) values in feet. **The existing and planned RDC for Runway 12/30 is B-I-VIS.** For more detailed information on determining RDC see FAA Advisory Circular 150/5300-13A Airport Design.

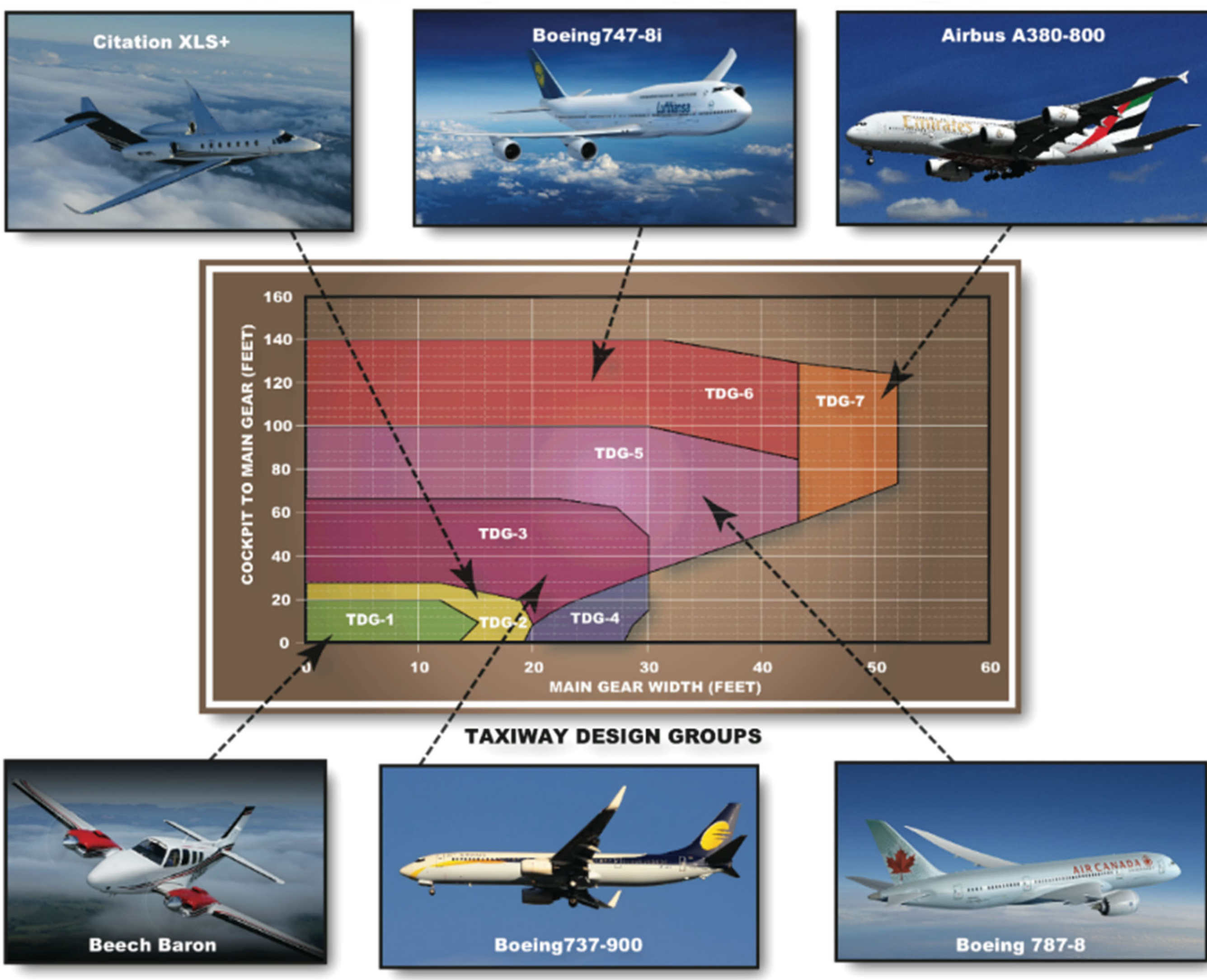
APPROACH AND DEPARTURE REFERENCE CODE

The Approach and Departure Reference Codes (APRC and DPRC respectively) represent the current operational capabilities of each specific runway end and adjacent taxiways. The approach reference code uses the physical characteristics of the design aircraft (approach speed and wingspan/tail height) and the approach visibility minimums (expressed in RVR values) and runway to taxiway separation on the airfield to define specific standards. **The existing and planned APRC for Runway 12/30 is B-I(S)-VIS.**

The departure reference code uses only the physical characteristics of the design aircraft and runway to taxiway separation. **The existing and planned DPRC for Runway 12/30 is B-I(S).** For more detailed information on determining APRC and DPRC see FAA Advisory Circular 150/5300-13A Airport Design.

TAXIWAY DESIGN GROUP

Taxiway Design Group (TDG) 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 the design aircraft. **The major taxiways at the Airport accommodate primarily ADG I aircraft, which is best represented by TDG 1.**



FAA DESIGN STANDARDS

FAA Advisory Circular 150/5300-13A Airport Design serves as the primary reference in establishing the geometry of airfield facilities. A comparison of existing condition dimensions and future design standards for the runway is summarized in **Table 4-1**.

FAA DESIGN STANDARDS

Specific design standards and conditions applicable to Ashland Municipal Airport facilities are presented in the following sections of this chapter within the sidebar "FAA Design Standards" text box. For additional information reference appropriate sections within AC 150/5300-13A.

TABLE 4-1: RUNWAY 12/30 AIRPORT DESIGN STANDARDS SUMMARY (DIMENSIONS IN FEET)

FAA STANDARD	RUNWAY 12/30 EXISTING CONDITIONS	RUNWAY 12/30 ARC A/B-I (SMALL) NOT LOWER THAN 1-MILE OR VISUAL EXISTING/FUTURE STANDARD	RUNWAY 12/30 ARC A/B-I (SMALL) NOT LOWER THAN 3/4-MILE COMPARISON STANDARD[1]
Runway Length	3,603	See Runway Length Analysis Discussion (Page 15)	
Runway Width	75	60	60
Runway Shoulder Width[6]	10	10	10
Runway Safety Area • Width • Beyond RWY End • Prior to Landing Threshold	120 240 240	120 240 240	120 240 240
Runway Obstacle Free Zone • Width • Beyond RWY End • Prior to Landing Threshold	250 200 200	250 200 200	250 200 200
Object Free Area • Width • Beyond RWY End • Prior to Landing Threshold	250 240 240	250 240 240	250 240 240
Runway Protection Zone Length	RWY 12: 1,000 RWY 30: 1,000	RWY 12: 1,000 RWY 30: 1,000	RWY 12: 1,700 RWY 30: 1,700
Runway Protection Zone Inner Width	RWY 12: 250 RWY 30: 250	RWY 12: 250 RWY 30: 250	RWY 12: 1000 RWY 30: 1000
Runway Protection Zone Outer Width	RWY 12: 450 RWY 30: 450	RWY 12: 450 RWY 30: 450	RWY 12: 1,500 RWY 30: 1,500
Runway Centerline to: Parallel Taxiway/Taxilane CL Aircraft Parking Area 32' Building Restriction Line (BRL)	 163/151[2] 200[3] 350[4]	 150 125 350	 150 125 474[5]

Notes:

1. Not lower than ¾ mile B-I (small) standards depicted for the purpose of comparison.
2. Runway centerline to parallel Taxiway A centerline separation varies.
3. Distance between Runway 12/30 centerline and closest apron tiedowns.
4. A 350-foot BRL for 32-foot structures was depicted on the 2005 ALP.
5. A 474-foot BRL for 32-foot structures is required due to wider primary surface.
6. Turf, aggregate-turf, soil cement, lime or bituminous stabilized soil as measured outwards from the runway edge are recommended adjacent to ADG I runways.

Demand/Capacity Analysis

Annual service volume (ASV) is a measure of estimated airport capacity and delay used for long-term planning. ASV, as defined in FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay, provides a reasonable estimate of an airport's operational capacity.

For long-term planning purposes, the FAA estimates ASV capacity for a single runway with no air carrier traffic is approximately 230,000 operations; hourly capacity is estimated to be 98 operations during visual flight rules (VFR) conditions and 59 operations during instrument flight rules (IFR) conditions. Although these estimates assume optimal conditions (air traffic control, radar, etc.), they provide a reasonable basis for approximating existing and future capacity:

Existing Capacity: 23,964 Annual Operations / 230,000 ASV = 10% (demand/capacity ratio)

Future Capacity: 28,869 Annual Operations / 230,000 ASV = 12% (demand/capacity ratio)

Based on these ratios, the average delay per aircraft would be expected to remain below one minute through the planning period and no capacity enhancements are anticipated during the planning period.

Airport Facilities Analysis

Based on the updated inventory of facilities presented in Chapter Two, existing airfield facilities were evaluated for their conformance with applicable FAA standards. Additionally, any other Airport facility issues and/or opportunities that may have been identified or need to be addressed during the planning process are also depicted and discussed further within the Facility Requirements chapter.

Figure 4-1 depicts the airside facilities analysis.

Figure 4-2 depicts the landside facilities analysis.

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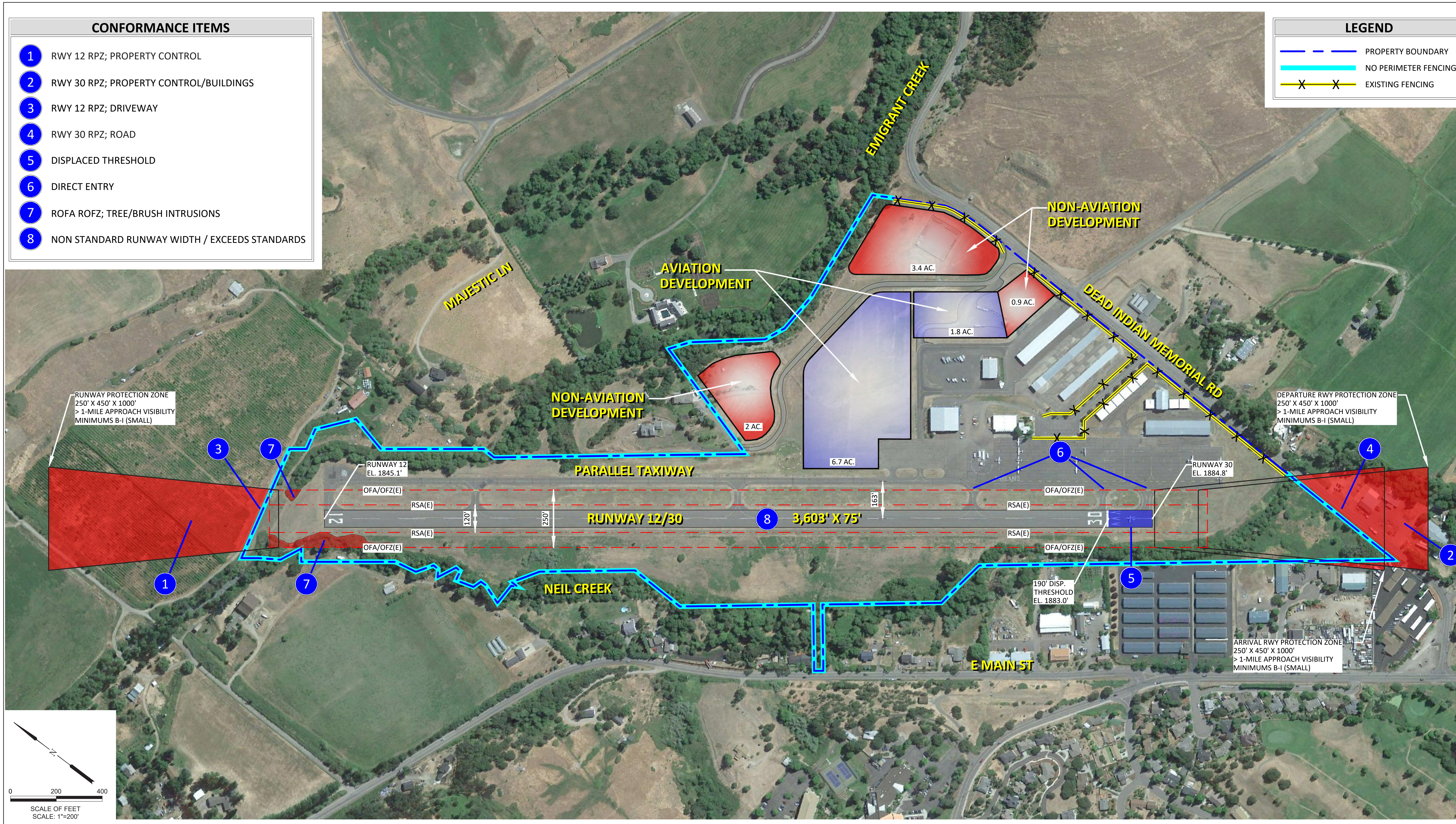
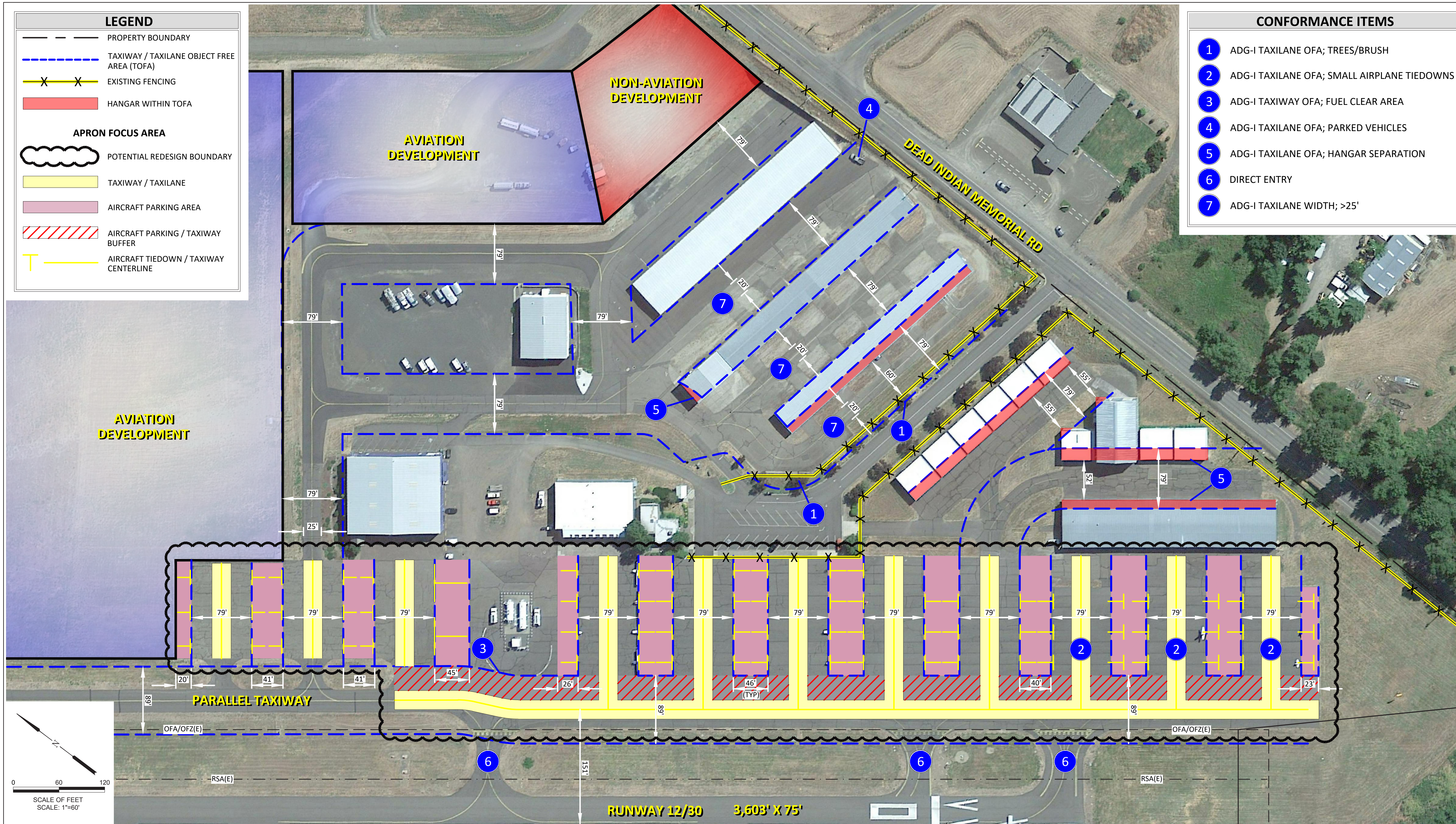


AIRSIDE FACILITY REQUIREMENTS ANALYSIS
FIGURE 4-1

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING



LANDSIDE FACILITY REQUIREMENTS ANALYSIS
FIGURE 4-2

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Airfield Pavement Strength and Condition

Airfield pavements are considered to be the single most important asset on the Airport. 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

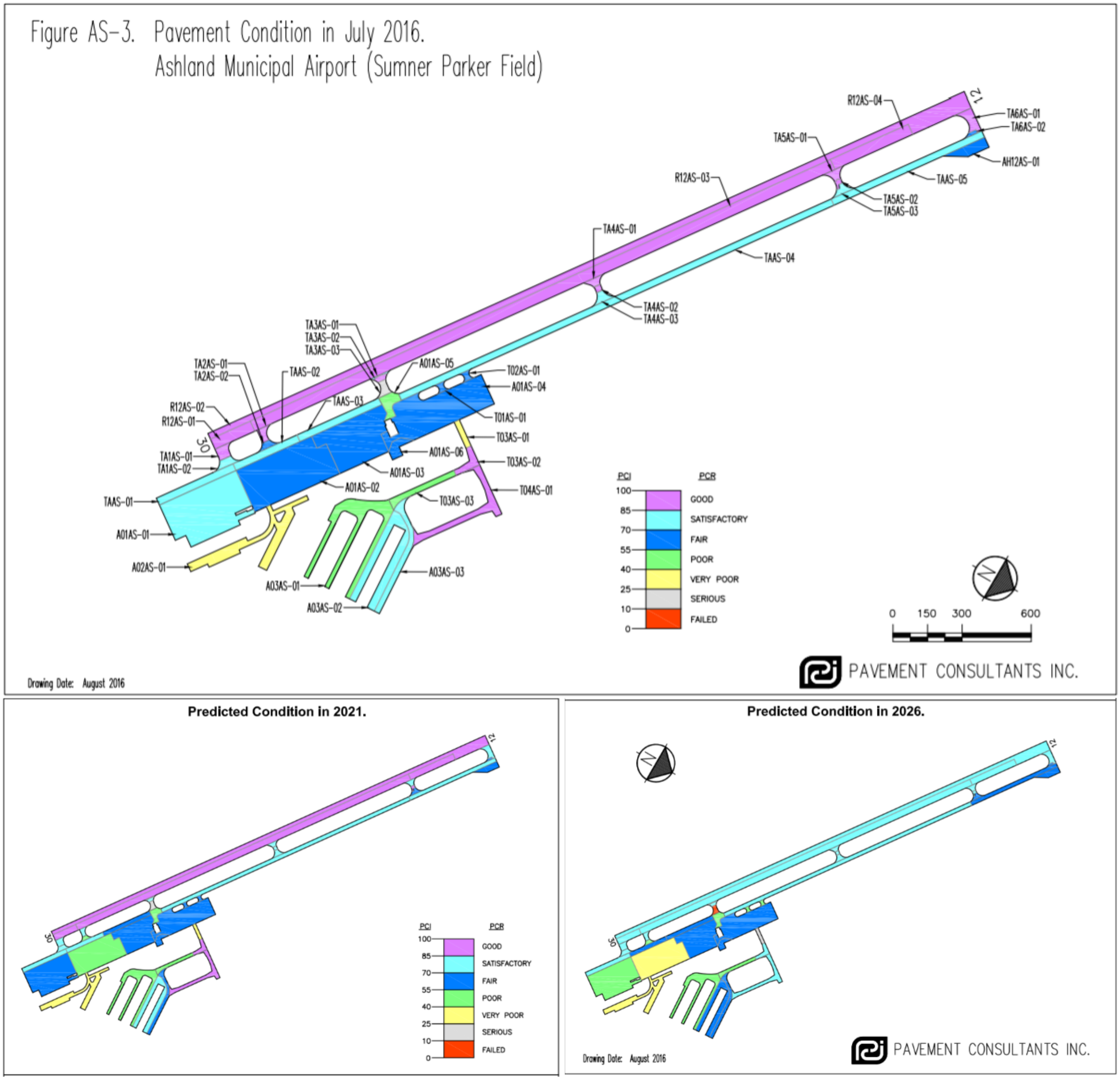
The published runway pavement strength rating is 15,000 pounds for aircraft equipped with single-wheel landing gear, which is sufficient to accommodate all A/B-I (small) aircraft. Ideally, taxiway and apron pavements designed to accommodate all aircraft operating at an airport should have the same weight bearing strength as the runway. However, pavements used by small aircraft (Hangar taxilanes, tiedown, aprons, and runways) are normally designed to accommodate aircraft weighing 12,500 pounds or less with single-wheel landing gear configurations. **It is recommended that pavement strength ratings of 12,500 lbs be maintained during the planning period.**

AIRFIELD PAVEMENT CONDITION

An updated Pavement Evaluation/Maintenance Management Program inspection, performed by Oregon Department of Aviation, was conducted in 2016. A graphical depiction of pavement condition in 2016 along with predicted conditions for 2021 and 2026 (assuming no future pavement maintenance) is presented within **4-3** on the following page. A summary of pavement conditions on the Airfield provided in the 2016 pavement condition report states:

> *"Section PCIs (Pavement Condition Index) at Ashland Municipal Airport range from a low of 14 (a PCR (Pavement Condition Rating) of "Serious") to a high of 100 (a PCR of "Good"). The area-weighted average PCI for all airport pavements is 77, corresponding to an overall PCR of "Satisfactory".*
>
> *The primary distresses observed during the inspection were: longitudinal and transverse cracking, patching, weathering, alligator cracking, depressions, block cracking and raveling."*

FIGURE 4-3: PAVEMENT CONDITION



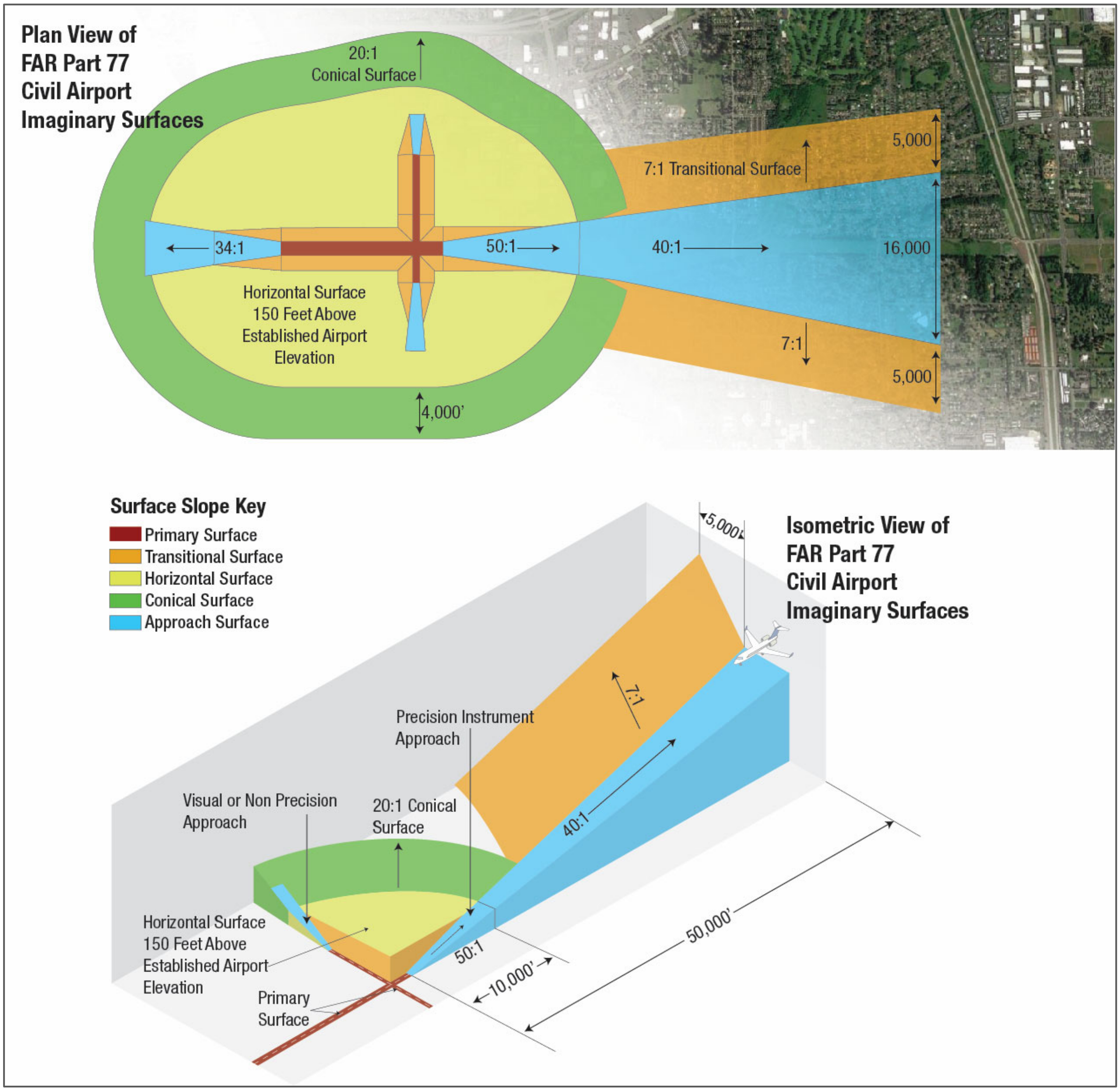
It is expected that apron, taxiway, and taxilane pavements on the airfield will require rehabilitation or reconstruction during the current planning period. A prioritized list of pavement rehabilitation or reconstruction projects will be provided in the updated capital improvement program. **It is recommended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

Airside Facilities Requirements

Airside facilities include the airspace around the Airport, runways, taxiways/taxilanes, apron/aircraft parking areas, navigational aids, signage, and lighting systems.

FAR PART 77 AIRSPACE AND OFF-AIRPORT LAND USE COMPATIBILITY

U.S. airport airspace is defined by Federal Aviation Regulations (FAR) Part 77.25 – Objects Affecting Navigable Airspace. FAR 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.



Approach Surface

The Approach Surface extends 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 planned for the runway.

In the late 1960s avigation easements for the inner portion of the 20:1 Visual Approach Surface beginning 200 feet from the runway end to the outer extents of the RPZ on both runway ends were acquired to ensure obstructions were not allowed to penetrate the approach surface within the defined area. In April 2018 the City of Ashland trimmed numerous trees that were identified as obstruction within the avigation easement area contained within the Runway 30 20:1 Approach Surface.

Utilizing the 2018 AGIS obstruction data and additional information from the April 2018 City of Ashland obstruction clearing project, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects to be identified in the Capital Improvement Plan (CIP) (Chapter 8).

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 penetrations, except items with locations fixed-by-function (i.e., PAPI, runway or taxiway edge lights, etc.). The outer ends of the primary surface connect to the inner portion of the runway approach surfaces.

Three primary surface penetrations were identified in 2018 AGIS data that include NAVAIDs, terrain, and a tree. Utilizing the 2018 AGIS obstruction data, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects as required.

Transitional Surface

The Transitional Surface is located along the lateral edges of the primary surface and is represented by a plane rising perpendicularly to the runway centerline at a slope of 7 to 1. The transitional surface extends 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.).

12 transitional surface penetrations were identified in 2018 AGIS data that includes NAVAIDs, antennas, buildings, fences, terrain, tanks, poles, bushes, and trees. Utilizing the 2018 AGIS obstruction data, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects as required.

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 (10,000 feet for larger than utility instrument runways and 5,000 feet for utility runways) constructed from each runway end. The outer edges of the radii for each runway are connected with tangent lines, which taken together define the horizontal surface.

Numerous horizontal surface obstructions were identified in the 2018 AGIS data due to topography within the Rogue Valley. Obstructions generally include terrain, trees, and other man-made obstacles. Utilizing the 2018 AGIS obstruction data, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects as required.

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.

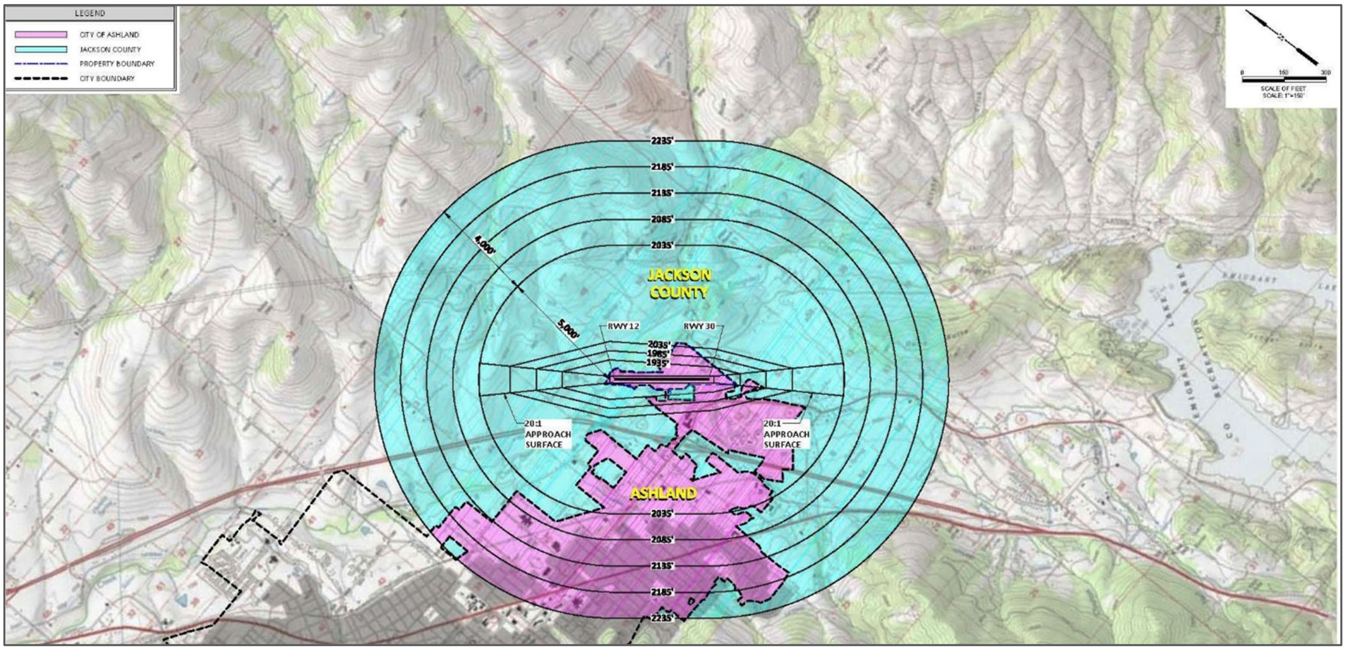
Numerous conical surface obstructions were identified in the 2018 AGIS data due to topography within the Rogue Valley. Obstructions generally include terrain, trees, and other man-made obstacles. Utilizing the 2018 AGIS obstruction data, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects as required.

Off-Airport Land Use

The City of Ashland has land use jurisdiction for the airport; however, some of the runway protection areas and the Part 77 surfaces extend beyond city limits and the Ashland urban growth boundary into unincorporated Jackson County. Both the City of Ashland and Jackson County have created Airport Overlay Zoning to protect Ashland Municipal Airport and address any off-airport land use compatibility issues that may potentially exist. **Figure 4-4** on the following page illustrates local land use jurisdictions with responsibilities to protect the FAR Part 77 airspace associated with the existing Runway 12/30 at Ashland Municipal Airport. Additionally, in the late 1960s avigation easements for both runway ends were acquired by the City to address off Airport obstructions.

It is recommended the City of Ashland, in coordination with Jackson County, continue to work to develop a mitigation plan to remove FAR Part 77 surface obstructions and continue to ensure land use compatibility. Additionally, upon selection of a preferred alternative it is recommended the City and County update the Airport Overlay Zoning as required to address any potential shifts due to relocation of runway ends or other upgrades that may require an update of the Part 77 surfaces.

FIGURE 4-4: LAND USE JURISDICTION



RUNWAY 12/30

The Runway 12/30 facility requirements were analyzed relative to runway orientation, runway length and width, and FAA design standards.

Runway Orientation and Crosswind Coverage

The preferred orientation of runways is a function of wind velocity and direction, combined with the ability of aircraft to operate under given conditions. FAA has defined the maximum allowable crosswind for small aircraft as 10.5 knots and 13 knots for larger general aviation aircraft.

The FAA recommends that primary runways accommodate at least 95 percent of local crosswind conditions. When this level of coverage is not provided, the FAA recommends consideration of a crosswind runway. An updated evaluation of wind data (All Weather, VFR, and IFR) utilizing closest available wind data from the Medford Airport was conducted and indicates that Runway 12/30 accommodates greater than 95 percent of all weather wind conditions for both small and larger general aviation aircraft. The current tabulated wind data from Medford is summarized below in **Table 4-2.**

TABLE 4-2: WIND ANALYSIS

Runway 12/30	
All Weather	
10.5 KNOTS	99.42%
13 KNOTS	99.74%
VFR	
10.5 KNOTS	99.35%
13 KNOTS	99.71%
IFR	
10.5 KNOTS	99.92%
13 KNOTS	99.95%
Runway 12/30 Bearing = 141.0 Degrees True Wind Data Source: National Climate Data Center (2007-2016 KMFR ASOS data)	

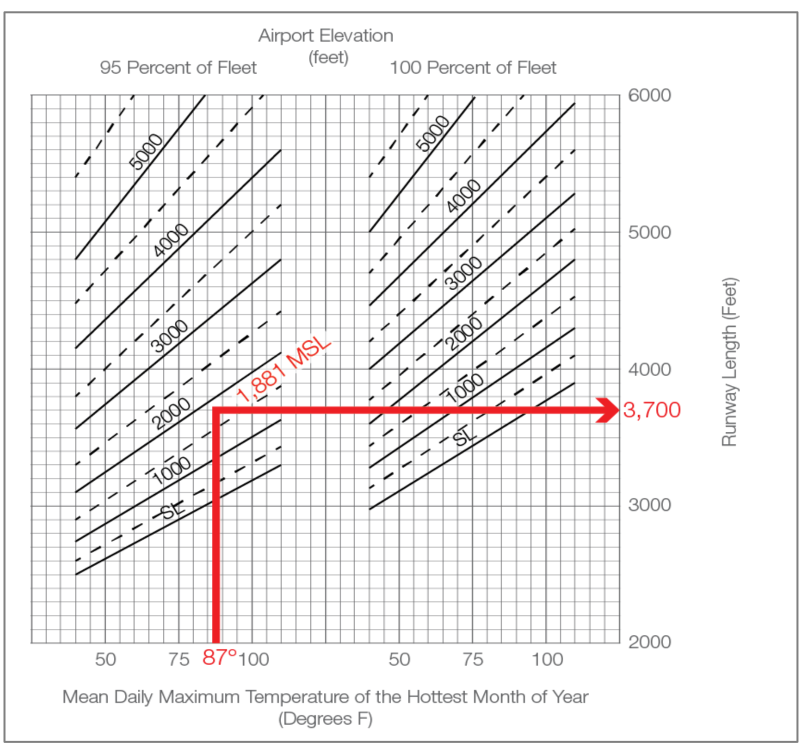
Runway Length

Runway length requirements are based primarily on airport elevation, mean maximum temperature of the hottest month, runway gradient, and the critical aircraft type expected to use the runway.

For general aviation airports the FAA recommends using a "family of design aircraft" approach to defining runway length requirements. FAA Advisory Circular (AC) 150/5325-4B, Runway Length Requirements for Airport Design provides the length analysis requirements for "small airplanes with fewer than 10 seats" that make up "95 percent of the fleet" for airports that are intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities.

Based on local conditions, this segment of activity requires a runway length of 3,700 at the Ashland Municipal Airport. The City of Ashland has committed to not extending the runway beyond its existing length. **The City would prefer to maintain the existing runway length of 3,603' or meet FAA recommended length to accommodate existing aircraft without encouraging new larger aircraft to come to the Airport.**

FIGURE 4-5:
SMALL AIRPLANES WITH FEWER THAN 10 PASSENGER SEATS



FAA DESIGN STANDARDS

Runway Safety Area (RSA)
Standards: ADG I standard is 120' wide or 60' each side of runway centerline and 240' beyond runway ends. Additional gradient standards apply.

Condition: The RSA for Runway 12/30 appears to meet FAA dimensional, object clearing, and grading standards.

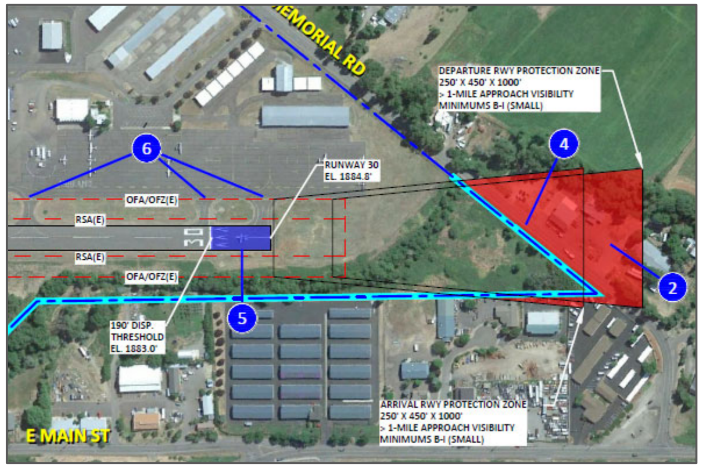
Runway Object Free Area (OFA)
Standards: ADG I standard is 250' wide or 125' each side of runway centerline and 240' beyond runway ends. Additional gradient standards apply.

Condition: The OFA for Runway 30 end appears to meet FAA dimensional, object clearing, and grading standards. The OFA for Runway 12 end does not meet standards due to trees, creeks, and a private drive within a small corner of the OFA.

Runway Obstacle Free Zone (OFZ)
Standards: ADG I standard is 250' wide or 125' each side of runway centerline and 200' beyond runway ends.

Condition: The OFZ for Runway 12/30 appears to meet FAA dimensional and obstacle clearing standards.

Displaced Threshold



See Figure 4-1 for legend and full runway length.

The Ashland Municipal Airport currently has a 190' displaced threshold on the Runway 30 end to provide additional clearance for landing aircraft over existing obstacles located off of Airport property. While the FAA provides guidance to establish displaced thresholds, it should not be interpreted as an endorsement by the FAA – Seattle ADO of the option to displace or maintain a displaced runway threshold. Therefore, for the displaced threshold to remain, as part of this master plan the FAA will require an evaluation that reveals displacement is still the best alternative. **It is recommended an alternatives evaluation that addresses the existing displaced threshold and FAA policy to maximize utilization and retention of existing paved areas on the Airport be conducted in the following development alternatives analysis chapter to determine a preferred solution.**

Runway Protection Zones (RPZ)

> **FAA DESIGN STANDARDS**
>
> ***Runway Protection Zone (RPZ)***
> **Standards:** ADG I/Visual RPZs comprise 8.035 acres. RPZs should be owned by the Airport or under control by easement and should be clear of incompatible land uses such as roads and buildings.
>
> **Condition:** Both Runway 12 and 30 RPZs extend beyond Airport property and have roads, buildings, and/or private drives within their boundaries. No easements for incompatible land uses currently exists.

In October 2012, the FAA released interim guidance regarding RPZs and incompatible land uses, with a particular focus on roads. This guidance directs airport sponsors to evaluate any planned changes to existing RPZs that introduce or increase the presence of roads in RPZs. Existing roads within RPZs are also to be evaluated during master planning to determine if feasible alternatives exist for realignment of a road outside RPZs or for changes to the RPZs themselves. The FAA Seattle Airports District Office has subsequently indicated that the primary focus of this policy is related to proposed changes to RPZs—as the result of a change to a runway end/RPZ location, approach visibility minimums, or the built items located in an RPZ. Any proposed changes in the length or configuration of the runway/runway displaced threshold that changes the location of existing RPZs evaluated in this study are subject to review by FAA headquarters in Washington D.C. **It is recommended existing RPZ conditions and potential alternatives for each runway end be considered in coordination with the displaced threshold alternatives analysis.**

Runway Width/Shoulders

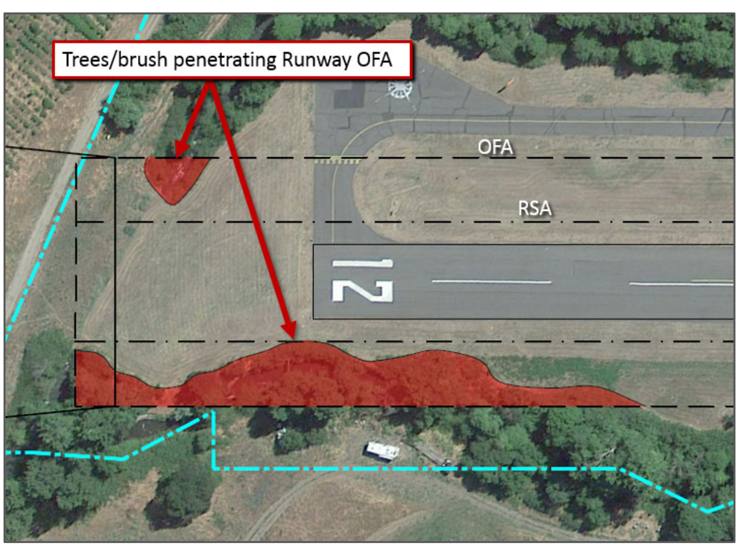
Runway 12/30 is 75 feet wide, which exceeds the dimensional standard for ARC A/B-I (small) with current approach visibility minimums (Visual). Existing 10 foot turf shoulders meet standards.

> **FAA DESIGN STANDARDS**
>
> ***Runway Width/Shoulders***
> **Standards:** ADG I standard runway width for runways with visual or not lower than 1 mile visibility is 60' with 10' shoulders.
>
> **Condition:** Existing Runway 12/30 width is 75' which exceeds standards by 15'. The excess 15' of runway would not be eligible for future FAA funding for runway reconstruction. 10' turf shoulders exist and meet standards.

As part of a future runway reconstruction project, anticipated to be completed in 15 to 20 years, a cost/benefit analysis will need to be completed to justify maintaining the existing nonstandard pavement width at nonstandard 75 feet. If it is determined that the excess width is not justified, the runway width will need to be reduced to FAA standards or the reconstruction of the excess 15' feet of pavement, which will not be eligible for FAA funding, could be funded entirely by the City of Ashland. Narrowing the runway to 60 feet would require relocation of edge lighting, signage, grading, shoulders, taxiway connectors, and drainage systems. **It is recommended that the existing runway width of 75' be maintained throughout the useful life of the pavement. The future runway width must be depicted at 60 feet on the ALP to comply with FAA standards.**

Runway Object Free Area (OFA)

As mentioned in the design standards discussion sidebar on Page 15, the Runway 12 end OFA is not clear of above ground objects. There are currently trees and bushes associated with the riparian area of Neil Creek and Emgrant Creek that may need to be removed. Additionally, the private drive outside of Airport property overlaps with the OFA by only several feet. **It is recommended existing OFA conditions and potential alternatives for each runway end be considered in coordination with the displaced threshold, RPZ, and runway end alternatives analysis.**



TAXIWAY/TAXILANE NETWORK

The taxiway/taxilane facility requirements were analyzed relative to existing hangar siting, apron and aircraft parking requirements, runway access, and FAA design standards.

Taxiways

The full-length parallel taxiway, holding bay, and appurtenant connecter and entry/exit taxiways on the east side of the runway generally meets standards. However, when analyzed as part of an airport system several deficiencies were identified. Specifically, the wide expanse of pavement connecting the ramp to the parallel taxiway providing direct access from the apron to the runway is not recommended and should be mitigated to better define the apron, taxiway, and runway so a pilot can more easily distinguish between airfield features. **It is recommended an alternatives evaluation focused on the parallel taxiway, apron/aircraft parking, and runway entry/exit taxiways be conducted in the following development alternatives analysis chapter to identify a preferred solution.**

FAA DESIGN STANDARDS

Runway – Parallel Taxiway/Taxilane Separation
Standards: ADG I standard is 150’ separation between runway to parallel taxiway for visual runways.

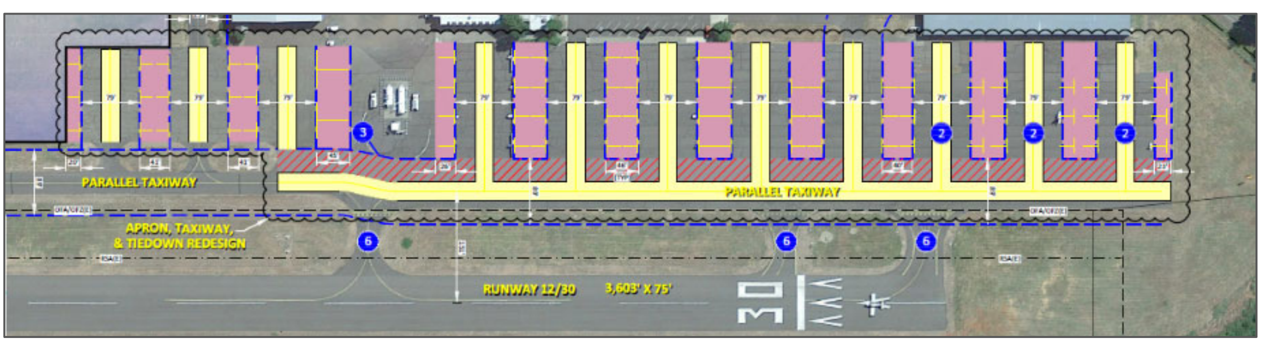
Condition: Runway to parallel taxiway separation ranges from 163’ to 151’ feet.

Taxiway Safety Area (TSA)
Standards: ADG I standard is 49’ wide or 24.5’ each side of taxiway centerline for the entire length of the taxiway. Additional gradient standards apply.

Condition: The existing TSAs on the Airport appear to meet FAA dimensional and grading standards.

Taxiway Object Free Area (TOFA)
Standards: TOFA for ADG I standards is 89’ wide or 44.5’ each side of taxiway centerline.

Condition: The existing parallel Taxiway “A” appears to meet FAA dimensional criteria. The relationship to adjacent aircraft parking area dimensions and wide expanse of pavement requires additional analysis.



See Figure 4-2 for legend and full runway length.

Taxilanes

Taxilane OFAs in several locations on the ramp and hangar development area are narrower than current standards due to evolving enforcement of FAA standards. It is anticipated these taxilane conditions in the hangar development areas, where they exist, will remain and a modification to standards will need to be pursued as a short-term solution. Beyond the planning period, buildings will need to be reconfigured at the end of their useful life.

FAA DESIGN STANDARDS

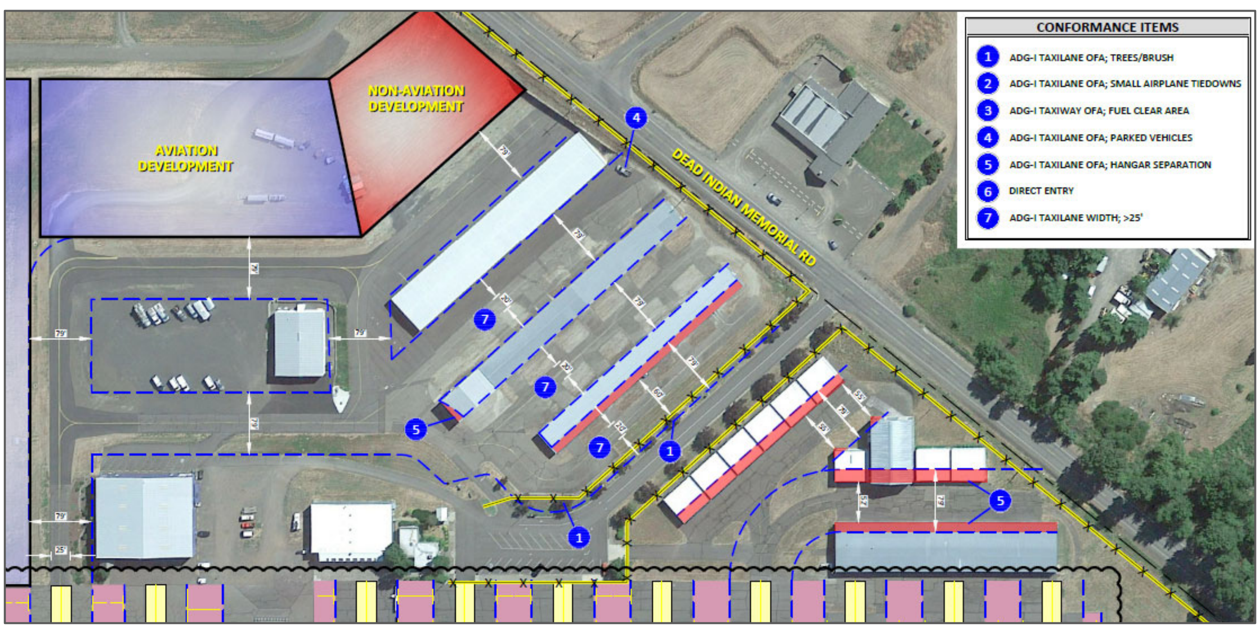
Taxilane Object Free Area

Standards: Taxilane OFA for ADG I standards is 79' wide or 39.5' each side of taxilane centerline.

Condition: TOFA penetrations exist on the aircraft parking apron and in the hangar development area in several instances.

On the apron where parked aircraft sometimes obstruct the taxilane OFAs, consideration will need to be given to address the conditions in coordination with apron/aircraft parking requirements discussed in the following section.

It is recommended a modification to standards for hangar/TOFA obstructions be pursued and an alternatives evaluation focused on apron/aircraft parking and TOFA/tiedown obstructions be conducted in the following development alternatives analysis chapter to identify a preferred solution for the apron area.



See Figure 4-2 for full legend.

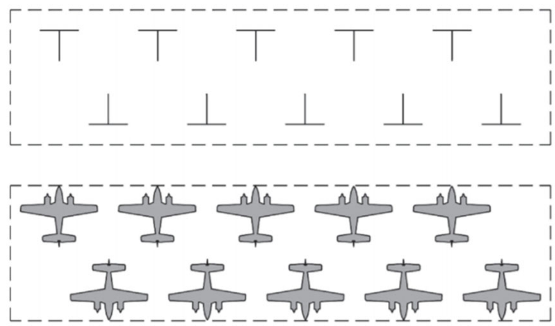
AIRCRAFT PARKING APRON

The aircraft parking apron facility requirements were analyzed relative to existing FAA apron and aircraft parking requirements analysis provided in FAA Advisory Circular 150/5300-13A Airport Design and facility needs depicted in **Table 4-3: Apron and Hangar Facility Requirements.**

> **FAA DESIGN STANDARDS**
>
> ***Aircraft Parking Area***
> **Standards:** Runway centerline to aircraft parking area standards for ADG I is 125'
>
> **Condition:** All aircraft parking areas are beyond the standard parking separation requirement.

Based and Itinerant Aircraft Parking

The size of aircraft parking areas and tie down layouts are considered non-standard due to their juxtaposition with taxilane OFAs. This non-standard condition (depicted in **Figure 4-2)** on the apron will require a redesign of the aircraft parking spots to remove parked aircraft from taxilane and address taxilane OFA obstructions.


BARON 58
Source: Delta Airport Consultants, Inc.

Parking area for 10 Beech Baron 58 tie-down positions.

To quantify the based and transient aircraft parking needs/requirements depicted in **Table 4-3**, the based aircraft forecasts and average day of the peak month Aviation Activity Forecasts were used to determine the parking spots necessary to satisfy existing and future demand.

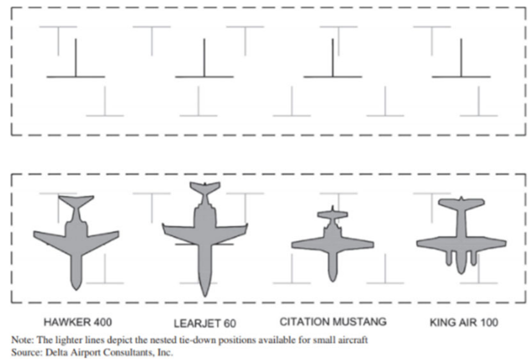
Historically the number of based aircraft parked on the apron fulltime has ranged from 40 to 20 percent, but more recently it is estimated that 10 percent of based aircraft are parked on the apron full-time. For planning purposes, it is estimated that 10 percent of the based aircraft would be parked on the apron full-time. Using this ratio, it is estimated the Airport will need to provide apron parking for approximately 8 based aircraft at the end of the 20-year planning period.

Transient aircraft parking needs were developed from the average peak day forecast data presented in Chapter 3 – Aviation Activity Forecasts. Transient aircraft parking requirements are estimated to be 50% of the itinerant operations of the average peak day of the peak month. Using this formula, it is estimated the Airport will need to provide parking for approximately 27 itinerant aircraft at the end of the 20-year planning period.

It is recommended an alternatives evaluation focused on providing apron/aircraft parking for approximately 36 aircraft, in coordination with taxiways, taxilanes, and runway entry/exit taxiways be conducted in the following development alternatives analysis chapter to identify a preferred layout.

Business Aircraft Parking

The standard parking area layout dimensions for ADG I aircraft provided in FAA Advisory Circular 150/5300-13A Airport Design would accommodate the existing design aircraft, the Airport's smaller fleet, as well as the occasional business aircraft. The conceptual parking area dimensions required to provide adequate parking clearances for larger business aircraft is depicted in the parking figure to the right. **It is recommended aircraft parking areas be designed to ADG I standards and accommodate the occasional business aircraft that may utilize the Airport.**



Parking area for 10 Beech Baron 58 tie-down positions marked for larger aircraft.

Helicopter Parking

Utility helicopter operator Brim Aviation has five helicopters currently based at the Airport. It is typically recommended by the FAA that Airport sponsors plan to separate fixed wing aircraft and helicopter operations when and where possible. For the Ashland Municipal Airport the separation in operations currently exists more or less. However, there is no designated area for helicopter operations and Brim Aviation helicopters have operated within the context of the largely fixed wing aircraft population. If future expansion continues north and east in to the developable areas as expected, in the future Brim Aviation would be surrounded by fixed wing operations, which may conflict. **It is recommended consideration be given to providing a designated helicopter parking/operations area during the development of apron layout alternatives.**

TABLE 4-3: APRON AND HANGAR FACILITY REQUIREMENTS SUMMARY

ITEM	BASE YEAR (2017)	2022	2027	2032	2037
Based Aircraft Forecast	60	67	71	74	77
Aircraft Parking Apron - Existing Aircraft Parking Type/Capacity					
Existing Apron Areas[1]	29,623 sy				
Small & Large Aircraft Parking	72 Tiedowns[6]				
Transient Helicopter Parking [2]	0				
Projected Needs (Gross Demand) [3]					
Locally Based Tiedowns (@ 300 SY each)	6 spaces / 1,800 sy	7 spaces / 2,100 sy	7 spaces / 2,100 sy	7 spaces / 2,100 sy	8 spaces / 2,400 sy
Small Airplane Itinerant Tiedowns (@ 360 SY each)	20 spaces / 7,200 sy	20 spaces / 7,200 sy	21 spaces / 7,560 sy	21 spaces / 7,560 sy	23 spaces / 8,280 sy
Business Aircraft Parking Positions (@ 625 SY each)	1 space / 625 sy	1 space / 625 sy	1 space / 625 sy	1 space / 625 sy	2 spaces / 1,250 sy
Small Helicopter Parking Positions (@ 380 SY each)	2 spaces / 760 sy	2 spaces / 760 sy	3 spaces / 1,140 sy	3 spaces / 1,140 sy	3 spaces / 1,140 sy
Total Apron Needs	**29** spaces / 10,385 sy	**30** spaces / 10,685 sy	**32** spaces / 11,425 sy	**32** spaces / 11,425 sy	**36** spaces / 13,070 sy
Aircraft Hangars (Existing Facilities)					
Existing Hangar Units/Aircraft Storage Capacity	18 Units[4]				
Projected Needs (Net Increase in Demand) [5]					
(New) T-Hangar Space Demand (@ 1,500 SF per space) (Cumulative twenty-year projected demand: 8 Units / 15,000 SF)		**2 Units / 3,000 sf**	**5 Units / 7,500 sf**	**7 Units / 10,500 sf**	**8 Units / 12,000 sf**

1. Apron pavement area as defined in ODA Pavement Management Plan database.
2. No designated helicopter parking spaces; helicopter parking is accommodated within the existing apron.
3. Apron parking demand levels identified for each forecast year represents estimated gross demand.
4. 18 hangars including four T-hangars (42 spaces or 56,525 SF); 12 small/medium conventional hangars (26,500 SF); and two large commercial hangars consisting of approximately 18,500 SF, which provides storage capacity for approximately 72 aircraft.
5. Aircraft hangar demand levels identified for each forecast year represent forecast cumulative demand; assumed 90% of new based aircraft will be stored in hangars.
6. 72 marked tiedowns; however, apron/tiedown reconfiguration is required to meet TOFA standards between tiedown rows and to provide standard aircraft parking. It is assumed a 50% reduction in tiedowns could occur.

AIRFIELD INSTRUMENTATION, SIGNAGE, LIGHTING, AND MARKINGS

Runway Lighting

The runway lighting systems associated with Runway 12/30 and described in Chapter 2 – Inventory are in good condition. Lighting systems are typically replaced every twenty years, although some systems remain reliable, serviceable, and fully functional for a considerably longer period. For planning purposes, the useful life of airfield lighting systems is twenty years and replacement projects for the systems will be included in the twenty-year capital improvement program, as appropriate. **It is recommended runway lighting be maintained and updated accordingly depending on runway alternatives discussed in subsequent chapters. Runway lighting would need to be relocated as required at the time of runway narrowing rehabilitation or reconstruction.**

Runway Markings

The runway markings at the Airport as noted in the Inventory Chapter are consistent with FAA standards for color (white), configuration, and approach type and are considered to be in good condition. **It is recommended runway markings be maintained consistent with the ODA Pavement Maintenance Program.**

Taxiway Markings

The taxiway markings at the Airport are consistent with FAA standards for color (yellow) and configuration and are considered to be in good condition. **It is recommended taxiway markings be maintained consistent with the ODA Pavement Maintenance Program.**

Airfield Signage

There are no runway or taxiway hold position signs, runway distance remaining signs, or taxiway location signs on the airport. **It is recommended lighted airfield signage be installed in conjunction with a future runway lighting project, or unlighted signage be installed when practical.**

Airfield Lighting

The airfield lighting systems (airport beacon, wind cones, taxiway edge reflectors, etc.) meet standards for location, type, and color. The taxiways at the Airport are equipped with blue retroreflective edge markers. **It is recommended existing airfield lighting systems be maintained and the City consider installation of Medium Intensity Taxiway Lights (MITL) if pilot visibility at night needs to be enhanced.**

Landside Facilities Requirements

Landside facilities include hangars, terminal, and fixed base operator (FBO) facilities, aircraft parking apron(s), and surface access and automobile parking.

AIRCRAFT HANGARS

The Airport has 18 hangars including four T-hangars (42 spaces or 56,525 SF); 12 small/medium conventional hangars (26,500 SF); and two large commercial hangars consisting of approximately 18,500 SF, which provides storage capacity for approximately 72 aircraft. As previously noted, for planning purposes it is assumed that approximately 90% of the Airport's based aircraft will be stored in hangars.

As noted in the updated aviation activity forecasts, the number of based aircraft at the Airport is projected to increase by 17 aircraft during the twenty-year planning period. Demand for new hangar space (aircraft storage only) is estimated to be 8 spaces totaling approximately 12,000 square feet over the 20-year planning period based on a projected 90 percent hangar utilization. A planning standard of 1,500 square feet per based aircraft stored in hangars is used to project gross space requirements. The projected hangar storage requirements are presented in **Table 4-3.**

It is recommended adequate space for future T-Hangars and conventional hangar space to satisfy future demand be identified and depicted during the landside development alternatives process.

FBO/CORPORATE/TERMINAL AREA

In addition to aircraft storage, additional demand for business related and commercial hangar needs are anticipated. Specialized aviation service businesses such as flight training, engine & airframe repair, avionics, interior, and paint shops need locations where aircraft can access their facilities. Aviation service businesses rely on both locally based aircraft and customers from outside the local area. While there is no specific formula to predict demand for general aviation service businesses, reserving space for additional commercial hangars with access to taxiways is recommended.

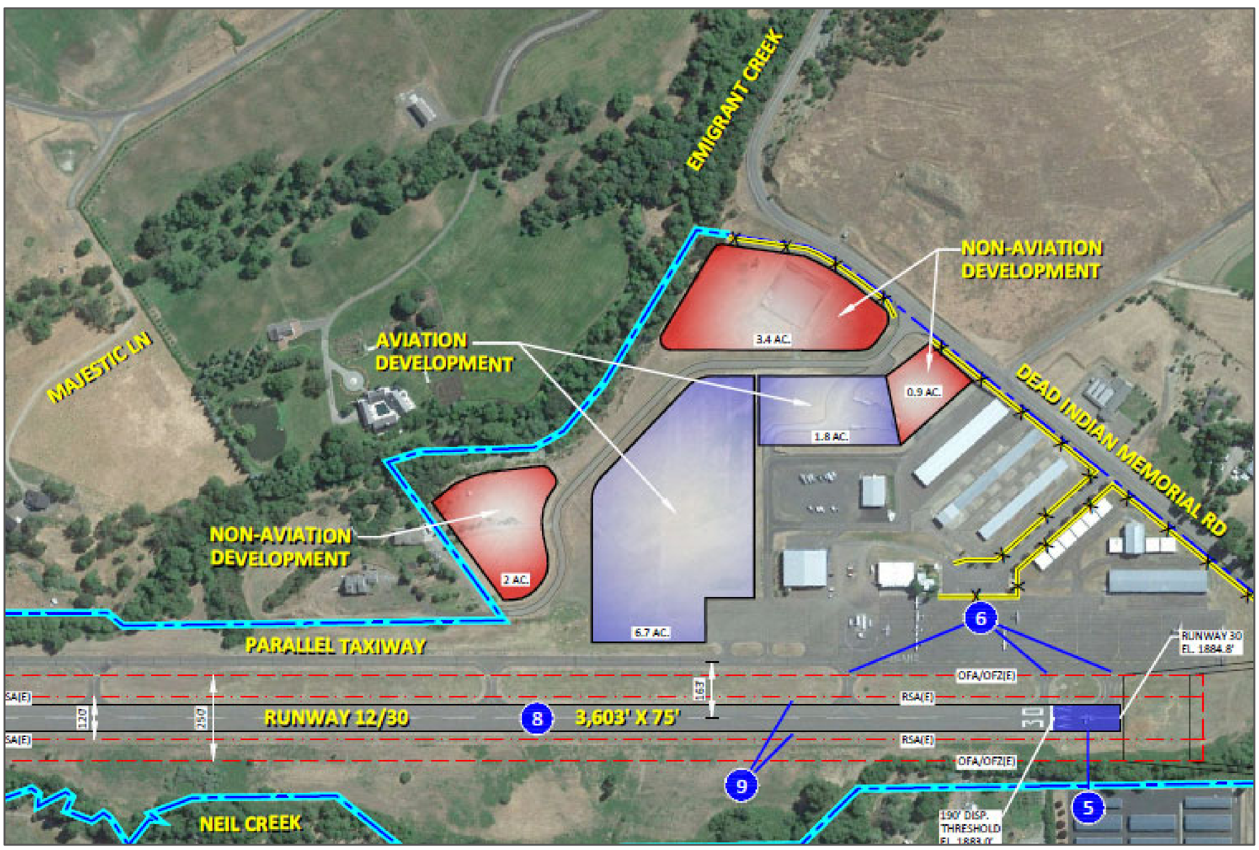
It is recommended adequate space for future business and commercial hangar space to satisfy potential future demand be identified and depicted during the landside development alternatives process.

SURFACE ACCESS AND VEHICLE PARKING

Vehicle access to Ashland Municipal Airport is provided by Ashland Street/Green Springs Highway 66 (OR-66) and Dead Indian Memorial Road, with two paved airport access road connections. U.S. Interstate 5 (I-5) Exit 14 (north and south) connects to Ashland Street. The main airport entrance road provides access to the FBO building, terminal area, public vehicle parking lot, and hangars. The second airport access road is located approximately 700 feet north of the main airport entrance and provides access to landside facilities and two adjacent residences (easements). **It is recommended existing automobile access and parking facilities be maintained.**

ON-AIRPORT LAND USE

On-airport land use needs consist primarily of airfield facilities such as runways, aprons, taxiways/taxilanes, hangars, aircraft storage, and other typical aviation services. There are several areas on the Airport that are not accessible to aircraft due to topography and access roads/easements serving adjacent properties that may be well suited for non-aviation type development. The majority of the space available for future development is well suited for aviation type development and is expected to satisfy demand for a 50-year planning period. **It is recommended existing Airport owned vacant land parcels be identified and confirmed for aviation or non-aviation land uses during the alternatives process.**



See Figure 4-1 for full legend.

Support Facilities Requirements

Support Facilities such as aircraft fueling, security/perimeter fencing, and utilities were also examined.

FUEL FACILITIES

As described in Chapter 2 – Inventory and Existing Conditions, the City of Ashland owns two above ground fuel tanks that are managed and operated by the FBO and Brim Aviation owns and operates three mobile fuel storage tanks. The planned redesign of the apron aircraft parking layout and associated taxiways and taxilanes may require some changes to the existing aircraft fueling facilities dependent on the final siting of aircraft parking areas and taxiway and taxilane OFAs. **It is recommended that, during the alternatives evaluation of the apron/tiedown/aircraft parking area, the location of existing fueling facilities be considered with a strong preference to maintain the existing location.**

UTILITIES

The existing airport utilities as discussed in the Inventory 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 throughout the planning period.**

SECURITY/PERIMETER FENCING

Fencing currently exists along the majority of the southern Airport boundary along Dead Indian Memorial Road. The remaining perimeter of the Airport is unfenced. Preliminary project planning to construct a full-length perimeter fence along the remaining portions of Airport property occurred but the project was postponed due to siting constraints and environmental concerns. While it is not an FAA requirement for GA airports to have perimeter fencing, it is highly recommended. When constructed, the FAA generally requires perimeter fencing encompass all airport property. However, due to environmental constraints associated with regulated riparian setbacks for Neil Creek, Runway OFA limitations, and adjacent property access requirements stakeholders were not able to come to an agreement on the final alignment of the previously proposed fence line project. **It is recommended the need for a full-length perimeter fence, as well as any siting limitations and alternative options available be considered during the alternatives process.**

Summary

The projected twenty-year facility needs for the Airport are low to moderate and will consist primarily of facility improvements to satisfy FAA design standards and maintaining existing pavements as an ongoing facility need. The updated forecasts of aviation activity anticipate modest growth in activity that will resulting in similarly moderate airside and landside facility demands beyond existing capabilities. The existing airfield facilities can accommodate the forecasted increase in activity, 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.

Chapter 5

Airport Development Alternatives

Chapter 5 – Airport Development Alternatives

The evaluation of future development options 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 Ashland Municipal Airport is based on maintaining and improving the airport's ability to serve a range of general aviation and business aviation type aircraft. The airport facilities accommodate a wide variety of aircraft types including conventional fixed-wing and rotary-wing aircraft. This unique mix of aircraft activity requires facility improvements capable of accommodating demand while maintaining air safety for all users.

The alternatives depicted in this chapter address current and future facility demands and FAA airport design requirements discussed in Chapter 4 – Facility Requirements. All proposed facility improvements depicted within each alternative are evaluated against five broad categories that include operational performance, fiscal factors, environmental factors, planning tenets, and FAA design standards.

The FAA recommends that airport master plans be developed in an "unconstrained" manner when initially defining future demand and related facility improvements, rather than establishing pre-defined limits that drive the planning process. The evaluation of development alternatives for Ashland Municipal Airport will be unconstrained, consistent with FAA guidance, forecast demand, and the defined facility requirements.

Evaluation Process

Developing effective alternatives for evaluation represents the first step in a multi-step process that leads to the selection of a preferred alternative. It is important to note that the current FAA-approved airport layout plan (ALP) identifies future improvements recommended in the last master planning process.

The alternatives are created to respond to defined facility needs, with the goal identifying general preferences for both individual items and the overall concepts being presented. The process will allow the widest range of ideas to be considered and the most effective facility development concept to be defined.

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 Performance (Capacity, Capability, and Efficiency)** – 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.
>
> **Fiscal Factors (Cost Estimates, Fiscal Constraints, etc.)** - Includes cursory fiscal analysis through the preparation of rough order magnitude cost estimates and identifies any fiscal constraints to implementation that may exist.
>
> **Environmental Factors (NEPA Categories)** – Includes 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.
>
> **Planning Tenets (Land Use, Growth, Local Vision, Political Feasibility, etc.)** – Includes an analysis of best planning practices such as highest and best use of land, land-use compatibility, political feasibility, and more.
>
> **FAA Design Standards (FAA Advisory Circulars and Requirements)** – Includes an analysis of existing FAA design standards and various requirements or areas of focus currently identified by staff at the Seattle ADO.

By analyzing the development alternatives against the evaluation criteria presented above, and subsequently discussed with local stakeholders and interested Airport users, an iterative process of identifying and selecting elements of a preferred alternative will emerge that can best accommodate all required facility improvements. Based on the preferences of the airport sponsor, the Consultant will consolidate these elements into a draft preferred alternative that can be refined further as the City proceeds through the process of finalizing the remaining elements of the airport master plan. Throughout this process, public input and coordination with the Planning Advisory Committee (PAC), FAA, and ODA will also help to shape the preferred alternative.

Once the preferred alternative is selected by the City of Ashland, 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 ALP drawings that will guide future improvements at the airport.

Development Alternatives

The development alternatives are intended to facilitate a discussion about the most effective way to meet the facility needs of the airport. The facility needs identified in the previous chapter and depicted accordingly within each development alternative include a variety of airside (runway-taxiway) and landside needs (aircraft parking, hangars, fueling, terminal, FBO facilities, fencing, etc.). 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. The development alternatives have been organized accordingly:

- No-Action Alternative
- Alternative 1
- Alternative 2
- Alternative 3
- Alternative 3A
- ***Preferred Alternative***

The development alternatives are described below with graphic depictions (**Figures 5-1 through 5-4**) provided to illustrate the key elements of each proposed alternative.

It is important to note that the eventual preferred alternative selected by the City may come from one of the alternatives, a combination or hybrid of the alternatives, or a new concept that evolves through the evaluation and discussion of the alternatives. As noted earlier, the City of Ashland also has the option of limiting future facility improvements based on financial considerations or development limitations.

No-Action Alternative

In addition to proactive options that are designed to respond to defined future facility needs, a "no-action" option also exists, in which the City of Ashland may choose to maintain existing facilities and capabilities without investing in facility upgrades or expansion to address future demand. The existing airfield configuration would remain unchanged from its present configuration and the airport would essentially be operated in a "maintenance-only" mode.

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 eventually 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 airport sponsor's ability to increase airport revenues and operate the airport on a financially sustainable basis over the long term.

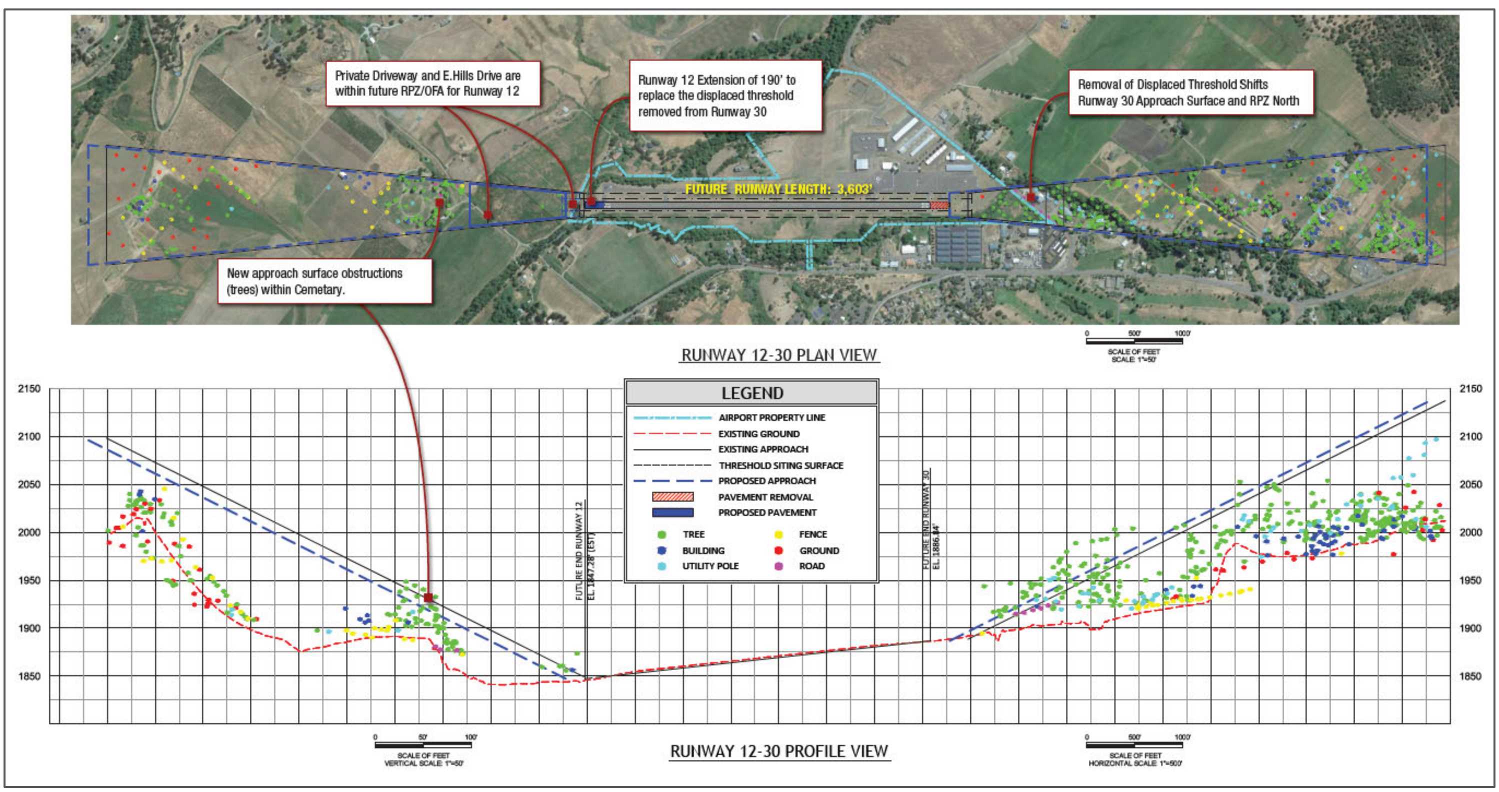
The no-action alternative establishes a baseline from which the action alternatives can be developed and compared. The purpose and need for the action alternatives are defined by the findings of the forecasts and facilities requirements analyses. The factors associated with both current and future aircraft activity (potential for congestion, safety, etc.) are the underlying rationale for making facility improvements. Market factors (demand) effectively determine the level and pace of private investment (hangar construction, business relocation to the airport, etc.) at an airport. Public investment in facilities is driven by safety, capacity, and the ability to operate an airport on a financially sustainable basis.

Based on the factors noted above, the no-action alternative is inconsistent with the management and development policies established by the City of Ashland and its long-established commitment to provide a safe and efficient air transportation facility to serve the surrounding areas that is socially, environmentally, and economically sustainable.

Alternative 1

Alternative 1 (Figure 5-1) addresses FAA design standard issues and Airport facility requirements by removing the displaced threshold pavement on Runway 30 end and constructing a 190' extension on the Runway 12 end to maintain the runway length at 3,603'; redesigning the apron/aircraft parking layout; developing additional hangar and apron space to satisfy aircraft storage needs for the 20-year planning period; and by addressing other secondary facilities including fencing and fuel tanks within the context of the primary Airport facility improvements.

Before any landside alternatives were introduced or discussed, the conceptual runway shift was analyzed and discussed with the PAC at a meeting in August 2018. The first step to analyzing the feasibility of the potential runway shift and removal of the displaced threshold was to identify any approach surface obstructions that may result. Utilizing the 2018 AGIS data provided by the City of Ashland, the obstacles identified in the survey were depicted against existing and future approach surfaces. The most notable issues created from the runway shift to the north is the introduction of new tree obstructions located in the cemetery to the north of the Airport. The new obstructions introduced were not considered to be severe enough to prevent additional consideration of the runway shift as a potential alternative to address facility requirements. The following figure presented to the PAC in the August meeting depicts existing and future 20:1 Visual Approach surfaces and surveyed obstructions.



After the runway shift to address the displaced threshold was tested for preliminary feasibility, the remaining elements of the alternative were developed and evaluated within the context of the Airport as a system. As previously mentioned, the evaluation criteria selected to assess each alternative include operational performance, fiscal factors, environmental factors, planning tenets, and FAA design standards.

OPERATIONAL PERFORMANCE

Operationally, Alternative 1 adequately addresses and/or maintains many of the facilities and needs identified within the facility requirements chapter. Most notably, this alternative maintains the locally preferred existing runway length of 3,603' but does not satisfy the FAA recommended runway length of 3,700'. Alternative 1 provides adequate space for future development of hangars and aircraft storage during the planning period in addition to providing for non-aviation type development where appropriate. The hangar layout depicted in Alternative 1 may be modified to depict larger 100'x75' hangars (similar to Alternative 2) in which case the number of tiedown spots would be reduced. The apron/aircraft parking tie-down redesign and proposed hangar layout of 50'x50' hangars fronting the apron results in approximately 37 tie-down spots on existing apron pavement and 56 tie-down spots with planned apron expansion exceeding facility requirements over the planning period. If the larger 100' x 75' hangars were constructed at the apron frontage and ADG Group I TLOFA was applied, the total number of tiedown spots would be reduced to 51.This alternative also includes the relocation of the existing fuel tanks (existing pump location remains) from the apron to an area behind the FBO identified by Skinner Aviation as the preferred location. Relocating the fuel tanks and constructing the requisite piping to this location behind the existing FBO may present future access issues due to fuel tank set back requirements.

FISCAL FACTORS

Alternative 1 is the second most expensive alternative with an estimated rough order magnitude cost of $9.3 million. The bulk of the costs in this alternative stem from the creek diversion and culvert and requisite environmental process that is expected to be very costly due to the fact that Emigrant and Neil Creek are known habitat for salmon species. Another considerable cost associated with this alternative is the land acquisition of farm land/orchard currently in production.

ENVIRONMENTAL FACTORS

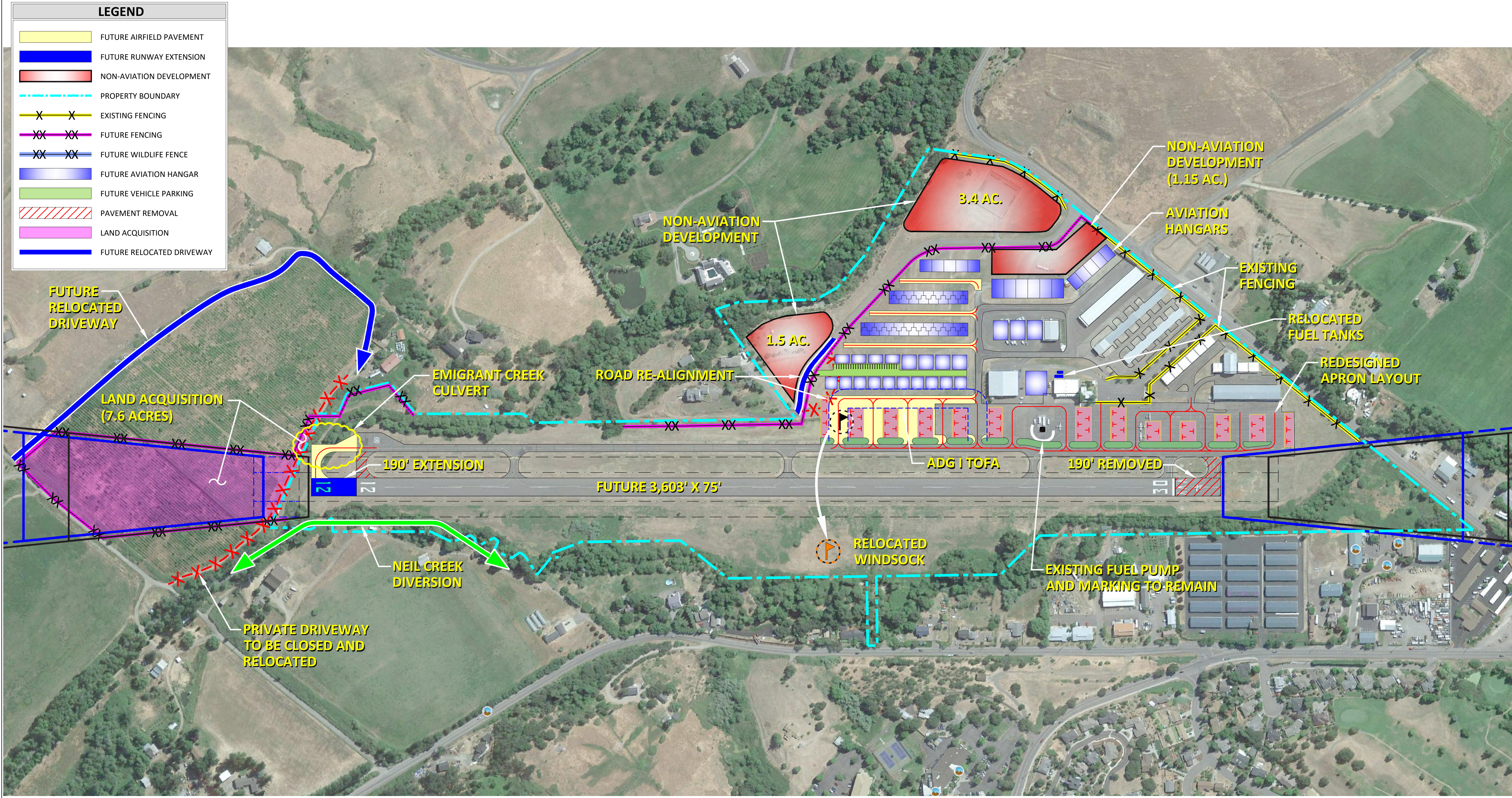
Environmentally, Alternative 1 presents several challenges due to the proposed runway shift and requisite construction of culverts and creek diversions in Emigrant Creek and Neil Creek, which are understood to be sensitive salmon habitat and home to other potential threatened and endangered species. The relocation/diversion of the small portion of Neil Creek and culvert for Emigrant Creek will likely require an Environmental Impact Statement (EIS) and significant environmental coordination before any major design/construction can begin. The fencing option depicted in this alternative is sensitive to local riparian setback regulations and only proposes constructing future fencing where it does not interfere with local environmental features. A wildlife hazard assessment will likely be required before any fencing options described can be constructed. Additionally, relocation of the fuel tanks will require additional environmental permitting and analysis per State and federal requirements.

PLANNING TENETS

The planning principles evaluated and highlighted in Alternative 1 presents several opportunities and challenges for the community. The partial perimeter fencing depicted in coordination with the natural barriers of the adjacent creeks and vegetation is expected to provide adequate security for the airfield and also to be in compliance with local riparian setback ordinance prohibiting fencing within certain proximity to adjacent creeks. The 6.05 acres of non-aviation development depicted on the alternative provides for the highest and best use of land that is considered to be inaccessible to airside facilities. The relocated runway and Runway 12 RPZ requires 7.6 acres minimum of private farmland currently in production. While an agricultural leaseback is an option, the acquisition will still likely require a Department of Land Conservation & Development DLCD Goal Exception and is inconsistent with local planning goals expressed early in the planning process not to extend/relocate the runway to the North. The depicted runway relocation also requires the closure and relocation of a private driveway that would protrude through the future RPZ, OFA, and RSA. Additionally, relocating the runway to the north introduces new approach surface obstructions such as trees in the cemetery. Overall, the elements depicted in Alternative 1 satisfy growth/facility requirements for the planning period, but the political feasibility is questionable.

FAA DESIGN STANDARDS

Alternative 1 addresses several design standard issues identified and discussed in the facility requirements analysis. Relocating the Runway 30 RPZ minimizes incompatible land uses within Runway 30 RPZ but introduces new incompatible land uses within Runway 12 RPZ (Road/Driveway). The alternative removes the Runway 30 displaced threshold and also depicts the removal of all non-standard direct entry connections and wide expanses of pavement on the apron directly between the runway/taxiway and apron area. The diversion of Neil Creek and culvert for Emigrant Creek addresses Runway OFA issues but comes with significant cost and environmental impacts. Additionally, Alternative 1 addresses the existing issues with aircraft parking/tiedowns and taxilane OFAs which have been redesigned to meet applicable standards



AIRPORT DEVELOPMENT ALTERNATIVES - ALTERNATIVE 1

FIGURE 5-1

ASHLAND MUNICIPAL AIRPORT

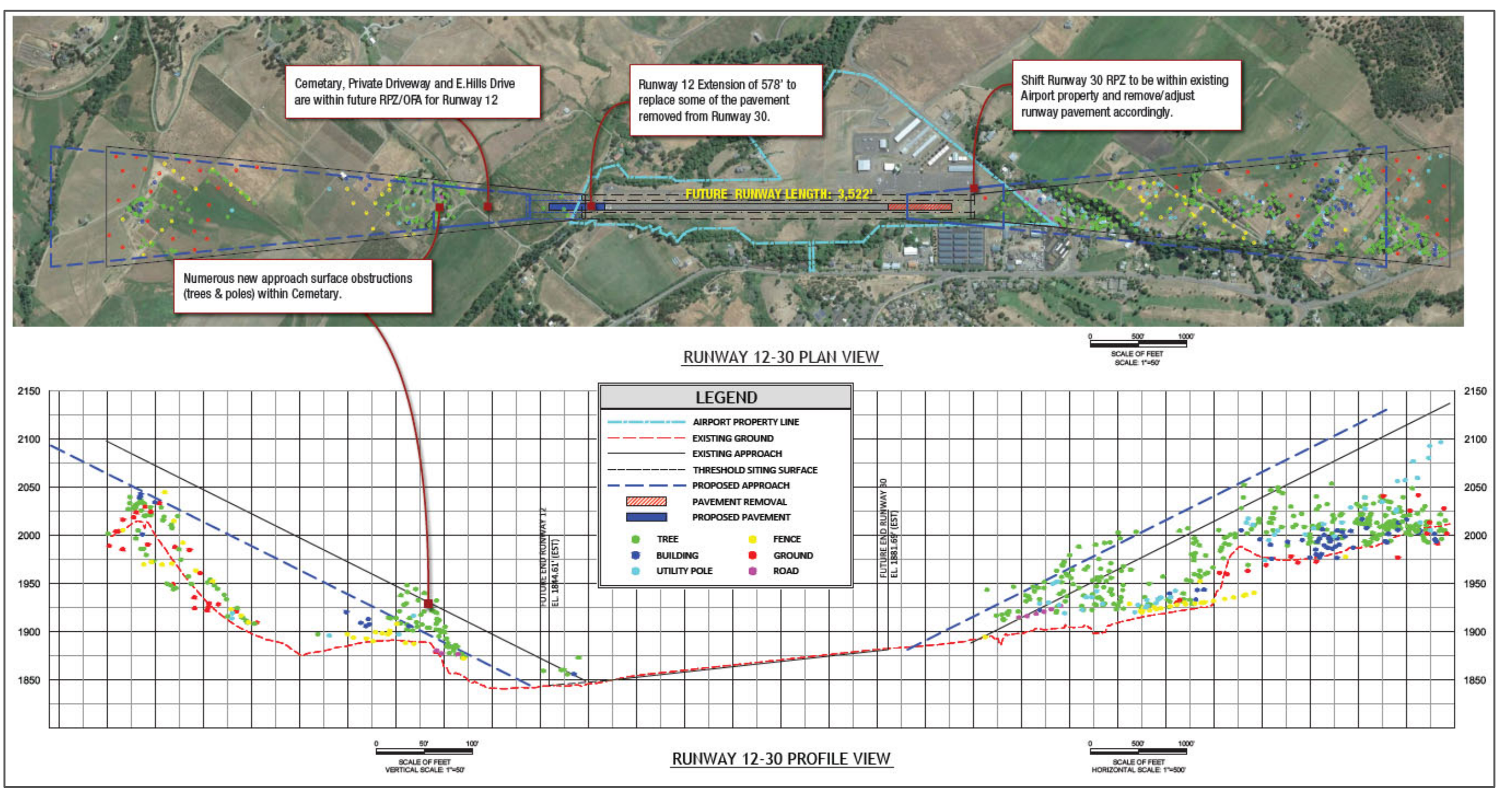
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Alternative 2

Alternative 2 (Figure 5-2) addresses FAA design standard issues and Airport facility requirements by shifting and shortening the runway to address Runway 30 RPZ issues; minimizing future Runway 12 obstructions resulting in 3,522' final runway length; redesigning the apron/aircraft parking layout; developing additional hangar and apron space to satisfy aircraft storage needs for the 20-year planning period; and by addressing other secondary facilities including fencing, fuel tanks, and FBO siting and visibility within the context of the primary Airport facility improvements.

The conceptual runway shift depicted in Alternative 2 was analyzed and discussed with the PAC at a meeting in August 2018. The intent of analyzing the feasibility of the potential runway shift and removal of the displaced threshold was to identify any approach surface obstructions that may result. 2018 AGIS data obstacles were depicted against existing and future approach surfaces. The most notable issues created from the runway shift to the north is the introduction of new tree obstructions located in the cemetery to the north of the Airport. The placement of the proposed Runway 12 end was selected based on preventing any man-made obstructions that may protrude through the proposed future 20:1 Visual Approach Surface. While new tree obstructions were introduced, they were not considered to be severe enough to prevent additional consideration of the runway shift as a potential alternative to address facility requirements. The following figure presented to the PAC in the August meeting depicts existing and future 20:1 Visual Approach surfaces and surveyed obstructions.



After the runway shift to address the displaced threshold and other non-standard runway conditions was tested for preliminary feasibility, the remaining elements of the alternative were developed and evaluated within the context of the Airport as a system. As previously mentioned, the evaluation criteria selected to assess each alternative include operational performance, fiscal factors, environmental factors, planning tenets, and FAA design standards.

OPERATIONAL PERFORMANCE

The operational performance evaluation of Alternative 2 suggests that many of the airfield facility requirements are satisfied by Alternative 2, but several issues still remain. The reduction in runway length by 81' to 3,522' does not satisfy the FAA recommended length of 3,700'. The redesign of the apron/tiedowns results in 35 spots on the existing apron and 39 with future apron expansion, which provides the fewest number of tiedown spots throughout the planning period, but still satisfies facility requirements. The number of available tie down spots on the future apron expansion has been reduced significantly on this alternative due to an assumption that the FAA may require ADG Group II TLOFAs adjacent to future hangars directly fronting the ramp that are able to accommodate Group II aircraft. No FAA standard or requirement for a Group II TLOFA is known to exist and the aviation activity forecasts and facility requirements analysis clearly identified ADG Group I as the design aircraft. Hangars and aircraft storage expansion depicted in Alternative 2 exceeds facility requirements expected during the planning period. The relocation of fuel tanks/pumps to the northern end of the future ramp in coordination with a future second FBO option addresses siting and ramp flow/visibility concerns of the existing tanks but presents timing and coordination issues with the relocation. The second FBO option was introduced to increase competition on the Airport concurrent with an optimal siting solution for relocated fuel tanks.

FISCAL FACTORS

Alternative 2 is the most expensive alternative with an estimated rough order magnitude cost of approximately $11.3 million. The bulk of the costs in this alternative stem from the runway extension, creek diversion, creek culvert, and requisite environmental process that is expected to be very costly due to the fact that Emigrant and Neil Creek are known habitat for salmon species. Another considerable cost associated with this alternative is the considerable land acquisition of farm land/orchard currently in production.

ENVIRONMENTAL FACTORS

Environmental factors evaluated within Alternative 2 identified several challenges that will require additional consideration. Numerous negative environmental impacts from the fencing option that generally follows Airport perimeter were identified as the option conflicts with local riparian setback ordinance. Furthermore, a Wildlife Hazard Assessment would likely be required for the proposed fencing option. Similar to Alternative 1, the proposed runway shift and requisite construction of culverts and creek diversions in Emigrant Creek and Neil Creek, which are understood to be sensitive salmon habitat and home to other potential threatened and endangered species, presents numerous environmental challenges. The relocation/diversion of the small portion of Neil Creek and culvert for Emigrant Creek will likely require an Environmental Impact Statement (EIS) and significant environmental coordination before any major design/construction can begin. Additionally, relocation of the fuel tanks will require additional environmental permitting and analysis per State and federal requirements.

PLANNING TENETS

The planning principles evaluated in Alternative 2 presents several opportunities and challenges associated with this alternative. Most notably, the full-length perimeter fencing proposed is inconsistent with local riparian setbacks and presents numerous challenges. The 6.05 acres of non-aviation development depicted on the alternative provides for the highest and best use of land that is considered to be inaccessible to airside facilities due to topographical constraints and an access road easement to off-airport property. While the mitigation of incompatible land-uses within the Runway 30 RPZ, the relocated runway and Runway 12 RPZ requires land acquisition of 13.5 acres of private farmland currently in production. An agricultural leaseback is not an option in Alternative 2 due to the scale of the runway extension. The acquisition will require a DLCD Goal Exception and is inconsistent with local planning goals expressed early in the planning process not to extend/relocate the runway to the North. Similar to Alternative 1, the depicted runway relocation also requires the closure and relocation of a private driveway. Additionally, relocating the runway to the north introduces new approach surface obstructions such as trees in the cemetery as well as new Runway 12 RPZ incompatibilities such as roads and the cemetery. Overall, the elements depicted in Alternative 2 satisfy growth/facility requirements for the planning period, but the political feasibility is very questionable.

FAA DESIGN STANDARDS

Alternative 2 addresses several design standard issues identified and discussed in the facility requirements analysis. Relocating Runway 30 end completely mitigates incompatible land uses within Runway 30 RPZ but introduces new incompatible land uses within Runway 12 RPZ (Road/Driveway). The alternative removes the Runway 30 displaced threshold and also depicts the removal of all non-standard direct entry connections and wide expanses of pavement on the apron directly between the runway/taxiway and apron area. The diversion of Neil Creek and culvert for Emigrant Creek addresses Runway OFA issues but comes with significant cost and environmental impacts. Additionally, Alternative 2 addresses the existing issues with aircraft parking/tiedowns and taxilane OFAs which have been redesigned to meet applicable standards.

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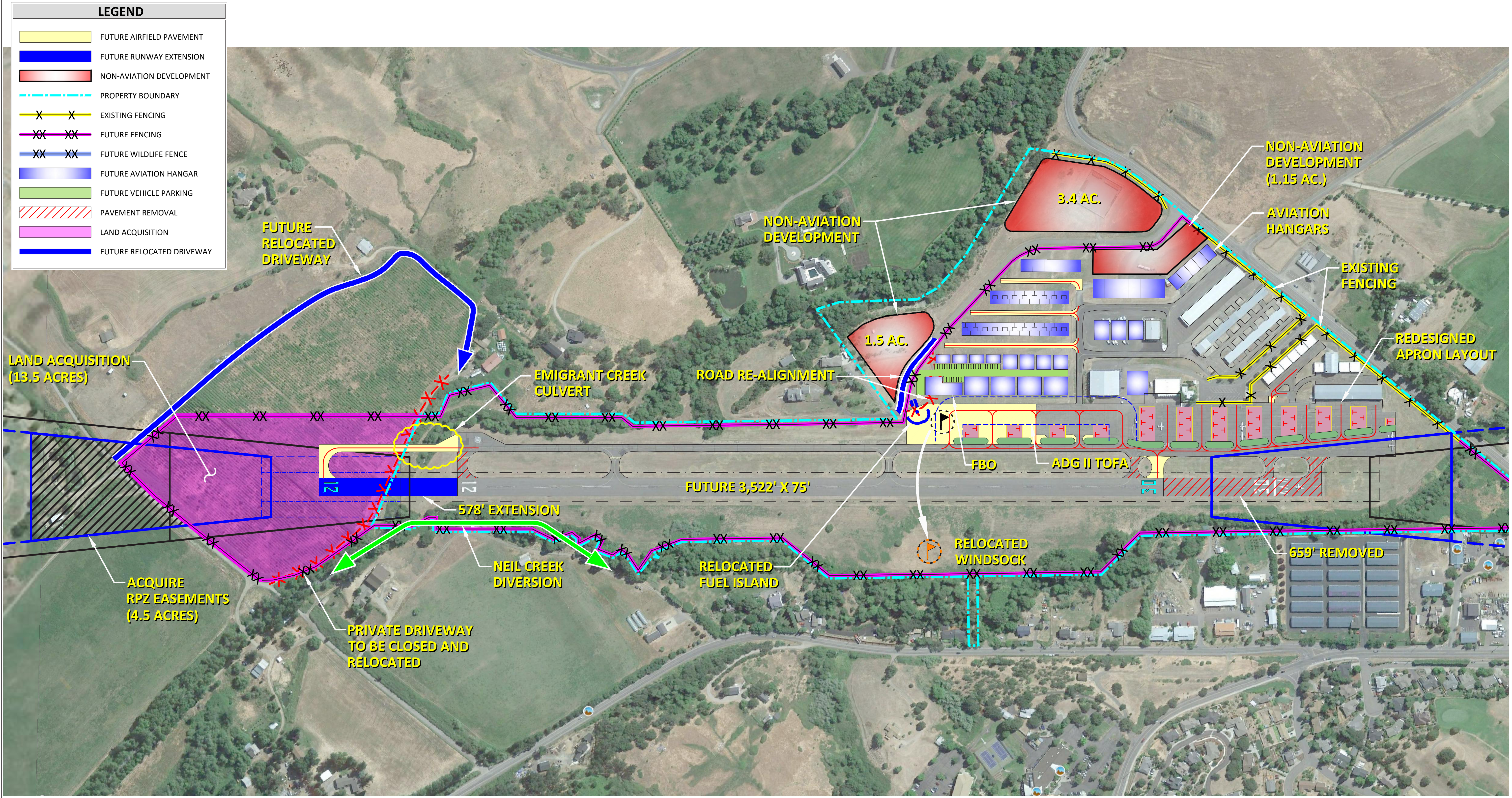


AIRPORT DEVELOPMENT ALTERNATIVES - ALTERNATIVE 2
FIGURE 5-2

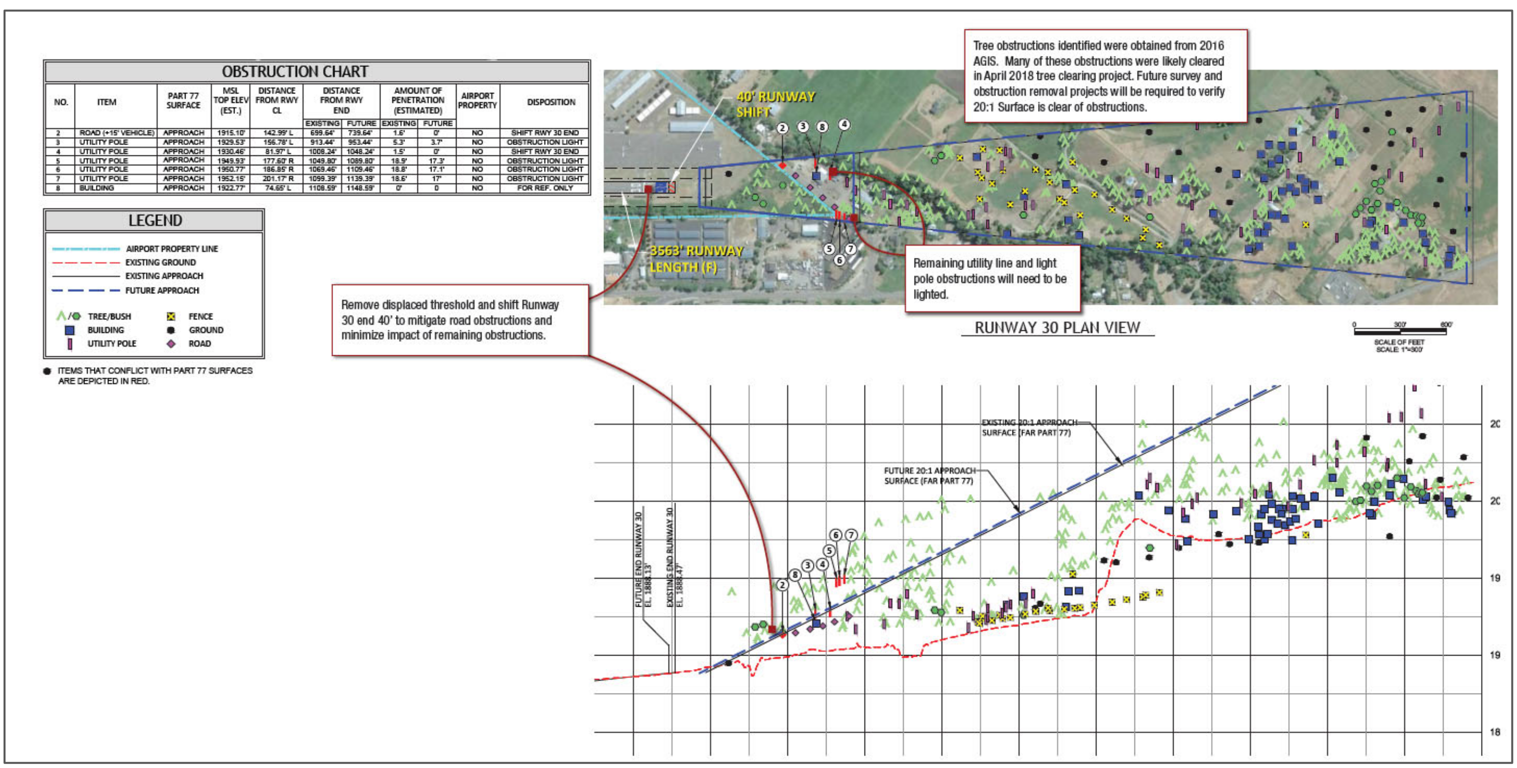
ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Alternative 3

Alternative 3 (Figure 5-3) addresses FAA design standard issues and Airport facility requirements by removing the Runway 30 displaced threshold and relocating the runway end 40' to a location that minimizes obstructions to the Runway 30 20:1 Visual Approach Surface. The alternative also includes addressing several future Runway 30 obstructions with obstruction lighting; including a 137' extension on the Runway 12 end to satisfy FAA recommended length; redesigning the apron/aircraft parking layout; developing additional hangar and apron space to satisfy aircraft storage needs for the 20-year planning period; and by addressing other secondary facilities including fencing and fuel tanks within the larger context of the primary Airport facility improvements.

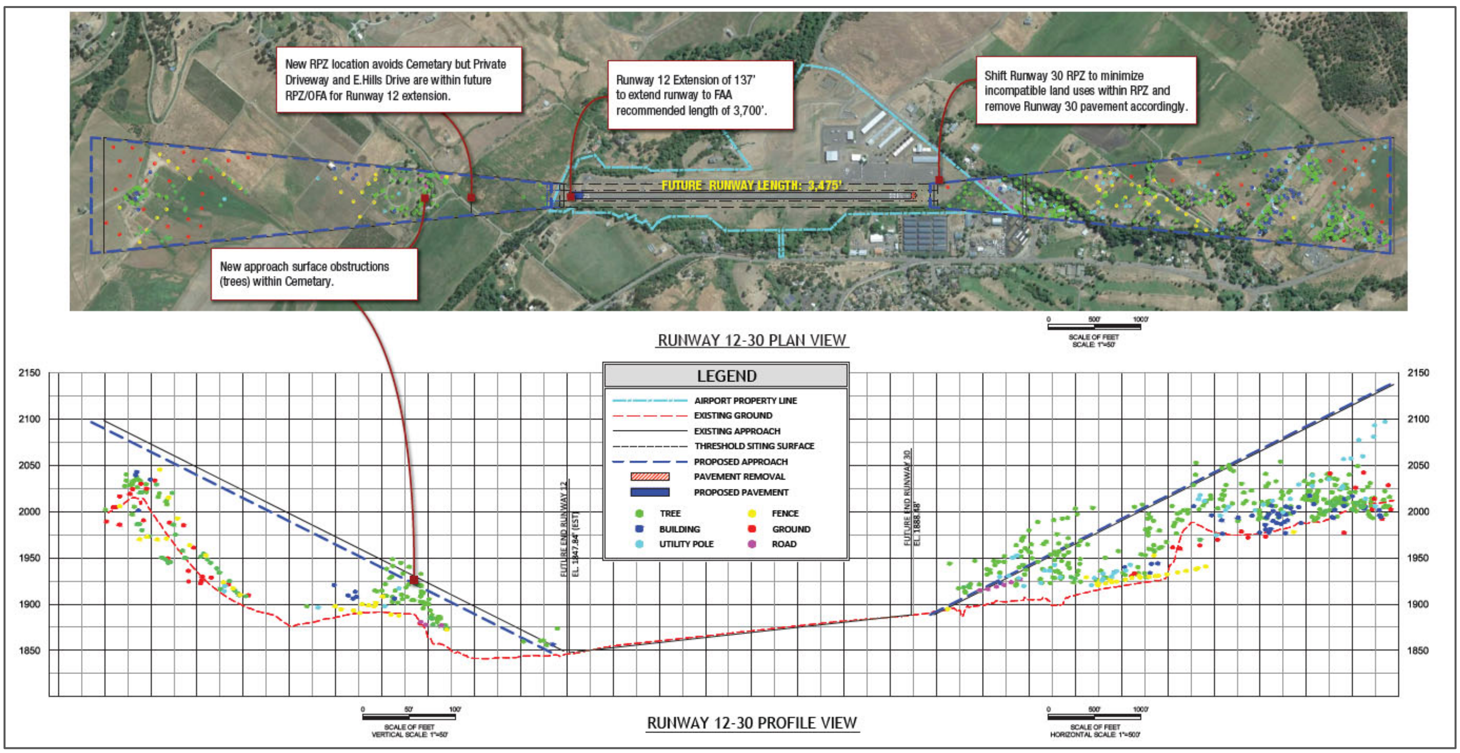
After the initial presentation of preliminary runway alternatives to the FAA prior to the PAC meeting in August 2018, the FAA expressed interest in evaluating another runway alternative that maximized the use of existing runway pavements through the use of obstruction lighting for man-made obstacles on the Runway 30 end in coordination with future tree clearing projects. The 2018 AGIS data obstacles identified in the survey were depicted against existing and future approach surfaces that were best able to minimize the obstructions and maximize the existing runway pavement. The resultant 40' Runway 30 shift to the north removes Dead Indian Memorial Road (includes 15' vehicle) as an obstruction and with the installation of obstruction lighting on the remaining man-made obstacles, Alternative 3 was developed for additional consideration by the PAC.



OBSTRUCTION CHART

NO.	ITEM	PART 77 SURFACE	MSL TOP ELEV (EST.)	DISTANCE FROM RWY CL	DISTANCE FROM RWY END		AMOUNT OF PENETRATION (ESTIMATED)		AIRPORT PROPERTY	DISPOSITION
					EXISTING	FUTURE	EXISTING	FUTURE		
2	ROAD (+15' VEHICLE)	APPROACH	1915.10'	142.99' L	699.64'	739.64'	1.6'	0'	NO	SHIFT RWY 30 END
3	UTILITY POLE	APPROACH	1929.53'	156.78' L	913.44'	953.44'	5.3'	3.7'	NO	OBSTRUCTION LIGHT
4	UTILITY POLE	APPROACH	1930.46'	81.97' L	1008.24'	1048.24'	1.5'	0'	NO	SHIFT RWY 30 END
5	UTILITY POLE	APPROACH	1949.93'	177.60' R	1049.80'	1089.80'	18.9'	17.3'	NO	OBSTRUCTION LIGHT
6	UTILITY POLE	APPROACH	1950.77'	186.85' R	1069.46'	1109.46'	18.8'	17.1'	NO	OBSTRUCTION LIGHT
7	UTILITY POLE	APPROACH	1952.15'	201.17' R	1099.39'	1139.39'	18.6'	17'	NO	OBSTRUCTION LIGHT
8	BUILDING	APPROACH	1922.77'	74.65' L	1108.59'	1148.59'	0'	0	NO	FOR REF. ONLY

In addition to the focused analysis of Runway 30 end siting and relevant obstructions, the extension of Runway 12 by 137', based on PAC recommendations at the August 2018 meeting, was also considered to satisfy FAA runway length recommendations of 3,700'. The intent was to meet FAA recommended runway length and minimize the introduction of new tree obstructions located in the cemetery to the north of the Airport. While new tree obstructions were introduced on the Runway 12 end, they were not considered to be severe enough to prevent additional consideration of the runway shift as a potential alternative to address airside facility requirements. The following figure depicts existing and future 20:1 Visual Approach surfaces and surveyed obstructions for Alternative 3.



After the runway shift to address the displaced threshold and other non-standard runway conditions was tested for preliminary feasibility, the remaining elements of the alternative were developed and evaluated within the context of the Airport as a system. As previously mentioned, the evaluation criteria selected to assess each alternative include operational performance, fiscal factors, environmental factors, planning tenets, and FAA design standards.

OPERATIONAL PERFORMANCE

The operational performance evaluation of Alternative 3 verifies that many of the airfield facility requirements are satisfied by Alternative 3. The final runway length of 3,700' satisfies the FAA recommended length requirements. Hangars and aircraft storage expansion depicted in Alternative 3 exceeds facility requirements and demand expected during the planning period, but no longer provides the option for larger corporate style hangars fronting the apron area. In this alternative, the larger hangars have been traded for additional apron space and tiedowns. The redesign of the apron/tiedowns results in 42 tiedown spots on the existing apron and 81 with future apron expansion, which exceeds the parking requirements calculated in the facility requirements, but is consistent with local knowledge that suggests the existing 72 tiedown spots are all necessary. The relocation of fuel tanks/pumps to the existing apron edge provides additional aircraft parking/apron space and removes any visibility issues that exist but does reduce the space available for vehicle parking.

FISCAL FACTORS

Alternative 3 is the third most expensive alternative with an estimated rough order magnitude cost of approximately $7.9 million. The bulk of the costs in this alternative originate from the proposed runway extension, creek diversion, creek culvert, and requisite environmental process that is expected to be very costly due to the fact that Emigrant and Neil Creek are known critical habitat for salmon species.

ENVIRONMENTAL FACTORS

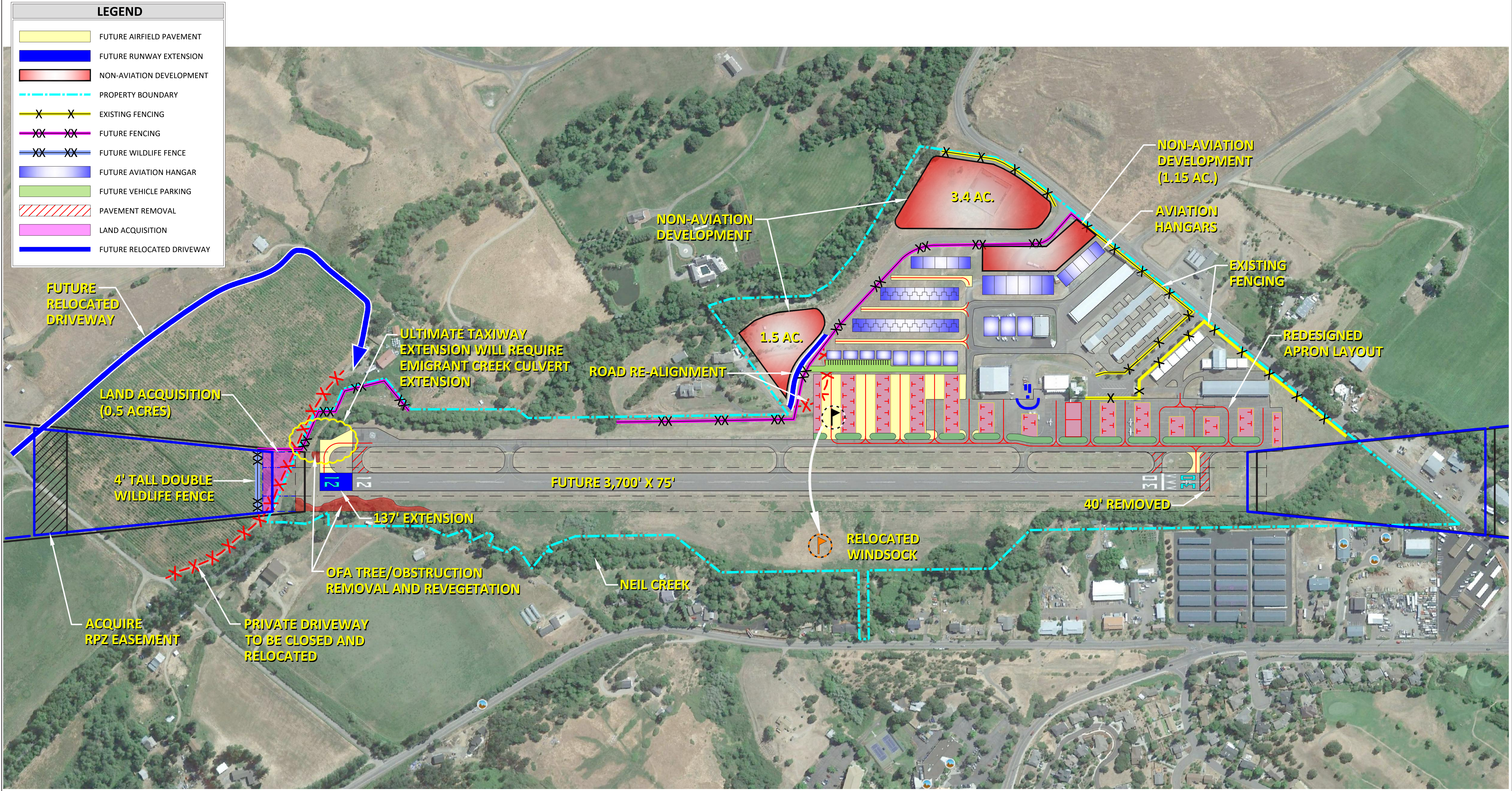
Environmentally, Alternative 3 – similar to the previous alternatives - presents several challenges due to the proposed runway shift and requisite construction of a culvert extension for Emigrant Creek, which is understood to be sensitive salmon habitat and home to other potential threatened and endangered species. The tree removal - and revegetation for sensitive salmon habitat - to address OFA obstructions over a small portion of Neil Creek and Emigrant Creek will likely require an Environmental Assessment (EA) and significant environmental coordination before any major design/construction can begin. NOAA National Marine Fisheries Service will require consultation to determine impacts on salmon habitat in the area of the tree removal/revegetation OFA project. It is also likely that any removal of trees would have to be completed outside of nesting season. The fencing option depicted in this alternative is sensitive to local riparian setback regulations and only proposes constructing future fencing where it does not interfere with local environmental features. A wildlife hazard assessment will likely be required before any fencing options described can be constructed. Additionally, relocation of the fuel tanks will require additional environmental permitting and analysis per State and federal requirements.

PLANNING TENETS

The planning principles evaluated and highlighted in Alternative 3 presents several opportunities and challenges for the community. The partial perimeter fencing depicted in coordination with the natural barriers of the adjacent creeks and vegetation is expected to provide adequate security for the airfield and also to be in compliance with local riparian setback ordinance prohibiting fencing within certain proximity to adjacent creeks. The 6.05 acres of non-aviation development depicted on the alternative provides for the highest and best use of land that is considered to be inaccessible to airside facilities. The relocated runway Runway 12 end requires .5 acres minimum of private farmland currently in production for the OFA and RSA. Also, there will need to be an extension of the existing RPZ easement to accommodate the proposed runway extension. While an agricultural leaseback is an option within the RPZ, the acquisition will still likely require a DLCD Goal Exception and is inconsistent with local planning goals expressed early in the planning process not to extend/relocate the runway to the North. The depicted runway relocation also requires the closure and relocation of a private driveway that would protrude through the future RPZ, OFA, and RSA. Additionally, relocating the runway to the north introduces new approach surface obstructions such as trees in the cemetery. Overall, the elements depicted in Alternative 3 satisfy growth/facility requirements for the planning period, but the political feasibility is questionable.

FAA DESIGN STANDARDS

Alternative 3 addresses several design standard issues identified and discussed in the facility requirements analysis. Relocating the Runway 30 RPZ minimizes incompatible land uses within Runway 30 RPZ but introduces new incompatible land uses within Runway 12 RPZ (Road/Driveway). The alternative removes the Runway 30 displaced threshold and also depicts the removal of all non-standard direct entry connections and wide expanses of pavement on the apron directly between the runway/taxiway and apron area. The diversion of Neil Creek and culvert for Emigrant Creek addresses Runway OFA issues but comes with significant cost and environmental impacts. Additionally, Alternative 3 addresses the existing issues with aircraft parking/tiedowns and taxilane OFAs which have been redesigned to meet applicable standards.



AIRPORT DEVELOPMENT ALTERNATIVES - ALTERNATIVE 3
FIGURE 5-3

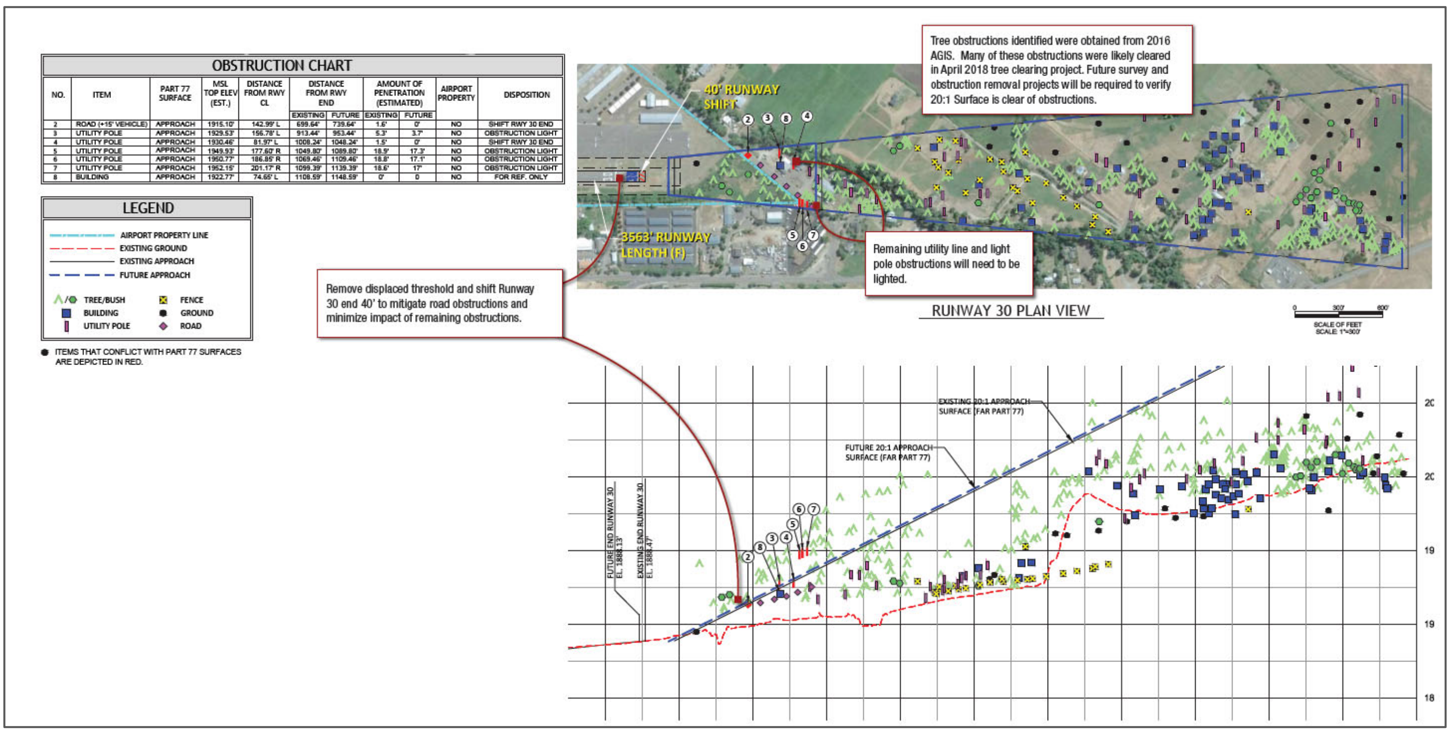
ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Alternative 3A

Alternative 3A (Figure 5-4) addresses FAA design standard issues and Airport facility requirements by removing the Runway 30 displaced threshold and relocating the runway end 40' to a location that minimizes obstructions to the Runway 30 20:1 Visual Approach Surface. However, this alternative does not include the extension on the Runway 12 end depicted in Alternative 3 which is consistent with local planning goals not to extend the runway to the north. Alternative 3A depicts redesigning the apron/aircraft parking layout; developing additional hangar and apron space to satisfy aircraft storage needs for the 20-year planning period; and addressing other secondary facilities requirements including fencing and fuel tanks within the larger context of the primary Airport facility improvements.

The runway solutions depicted in Alternative 3A are similar to the improvements proposed in Alternative 3. The primary difference is the exclusion of any additional runway length on the Runway 12 end. Therefore, no profile obstruction analysis is depicted or discussed for the Runway 12 end within Alternative 3A. For a discussion of the Runway 30 20:1 Approach Surface and obstruction analysis depicted below, see the Alternative 3 discussion on Page 13.



OBSTRUCTION CHART

NO.	ITEM	PART 77 SURFACE	MSL TOP ELEV (EST.)	DISTANCE FROM RWY CL	DISTANCE FROM RWY END		AMOUNT OF PENETRATION (ESTIMATED)		AIRPORT PROPERTY	DISPOSITION
					EXISTING	FUTURE	EXISTING	FUTURE		
2	ROAD (+15' VEHICLE)	APPROACH	1915.10'	142.99' L	699.64'	739.64'	1.6'	0'	NO	SHIFT RWY 30 END
3	UTILITY POLE	APPROACH	1929.53'	156.78' L	913.44'	953.44'	5.3'	3.7'	NO	OBSTRUCTION LIGHT
4	UTILITY POLE	APPROACH	1930.46'	81.97' L	1008.24'	1048.24'	1.5'	0'	NO	SHIFT RWY 30 END
5	UTILITY POLE	APPROACH	1949.93'	177.60' R	1049.80'	1089.80'	18.9'	17.3'	NO	OBSTRUCTION LIGHT
6	UTILITY POLE	APPROACH	1950.77'	186.85' R	1069.46'	1109.46'	18.8'	17.1'	NO	OBSTRUCTION LIGHT
7	UTILITY POLE	APPROACH	1952.15'	201.17' R	1099.39'	1139.39'	18.6'	17'	NO	OBSTRUCTION LIGHT
8	BUILDING	APPROACH	1922.77'	74.65' L	1108.59'	1148.59'	0'	0	NO	FOR REF. ONLY

After the runway shift to address the displaced threshold and other non-standard runway conditions was tested for preliminary feasibility, the remaining elements of the alternative were developed and evaluated within the context of the Airport as a system. As previously mentioned, the evaluation criteria selected to assess each alternative include operational performance, fiscal factors, environmental factors, planning tenets, and FAA design standards.

OPERATIONAL PERFORMANCE

The operational performance evaluation of Alternative 3A identifies that many of the airfield facility requirements are addressed, but several issues still remain. The reduction in runway length by 40' to 3,563' does not satisfy the FAA recommended length of 3,700'. Hangars and aircraft storage expansion depicted in Alternative 3A exceeds facility requirements expected during the planning period. The redesign of the apron/tiedowns results in 37 spots on the existing apron and 55 with future apron expansion. This alternative does not implement a TLOFA fronting the future corporate hangars on the ramp and maintains the existing dead-end taxilane/tiedown layout consistent throughout the ramp. The space between hangars and tiedown areas is 50' and is expected to be the minimum space necessary to provide adequate space for repositioning aircraft. The fuel tanks/pumps remain in the existing location on the ramp.

FISCAL FACTORS

Alternative 3A is the least expensive alternative with an estimated rough order magnitude cost of approximately $3 million. The bulk of the costs in this alternative originate from the depicted fencing upgrades, apron redesign, and apron expansion.

ENVIRONMENTAL FACTORS

Environmental factors evaluated within Alternative 3A presents solutions with the lowest impact on the environment, however, several projects will still require additional environmental analysis per FAA requirements. Most notably, environmental impacts from the proposed fencing alignment, that is generally outside of local riparian setbacks (but within Runway OFA in some instances), will require additional environmental analysis including a Wildlife Hazard Assessment. Modifications to fence type and height may be required to identify preferred fence line for PART 77, OFA, and other obstructions.

PLANNING TENETS

The planning principles evaluated in Alternative 3A depicts several challenges and opportunities associated with this alternative. Most notably, the fencing proposed is inconsistent with local riparian setbacks in some locations. The 6.05 acres of non-aviation development depicted on the alternative provides for the highest and best use of land that is considered to be inaccessible to airside facilities. Runway 12 is planned to remain in its existing location which is consistent with local planning goals not to extend the runway north. Overall, the elements depicted in Alternative 3A satisfy growth/facility requirements for the planning period and is the most politically feasible alternative.

FAA DESIGN STANDARDS

Alternative 3A addresses several design standard issues identified and discussed in the facility requirements analysis. Relocating the Runway 30 end RPZ minimizes incompatible land uses within Runway 30 RPZ and addresses several approach surface obstructions. The alternative removes the Runway 30 displaced threshold and also depicts the removal of all non-standard direct entry connections and wide expanses of pavement on the apron directly between the runway/taxiway and apron area. The primary difference noted on Alternative 3A is that the diversion of Neil Creek and culvert for Emigrant Creek to address existing Runway OFA issues is not addressed. It is expected that a Modification to Standards will need to be pursued if this alternative is selected and future planning/environmental would need to address the non-standard condition. Additionally, Alternative 3A addresses the existing issues with aircraft parking/tiedowns and taxilane OFAs which have been redesigned to meet applicable standards. Future fence line option depicted may require unique solutions to avoid creating new obstructions to PART 77 surfaces and the runway OFA.

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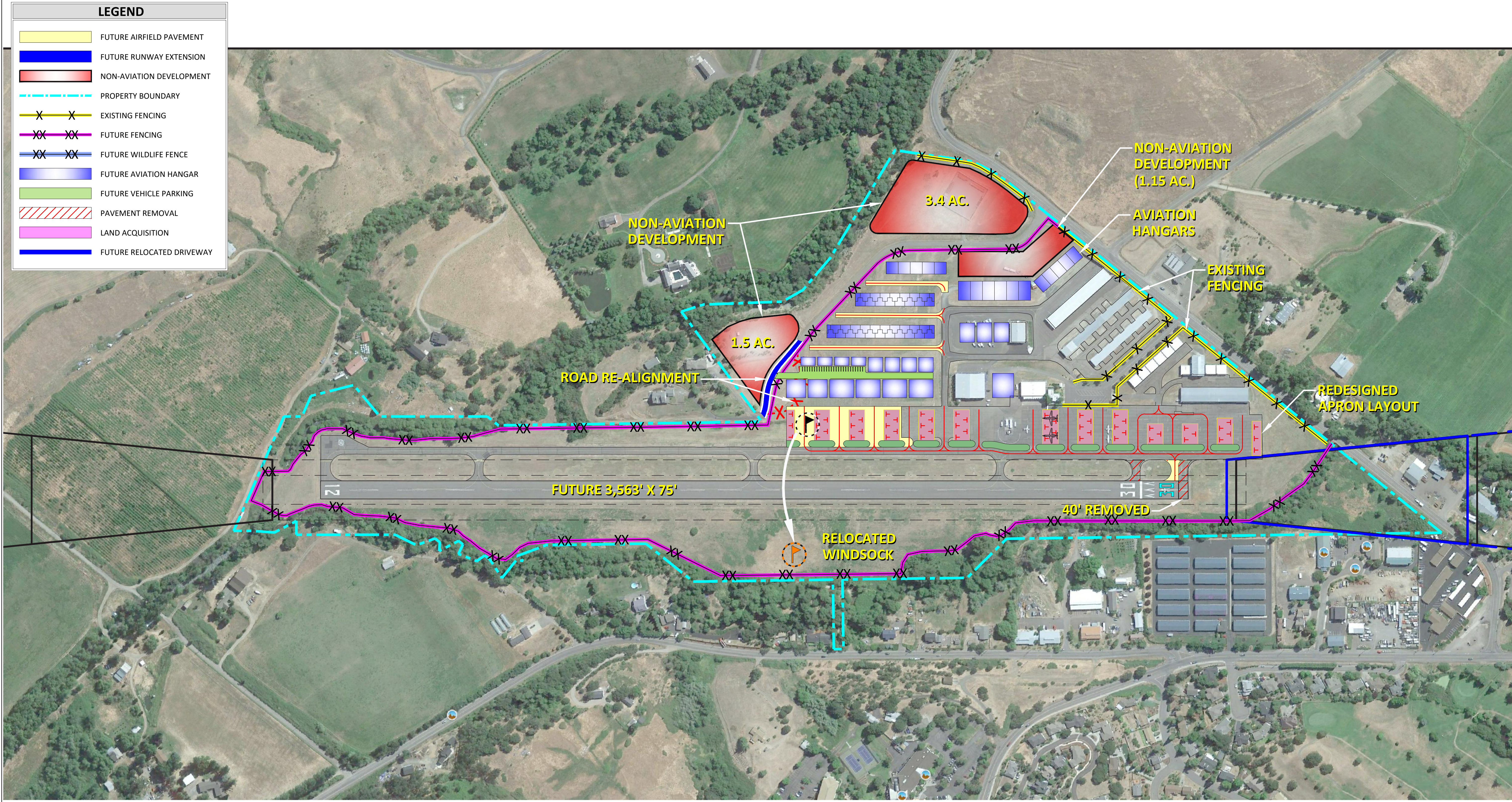


AIRPORT DEVELOPMENT ALTERNATIVES - ALTERNATIVE 3A
FIGURE 5-4

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Preferred Alternative (Figure 5-5)

At the November 13, 2018 PAC Meeting, the PAC discussed each of the alternatives and the individual elements of each alternative in detail. The PAC discussed the challenges and opportunities associated with each alternative and ultimately identified a preferred alternative that depicts elements from each of the alternatives but most closely resembles Alternative 3. After additional ongoing discussion with the FAA, the preferred alternative was edited to address concerns raised by the FAA which included the OFA obstructions and non-standard runway width.

The PAC selected the airside options depicted in Alternative 3 that include removing the Runway 30 displaced threshold and relocating the runway end 40' to a location that minimizes obstructions to the Runway 30 20:1 Visual Approach Surface. This option also requires obstruction lighting on several close-in obstructions. The PAC also elected to include a 137' extension on the Runway 12 end to satisfy FAA recommended length, which will require the relocation of an off-airport private drive, a minimum of .5 acres of land acquisition for RSA and OFA. The FAA preferred solution to address OFA obstructions associated with Neil Creek and Emigrant Creek was to show removal and revegetation and/or similar solutions to be identified during an extensive environmental assessment and design process that will finalize a preferred solution. The PAC also identified the minimalist fencing alignment option depicted in Alternative 3 as the preferred alternative for future fencing at the Airport. The FAA demanded the width of the runway depicted should meet the 60' standard. However, it is understood that maintaining the 75' width will be reevaluated when a major runway project is begun. This issue will be noted on the ALP drawing set for clarification.

The PAC selected a modified version of the landside development layout depicted in Alternative 3. The PAC directed the planning team to depict a modified version of Alternative 3 with a focus on airport facilities designed to accommodate Airplane Design Group (ADG) or "Group I" standards. The PAC preferred alternative landside options include Group I airfield facilities consistent with aviation activity forecasts and facility requirements combined with larger corporate style hangars intended to accommodate multiple Group I aircraft and related businesses. This decision was directed to be in coordination with what they believe to be adequate tie-down parking (approximately 70 spaces) at the expense of reducing the number of T-hangars within existing City owned developable ground.

There was additional discussion amongst the PAC on the preferred location of fuel tanks and fuel pump facilities. The existing site and those presented in the alternatives were considered to be less than ideal due to the loss of aircraft parking/tie downs and/or future hangar space in addition to the existing locations obstructing views of the runway from existing FBO. It was mentioned in the PAC meeting that there had been an aircraft that veered off of the runway and the existing fuel tanks obstructed visibility to the FBO so staff in the FBO was not aware of the incident until bystanders called the office. Therefore, the PAC elected to relocate fuel tanks to a developable site directly south of the existing auto parking lot. Similar to the previous alternatives, the preferred alternative was evaluated against the following criteria: operational performance, fiscal factors, environmental factors, planning tenets, and FAA design standards.

OPERATIONAL PERFORMANCE

The final runway length of 3,700' satisfies the FAA recommended length requirements. Hangars and aircraft storage expansion depicted exceeds facility requirements and demand expected during the planning period. The preferred alternative also depicted the PAC preferred option for larger corporate style hangars fronting the apron area. In the preferred alternative, the number of T-hangars have been reduced for a combination of larger corporate style hangars and additional apron space and tiedowns. The redesign of the apron/tiedowns results in 2 aircraft staging areas in front of the existing FBO and 43 tiedown spots on the existing apron space and 73 with future apron expansion, which slightly exceeds the parking requirements calculated in the facility requirements, but is consistent with local knowledge that suggests the existing 72 tiedown spots are necessary for peak days. The site selected for fuel tank relocation provides additional future tie-down space and will not interfere with future hangar development. Another item added to the preferred alternative was designated auto parking outside of existing aircraft operations areas.

FISCAL FACTORS

The preferred alternative results in an estimated rough order magnitude cost of approximately $8-10 million or more depending on timing and project phasing, inflation, and other variables to be considered as required. However, it is clear the majority of the costs required to implement the preferred alternative originate from the proposed runway extension/relocation, creek diversion, creek culvert, and requisite environmental process that is expected to be very costly due to the fact that Emigrant and Neil Creek are known critical habitat for salmon species. This project is expected to be an AIP eligible project and funded up to 90% by federal funds.

ENVIRONMENTAL FACTORS

The preferred alternative presents several challenges due to the proposed runway shift and requisite construction of a culvert extension for Emigrant Creek, which is understood to be sensitive salmon habitat and home to other potential threatened and endangered species. The tree removal - and revegetation for sensitive salmon habitat - to address OFA obstructions over a small portion of Neil Creek and Emigrant Creek will likely require an Environmental Assessment (EA) and significant environmental coordination before any major design/construction can begin. NOAA National Marine Fisheries Service will require consultation to determine impacts on salmon habitat in the area of the tree removal/revegetation OFA project. It is also likely that any removal of trees would have to be completed outside of nesting season. The fencing option depicted in this alternative is sensitive to local riparian setback regulations and only proposes constructing future fencing where it does not interfere with local environmental features. A wildlife hazard assessment will likely be required before any fencing options described can be constructed.

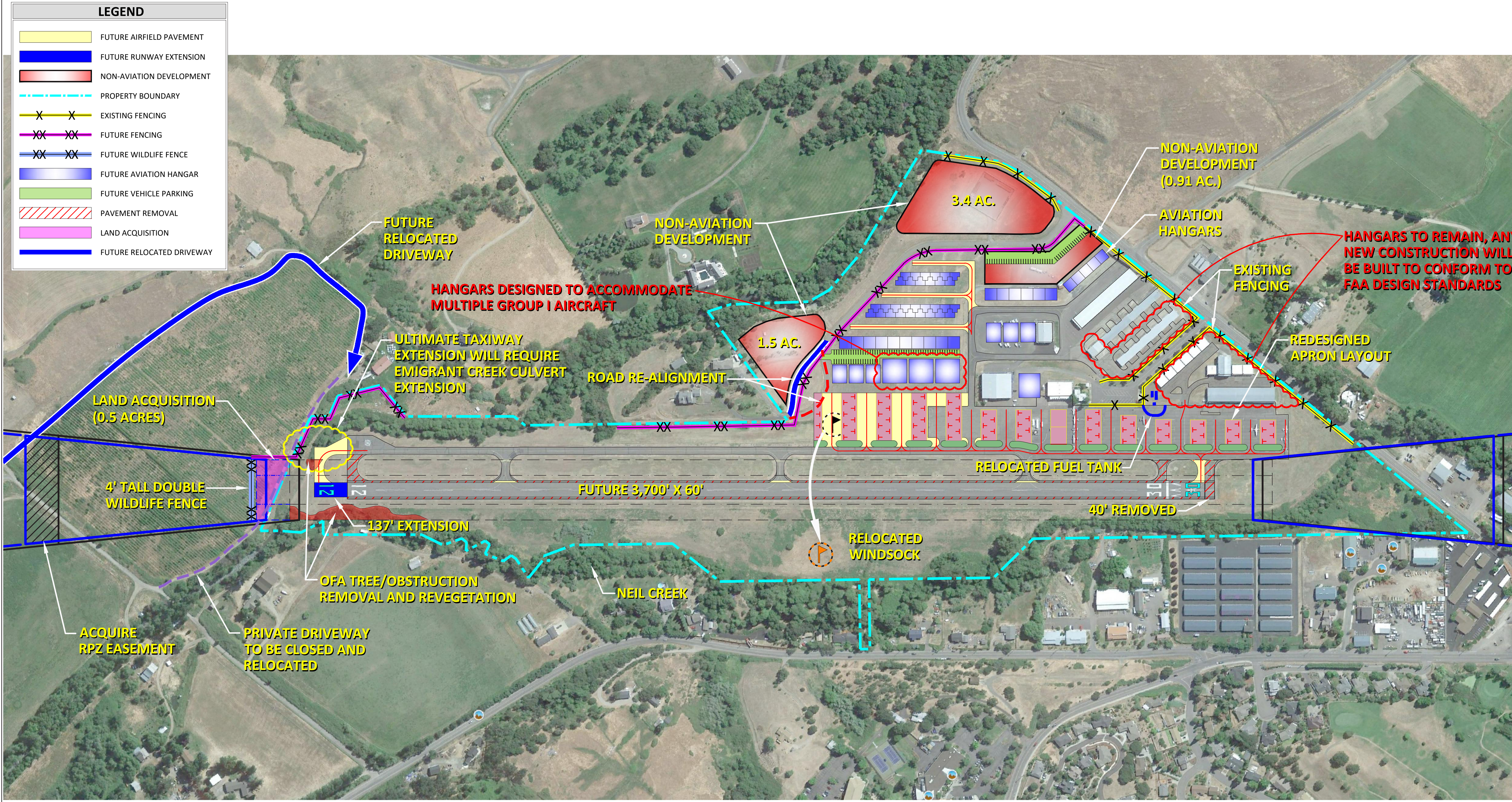
PLANNING TENETS

The planning principles evaluated and highlighted in the preferred alternative presents several opportunities and challenges for the community. The partial perimeter fencing depicted in coordination with the natural barriers of the adjacent creeks and vegetation is expected to provide adequate security for the airfield and also to be in compliance with local riparian setback ordinance prohibiting fencing within certain proximity to adjacent creeks. The 5.81 acres of non-aviation development depicted on the alternative provides for the highest and best use of land that is considered to be inaccessible to airside facilities. The inclusion of designated auto parking (upwards of 100 spots identified) will satisfy local parking requirements for new hangar construction. The relocated runway Runway 12 end requires .5 acres minimum of private farmland currently in production for the OFA and RSA. While an agricultural leaseback is an option within the RPZ, the acquisition will still likely require a DLCD Goal Exception and is generally inconsistent with local planning goals expressed early in the planning process not to extend/relocate the runway to the North. The depicted runway relocation also requires the closure and relocation of a private driveway that would protrude through the future RPZ, OFA, and RSA. Additionally, relocating the runway to the north introduces new approach surface obstructions such as trees in the cemetery. Overall, the elements depicted in preferred alternative satisfy growth/facility requirements for the planning period, but the political feasibility may be questionable.

FAA DESIGN STANDARDS

The preferred alternative addresses several design standard issues identified and discussed in the facility requirements analysis. Relocating the Runway 30 RPZ minimizes incompatible land uses within Runway 30 RPZ but introduces new incompatible land uses within Runway 12 RPZ (Road/Driveway). The alternative removes the Runway 30 displaced threshold and also depicts the removal of all non-standard direct entry connections and wide expanses of pavement on the apron directly between the runway/taxiway and apron area. The diversion of Neil Creek and culvert for Emigrant Creek addresses Runway OFA issues but comes with significant cost and environmental impacts. Additionally, the preferred alternative addresses any existing issues with aircraft parking/tiedowns and taxilane OFAs which have been redesigned to meet applicable ADG-I design standards.

The hangar/TOFA issues identified in the facility requirements are identified with a notation indicating that the existing hangars will remain until the end of their useful life, at which time any new construction will be developed to meet taxilane OFA obstruction clearance standards.



AIRPORT DEVELOPMENT ALTERNATIVES - PREFERRED ALTERNATIVE
FIGURE 5-5

ASHLAND MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

CENTURY WEST ENGINEERING

Summary

Of the four alternatives presented and discussed over the course of numerous meetings with stakeholders, PAC members, the FAA, and the planning team, the PAC identified a preferred alternative that included elements from each of the alternatives as well as several specific requests that were identified by the PAC. Similar to the development alternative, the facility improvements depicted on the preferred alternative were evaluated against the five evaluation criteria categories that include operational performance, fiscal factors, environmental factors, planning tenets, and FAA design standards. The preferred alternative was submitted to the FAA in late 2018 for final approval to begin the process of developing capital improvement planning, ALP drawing set, and the remaining implementation elements as required in the master planning process.

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Chapter 6

Airport Layout Drawings

Chapter 6 – Airport Layout Drawings

The Airport Layout Plan (ALP) depicts the existing airport facilities and the planned facilites identified in the preferred alternative analysis.

Introduction

The options that were considered for the long-term development of Ashland Municipal Airport-Sumner Parker Field resulted in the selection of a preferred alternative. The preferred alternative has been incorporated into the airport layout plan drawings, which are depicted in this chapter. The set of airport plans, which is referred to in aggregate as the "Airport Layout Plan" (ALP) has been prepared in accordance with FAA guidelines. The drawings illustrate existing conditions, recommended changes in airfield facilities, property ownership, land use, and obstruction removal. The ALP set is presented at the end of this chapter:

- Sheet 1 – Cover Sheet
- Sheet 2 – Airport Data Sheet
- Sheet 3 – Airport Layout Plan
- Sheet 4 – Terminal Area Plan
- Sheet 5 – Airport Airspace Plan (FAR Part 77)
- Sheet 6 – Airport Airspace Plan (FAR Part 77)
- Sheet 7 – Airport Airspace Plan (FAR Part 77) Obstruction Tables
- Sheet 8 – Airport Airspace Plan (FAR Part 77) Obstruction Tables
- Sheet 9 – Airport Airspace Plan (FAR Part 77) Obstruction Tables
- Sheet 10 – Runway 12 Approach Plan and Profile
- Sheet 11 – Runway 30 Approach Plan and Profile

- Sheet 12 – On Airport Land Use Plan
- Sheet 13 – Off Airport Land Use Plan
- Sheet 14 – Exhibit "A" Airport Property Plan

The airport layout plan drawings provide detailed information for existing and future facilities. The future improvements depicted in the drawing set are consistent with the airport master plan's updated twenty-year capital improvement program contained in Chapter 8. The ALP drawing set will be submitted along with the draft final airport master plan report to Federal Aviation Administration (FAA) for review and approval. The drawings will be reviewed by the FAA Airports District Office (ADO) with additional review coordinated with other FAA offices (Flight Procedures, Flight Standards, etc.). Once approved, the final ALP drawing set will be signed by the City of Ashland and the FAA Seattle Airports District Office (ADO). As individual projects are completed, minor "as-built" updates to the ALP drawing may be completed (with FAA coordination) without updating the airport master plan. A complete update of the full ALP drawing set will be conducted as part of the next master plan update.

The airport layout plan drawings are prepared using AutoCAD® computer-aided drafting software, which allows for easier updating and revision. The drawing files may also be imported into geographic information systems (GIS) software to support land use planning, airport overlay zone mapping, etc.

A brief summary of the individual drawings is provided below:

Airport Data Sheet

The Airport Data Sheet drawing contains detailed runway and taxiway dimensions, FAA dimensional standards, wind roses, and other data that is reflected on the sheets in the drawing set.

Airport Layout Plan

The Airport Layout Plan (ALP) drawing graphically depicts existing and future airfield facilities. Future facilities are color-coded to distinguish them from existing facilities. Future facilities are represented in the airport master plan's twenty-year capital improvement program (CIP) as individual projects or project groupings.

Terminal Area Plan

The Terminal Area Plan provides additional detail for existing and new facilities in the landside areas. The Terminal Area Plan focuses on the main apron area, fuel facilities, Fixed Base Operator, and hangar areas.

FAR Part 77 Airport Airspace Plan

The FAR Part 77 Airspace drawings depict the protected airspace defined for Runway 12/30 in Federal Air Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*. The airspace plan drawings depict the five "imaginary surfaces" defined in FAR Part 77.25 including the primary, transitional, approach, horizontal, and conical surfaces, previously described in the Facility Requirements Chapter. FAR Part 77 surfaces should be free of built or terrain obstructions to the greatest extent possible. Objects that penetrate FAR FAR Part 77 surfaces may require action to mark or remove depending on their severity, location, and the feasibility of the action. The drawings are supplemented by tables detailing the obstacles with recommended dispositions. Obstacles presented on the Airspace Plan were provided by the AGIS survey data. Only obstacles identified by the AGIS data are presented on these sheets.

The physical characteristics of the FAR Part 77 surfaces are defined by the size of aircraft using the runway and the approach capabilities of the runway.

Runway 12/30 Approach Surfaces: Extends 5,000 feet from the end of the runway primary surface. Both runway ends have an approach surface slope of 20:1, which represents the horizontal distance required for each increment of vertical rise.

Runway 12/30 Primary Surface: Based on the visual approach standards for utility runways, the primary surface is 250 feet wide extending 200 feet beyond each end of the runway. 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.

Transitional Surface: The runway transitional surfaces extend outward and upward from the outer edges of the primary surface. The transitional surfaces have a slope of 7:1 and extend to an elevation 150 feet above airfield elevation and connect to the runway horizontal surface.

Horizontal Surface: The horizontal surface is drawn from 5,000-foot radii that extend from both ends of the primary surface to form an oval. The horizontal surface is a flat plane of airspace with an elevation 150 feet above airport elevation.

Conical Surface: The conical surface extends from the outer edge of the horizontal surface at a slope of 20:1 for 4,000 feet.

The FAR Part 77 Airport Airspace Plan is shown in two drawings. The first drawing presents the obstacles in the conical, horizontal, and transitional surfaces. Due to the number and density of obstacles in the horizontal and conical surfaces displaying each penetrating obstacle is not feasible. Instead, a 1,000' square grid was overlaid on the surfaces and the highest penetrating obstacle was identified and noted for each grid cell. For the transitional surface, all penetrating obstacles and those within 10' of the surface are identified and called out.

The second drawing presents the runway, approaches and approach obstacles. Where scale allows, individual obstacles are identified. Due to scale requirements, obstacles in the RPZ and Inner Approaches are not individually identified. Instead, they are detailed on the following Runway RPZ and Inner Approach Plan and Profile drawings.

Obstacles identified in these drawings are listed in the obstruction tables that follow.

Runway RPZ and Inner Approach Plan and Profile Drawings

The Inner Approach Surface and Runway Protection Zone (RPZ) drawing depict detailed plan and profile views of the approach surfaces. The drawings provide additional detail in identify obstructions, terrain and other physical features within the approach surfaces. The drawings include obstruction data tables for items depicted on the drawing, using the same numbering identifiers from the overall FAR Part 77 Airspace Plan. Only obstacles present in the AGIS data are presented on this sheet.

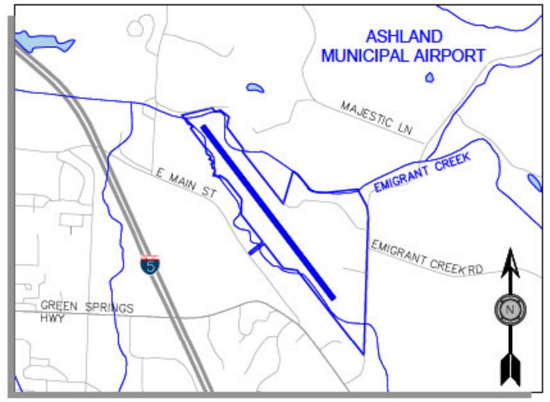
Airport Land Use Plans

The Airport Land Use Plan drawings depict, in two separate sheets, the existing land use designations for the airport and surrounding areas. The On-Airport Land Use drawing details the major use classifications of the Airport property. The Off-Airport Land Use drawings depicts the land use classifications of the property beyond Airport property that are impacted by the Part 77 Surfaces and associated airspace overlay zoning districts. Land use classifications were derived from city and county comprehensive plans and zoning districts. The City of Ashland has land use jurisdiction for Ashland Municipal Airport – Sumner Parker Field and surrounding properties to the west. The remaining land surrounding the airport and that under the FAR Part 77 surfaces extends into Jackson County. The Airport Land Use Plan drawing also includes the existing and future traffic patterns.

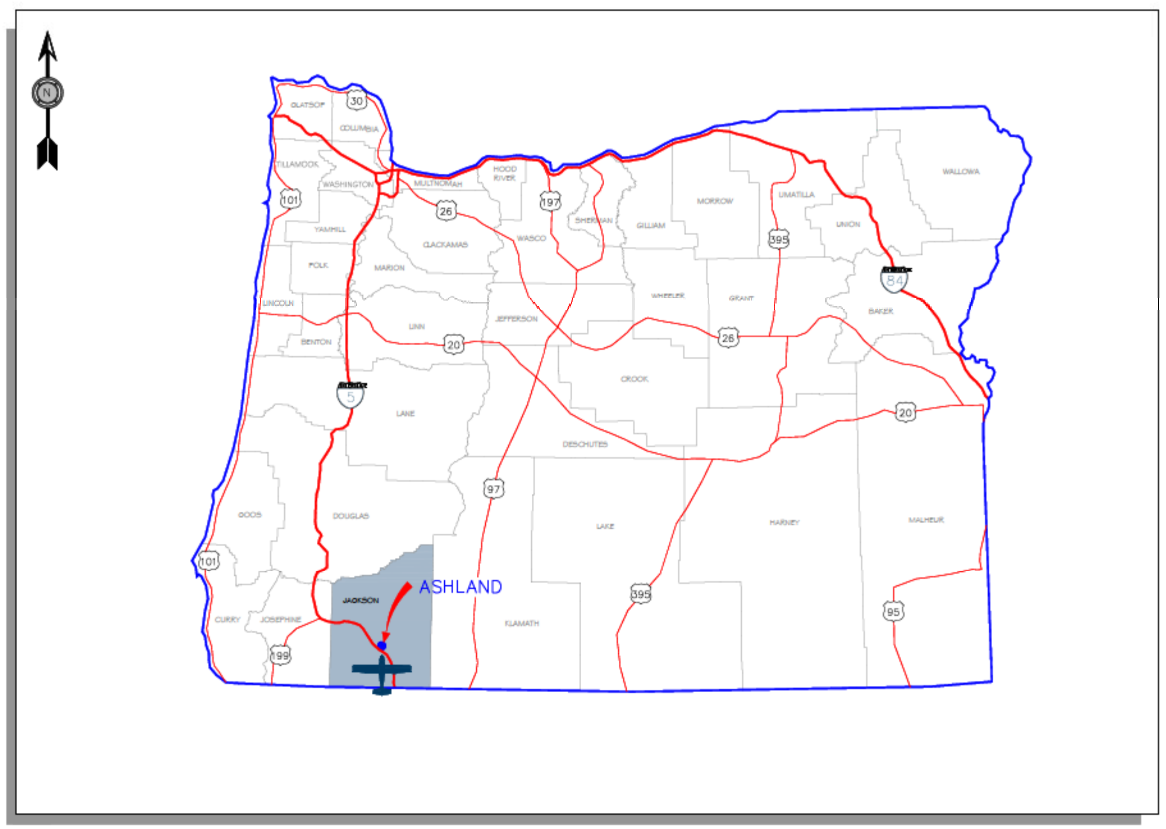
Exhibit "A" – Airport Property Plan

The Airport Property Plan drawing provides depicts all property owned or controlled by the City included in the airport. The drawing notes the form of ownership or control (fee simple, easement, etc.) and the date of acquisition per FAA guidelines. Though a thorough public records search was completed, some details were not avialble. A formal property title search may be required to complete the missing data.

AERIAL PHOTO



VICINITY MAP



LOCATION MAP

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ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD
(S03) AIRPORT MASTER PLAN

CITY OF ASHLAND, OREGON
AIP NO. 3-41-0024-010
AIRPORT LAYOUT PLAN
JANUARY 2020

SHEET INDEX

NUMBER	REV. DATE	CONTENTS
1		COVER SHEET
2		AIRPORT DATA SHEET
3		AIRPORT LAYOUT PLAN
4		TERMINAL AREA PLAN
5		AIRPORT AIRSPACE PLAN (FAR PART 77)
6		AIRPORT AIRSPACE PLAN (FAR PART 77)
7		AIRPORT AIRSPACE PLAN (FAR PART 77) OBSTRUCTION TABLES
8		AIRPORT AIRSPACE PLAN (FAR PART 77) OBSTRUCTION TABLES
9		AIRPORT AIRSPACE PLAN (FAR PART 77) OBSTRUCTION TABLES
10		RUNWAY 12 RPZ AND INNER APPROACH PLAN AND PROFILE
11		RUNWAY 30 RPZ AND INNER APPROACH PLAN AND PROFILE
12		ON AIRPORT LAND USE PLAN
13		OFF AIRPORT LAND USE PLAN
14		EXHIBIT "A" AIRPORT PROPERTY MAP

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.

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541.382.2423 FAX

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
MD	JLS/MS	WMR	AS SHOWN

DATE: JANUARY 2020
PROJECT NO: 12478.001.01

ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

COVER SHEET

FIGURE NO. -

SHEET NO. 1 OF 14

AIRPORT DATA TABLE

		EXISTING	FUTURE
AIRPORT ELEVATION		1888.5'	1888.1'
AIRPORT ACREAGE		95.27	96.01 EST.
ARP COORDINATES	LAT.	N 42° 11' 25.01"	N 42° 11' 25.69"
	LONG.	W 122° 39' 38.28"	W 122° 39' 39.01"
MAGNETIC DECLINATION (SOURCE: NGS NGDC)		14°27'E (7/2019)	ANNUAL RATE OF CHANGE 0°5'W
MEAN MAX. DAILY TEMPERATURE		85°	SAME
FAA IDENTIFIER		S03	SAME
DATUM		NAD83 (HORZ)/NAVD88 (VERT)	SAME
AIRPORT REFERENCE CODE (ARC)		B-I (SMALL)	SAME
CRITICAL AIRCRAFT		RAYTHEON/BEECHCRAFT BARON 58 (Be58)	SAME
AIRPORT NAVAIDS		BEACON	SAME
MISCELLANEOUS FACILITIES		TW REFLECTORS, WIND CONE, SEG CIRCLE	MITL, WIND CONE, SEG CIRCLE
NPIAS ROLE / SERVICE LEVEL		LOCAL - GA	SAME
STATE SYSTEM ROLE		CAT III - REGIONAL GA AIRPORT	SAME

RUNWAY DATA

		EXISTING CONDITIONS RUNWAY 12 - 30		FUTURE CONDITIONS RUNWAY 12 - 30	
RUNWAY LENGTH AND WIDTH		3603' X 75'		3700' X 60'	
RUNWAY PAVEMENT STRENGTH (IN 1000 LBS)		15.5 SW		12.5 SW	
RUNWAY PAVEMENT TYPE		ASPHALT		SAME	
AIRPORT PAVEMENT STRENGTH (PCN)		DATA NOT AVAILABLE		SAME	
RUNWAY DEPARTURE SURFACE		N/A		SAME	
RUNWAY DESIGN CODE (RDC)		B-I-VIS.		SAME	
APPROACH REFERENCE CODE (APRC)		B/I(S)/VIS		SAME	
DEPARTURE REFERENCE CODE (DPRC)		B/I(S)		SAME	
FAR PART 77 DESIGNATION		VISUAL		SAME	
TERMINAL NAVAIDS		PAPI, REIL		SAME	
WINGSPAN		<49		SAME	
WEIGHT		<12,500 LBS.		SAME	
APPROACH SPEED		<121 KNOTS		SAME	
LENGTH OF HAUL		<500 MILES		SAME	
OFZ PENETRATION		YES - RUNWAY 12		SAME	
RUNWAY LIGHTING		MIRL		SAME	
		RUNWAY 12	RUNWAY 30	RUNWAY 12	RUNWAY 30
RUNWAY PROTECTION ZONE		250' X 450' X 1,000'	250' X 450' X 1,000'	SAME	SAME
RUNWAY APPROACH CATEGORY		VISUAL	VISUAL	SAME	SAME
RUNWAY APPROACH SLOPE	PART 77 REQUIRED	20:1	20:1	20:1	20:1
APPROACH VISIBILITY MINIMUMS		VISUAL	VISUAL	VISUAL	VISUAL
DEPARTURE SURFACE		N/A	N/A	N/A	N/A
RUNWAY MARKINGS		BASIC	BASIC	SAME	SAME
RUNWAY END COORDINATES	LAT.	N 42° 11' 38.90"	N 42° 11' 11.12"	N 42° 11' 39.95"	N 42° 11' 11.43"
	LONG.	W 122° 39' 53.25"	W 122° 39' 23.31"	W 122° 39' 54.38"	W 122° 39' 23.64"
RUNWAY END ELEVATION		1849.35	1888.47'	1847.86	1888.13'
DISPLACED THRESHOLD COORDINATES	LAT.	N/A	N 42° 11' 12.59"	N/A	N/A
	LONG.	N/A	W 122° 39' 24.89"	N/A	N/A
DISPLACED THRESHOLD ELEVATION		N/A	1886.84'	N/A	N/A
THRESHOLD SITING SURFACE		TYPE 2 (20:1)	TYPE 2 (20:1)	SAME	SAME
THRESHOLD SITING SURFACE PENETRATIONS		TREES, DRIVEWAY	TREES, POLES	N/A	N/A
TOUCHDOWN ZONE ELEVATION (TDZE)		1877.51'	1888.47'	1877.51	1888.13'
RUNWAY PERCENT GRADIENT / MAXIMUM GRADE		1.08%	-1.08%	1.08%	-1.08%
INSTRUMENTATION AND APPROACH AIDS		NONE	NONE	NONE	NONE
VISUAL NAVAIDS		PAPI, REILS	PAPI, REILS	SAME	SAME
WIND COVERAGE (ALL WEATHER, 10.5 KT)		62.80%	86.66%	SAME	SAME

RUNWAY 12-30 DESIGN STANDARDS

	EXISTING CONDITIONS	EXISTING STANDARD	FUTURE CONDITIONS	FUTURE STANDARD
RUNWAY SAFETY AREA LENGTH AND WIDTH	4083' X 120'	4083' X 120'	4180' X 120'	4180' X 120'
LENGTH BEYOND RUNWAY END	240'	240'	240'	240'
OBJECT FREE AREA LENGTH AND WIDTH	4083' X 250'	4083' X 250'	4180' X 250'	4180' X 250'
LENGTH BEYOND RUNWAY END	240'	240'	240'	240'
OBSTACLE FREE ZONE LENGTH AND WIDTH	4003' X 250'	4003' X 250'	4100' X 250'	4100' X 250'
LENGTH BEYOND RUNWAY END	200'	200'	200'	200'

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APRON DIMENSIONS

	SQUARE FOOTAGE APPROX.
APRON EXISTING	262,500
APRON FUTURE	317,492

TAXIWAY / TAXILANE DATA TABLE

	EXISTING		FUTURE	
	CONDITIONS	STANDARDS	CONDITIONS	STANDARDS
TAXIWAY WIDTHS	30'	25'	30'	25'
TAXILANE WIDTHS	VARIES	25'	20' & 30'	25'
TAXIWAY SAFETY AREA	VARIES	49'	49'	49'
TAXILANE SAFETY AREA	VARIES	49'	49'	49'
TAXIWAY OBJECT FREE AREA	VARIES	89'	89'	89'
TAXILANE OBJECT FREE AREA	VARIES	79'	79'	79'
TAXIWAY LIGHTING	REFLECTORS		MITL	
TAXIWAY MARKING	BASIC		SAME	

LEGEND

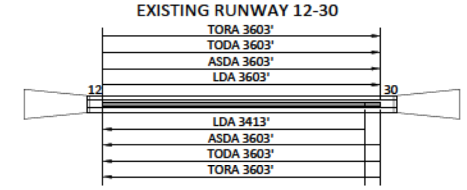
	EXISTING	FUTURE
BUILDINGS		
RUNWAY/AIRFIELD PAVEMENT		
PAVEMENT TO BE REMOVED	N/A	
BUILDING RESTRICTION LINE (BRL)	BRL (E)	BRL (F)
AIRPORT PROPERTY LINE		
RUNWAY SAFETY AREA (RSA)		
OBJECT FREE AREA (OFA)		
OBSTACLE FREE ZONE (OFZ)		
TAXIWAY SAFETY AREA (TSA)		
TAXIWAY OBJECT FREE AREA (TOFA)		
RUNWAY PROTECTION ZONE (RPZ)		
GROUND CONTOURS	1850'	N/A
AIRPORT REFERENCE POINT (ARP)		
REIL		
SEGMENTED CIRCLE WIND INDICATOR		
VISUAL GUIDANCE INDICATORS (PAPI)		
FENCE - 8' UNLESS NOTED OTHERWISE		
BEACON		SAME
THRESHOLD LIGHTS		
ACCESS ROAD / VEHICLE PARKING		
AIRCRAFT PARKING AREA / TIEDOWNS		
TIEDOWNS TO BE REMOVED	N/A	
MEDIUM INTENSITY RUNWAY LIGHTS (MIRL)		
TAXIWAY MARKING		
RUNWAY MARKING		
WATER / STREAM		SAME
CULVERT		
TREE / PLANT / BUSH LINE		SAME
NON-AVIATION DEVELOPMENT		SAME
AVIGATION EASEMENT		
GRASS ISLAND	N/A	
FUEL FACILITY	F	F

MODIFICATION TO STANDARDS

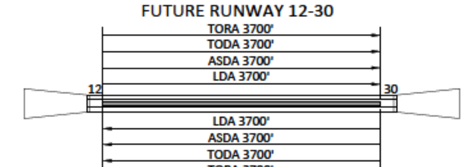
"NONE REQUIRED"

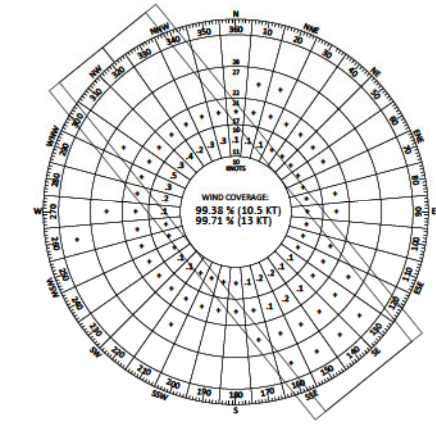
DECLARED DISTANCES

EXISTING RUNWAY 12-30

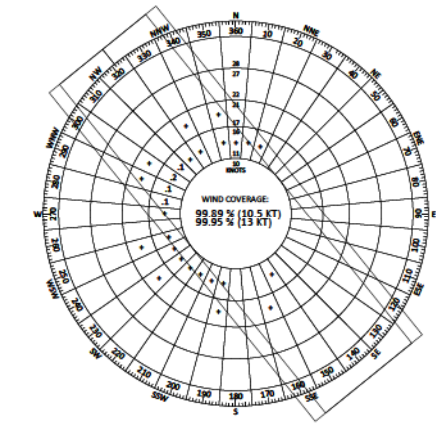


FUTURE RUNWAY 12-30

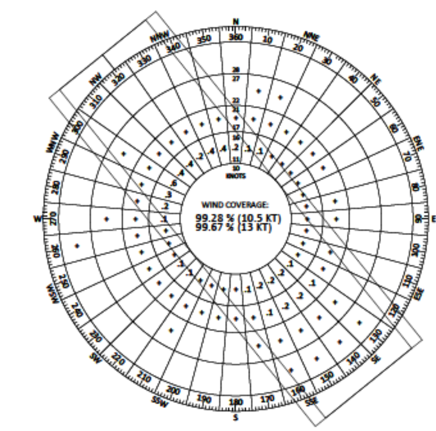




ALL WEATHER WIND ROSE



IFR WIND ROSE



VFR WIND ROSE

RUNWAY 12-30 WIND COVERAGE

RUNWAY ALIGNMENT	CROSSWIND COMP. (KNOTS)	ALL-WEATHER WIND COVERAGE	VFR WIND COVERAGE	IFR WIND COVERAGE
RUNWAY 12	10.5	62.80%	59.88%	78.23%
	13	62.90%	60.00%	78.24%
RUNWAY 30	10.5	86.66%	86.09%	90.43%
	13	86.89%	86.35%	90.48%
COMBINED	10.5	99.38%	99.28%	99.89%
	13	99.71%	99.67%	99.95%

SOURCE: MFR WIND DATA ACCESSED FROM NATIONAL CLIMATE DATA CENTER (NCDC) INTEGRATED SURFACE HOURLY / INTEGRATED SURFACE DATE (ISH/ISD) INVENTORY PERIOD: 2009 TO 2018

NO.	DATE	BY	APPR	REVISIONS

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DESIGNED BY: MD	DRAWN BY: JLS/MS	CHECKED BY: WMR	SCALE: AS SHOWN
DATE: JANUARY 2020		PROJECT NO: 12478.001.01	

ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

AIRPORT DATA SHEET

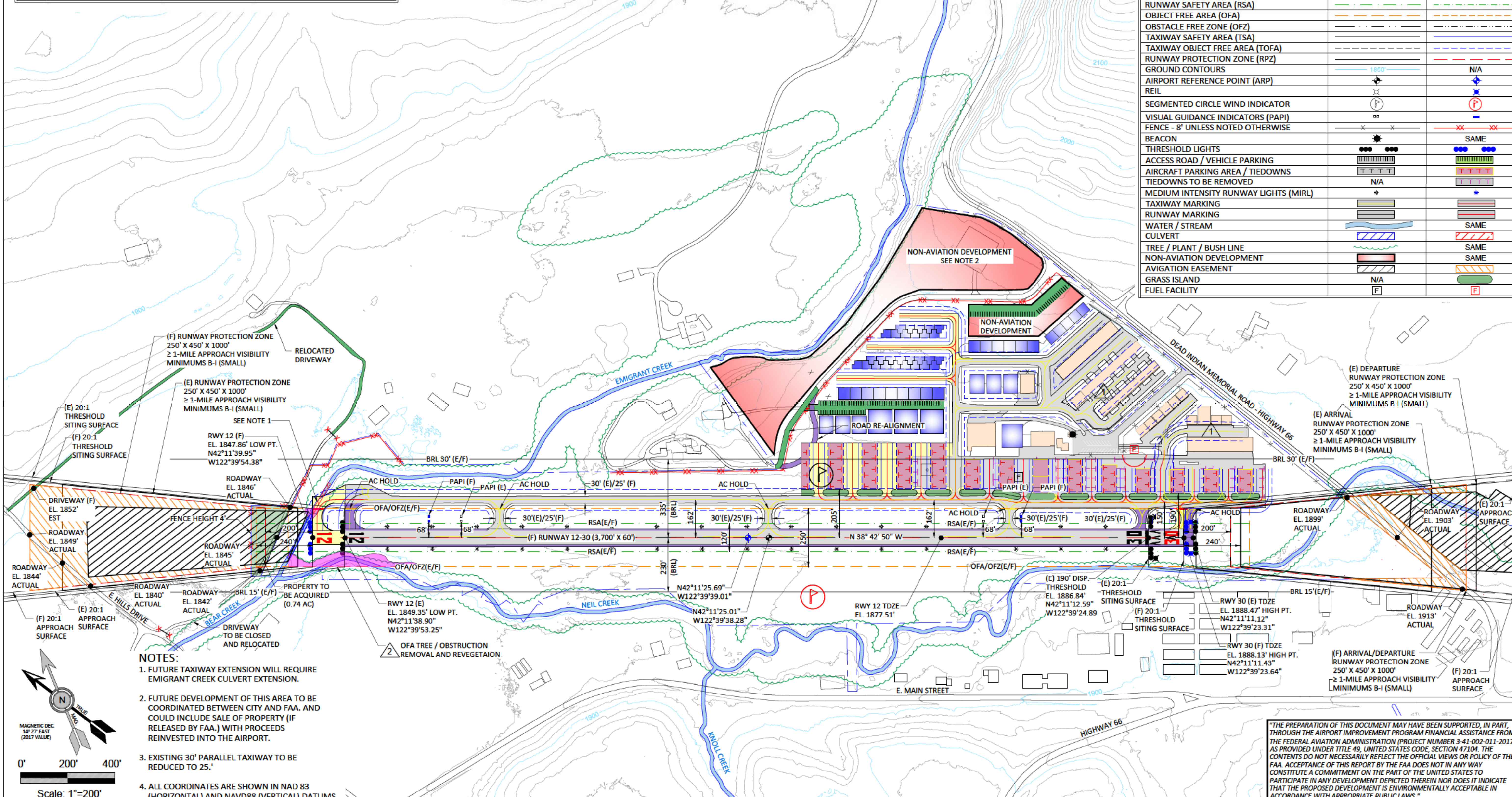
FIGURE NO. -

NON STANDARD CONDITIONS

NO.	ITEM	DESCRIPTION	DISPOSITION
1	TLOFA	HANGAR AREA	HANGARS/TLOFA TO BE CONSTRUCTED TO STANDARDS AT END OF USEFUL LIFE
2	RUNWAY OFA	TREE OBSTRUCTION	TREES TO BE REMOVED

LEGEND

	EXISTING	FUTURE
BUILDINGS		
RUNWAY/AIRFIELD PAVEMENT		
PAVEMENT TO BE REMOVED	N/A	
BUILDING RESTRICTION LINE (BRL)	BRL (E)	BRL (F)
AIRPORT PROPERTY LINE		
RUNWAY SAFETY AREA (RSA)		
OBJECT FREE AREA (OFA)		
OBSTACLE FREE ZONE (OFZ)		
TAXIWAY SAFETY AREA (TSA)		
TAXIWAY OBJECT FREE AREA (TOFA)		
RUNWAY PROTECTION ZONE (RPZ)		
GROUND CONTOURS	1850'	N/A
AIRPORT REFERENCE POINT (ARP)		
REIL		
SEGMENTED CIRCLE WIND INDICATOR		
VISUAL GUIDANCE INDICATORS (PAPI)		
FENCE - 8' UNLESS NOTED OTHERWISE		
BEACON		SAME
THRESHOLD LIGHTS		
ACCESS ROAD / VEHICLE PARKING		
AIRCRAFT PARKING AREA / TIEDOWNS		
TIEDOWNS TO BE REMOVED	N/A	
MEDIUM INTENSITY RUNWAY LIGHTS (MIRL)		
TAXIWAY MARKING		
RUNWAY MARKING		
WATER / STREAM		SAME
CULVERT		
TREE / PLANT / BUSH LINE		SAME
NON-AVIATION DEVELOPMENT		SAME
AVIGATION EASEMENT		
GRASS ISLAND	N/A	
FUEL FACILITY	F	F



NOTES:

1. FUTURE TAXIWAY EXTENSION WILL REQUIRE EMIGRANT CREEK CULVERT EXTENSION.
2. FUTURE DEVELOPMENT OF THIS AREA TO BE COORDINATED BETWEEN CITY AND FAA. AND COULD INCLUDE SALE OF PROPERTY (IF RELEASED BY FAA.) WITH PROCEEDS REINVESTED INTO THE AIRPORT.
3. EXISTING 30' PARALLEL TAXIWAY TO BE REDUCED TO 25.'
4. ALL COORDINATES ARE SHOWN IN NAD 83 (HORIZONTAL) AND NAVD88 (VERTICAL) DATUMS.

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FEDERAL AVIATION ADMINISTRATION APPROVAL

APPROVAL DATE: ______

SIGNATURE

CITY OF ASHLAND APPROVAL

APPROVAL DATE: ______

SIGNATURE

CENTURY WEST ENGINEERING

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DATE: JANUARY 2020		PROJECT NO: 12478.001.01	

ASHLAND MUNICIPAL AIRPORT SUMNER PARKER FIELD

AIRPORT LAYOUT PLAN

FIGURE NO. -

SHEET NO. 3 OF 14

NON STANDARD CONDITIONS

NO.	ITEM	DESCRIPTION	DISPOSITION
1	TLOFA	HANGAR AREA	HANGARS/TLOFA TO BE CONSTRUCTED TO STANDARDS AT END OF USEFUL LIFE

BUILDING/FACILITY KEY

NO.	DESCRIPTION	TOP ELEV.	NO.	DESCRIPTION	TOP ELEV.
1	AIRCRAFT WASH PAD	-	15	HANGAR - 413	1908.48'
2	AIRCRAFT APRON	-	16	HANGAR - 415	1908.59'
3	FIXED BASE OPERATOR	-	17	HANGAR - 417	1909.35'
4	FUELING AREA	-	18	HANGAR - 419	1909.56'
5	VEHICLE PARKING EXISTING	-	19	HANGAR - 421	1909.22'
6	BEACON	-	20	ELECTRICAL BUILDING - 423	1901.60'
7	TEMPORARY EQUIPMENT STORAGE & VEHICLE PARKING	-	21	FIXED BASED OPERATOR - 425	1908.09'
			22	BRIM HANGAR & OFFICE - 429	1911.57'
8	T-HANGAR - 395	1907.56'	23	T-HANGAR - 431	1910.93'
9	HANGAR - 399	1908.95'	24	T-HANGAR/HANGAR - 433	1918.41'
10	FIXED BASE OPERATOR - 403	1900.65'	25	T-HANGAR - 437	1915.36'
11	HANGAR - 405	1921.93'	26	BRIM HANGAR & OFFICE - 439	1912.19'
12	HANGAR - 407	1907.22'	27	VEHICLE PARKING FUTURE	-
13	HANGAR - 409	1907.03'	28	FUEL FACILITY FUTURE	-
14	HANGAR - 411	1907.83'			

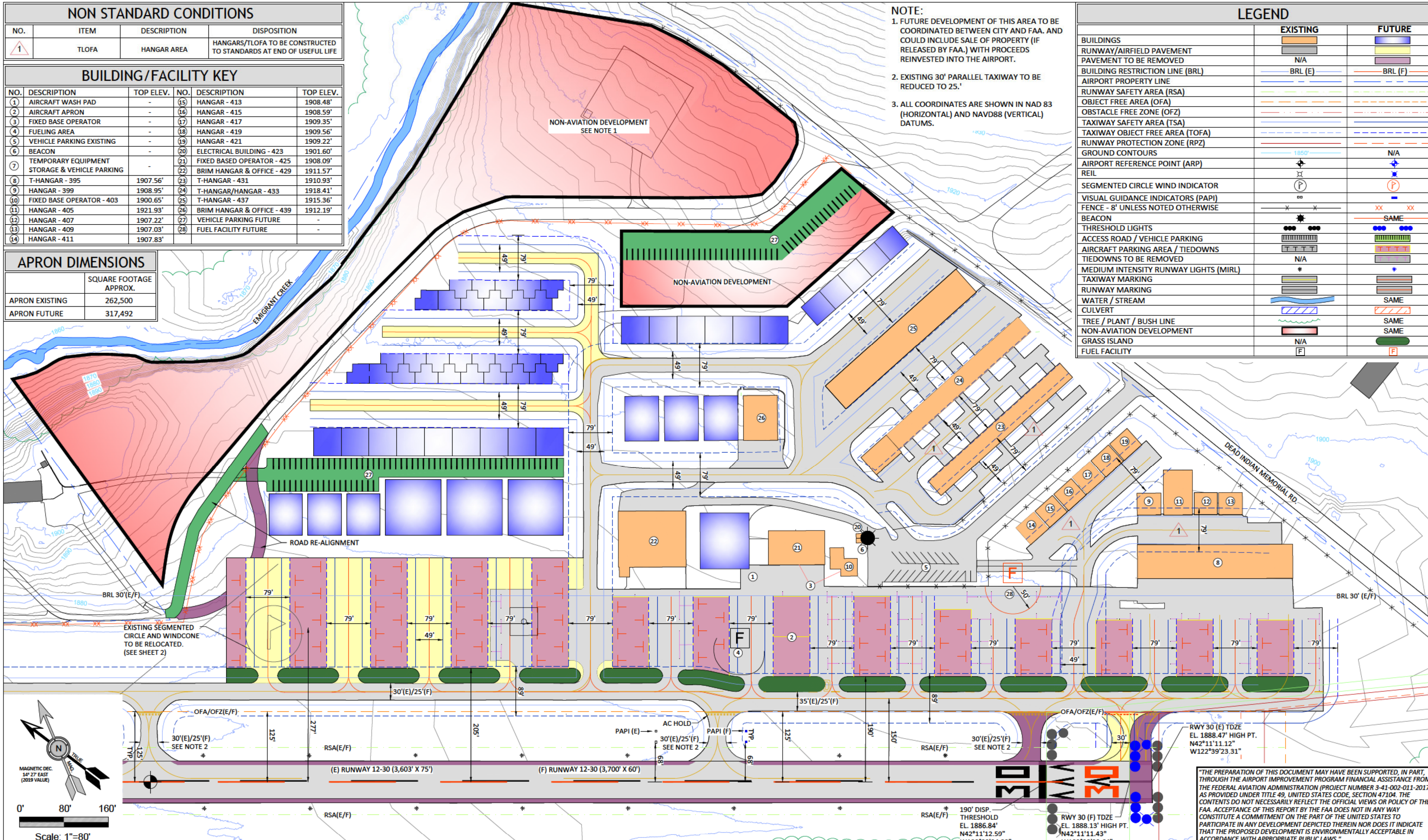
APRON DIMENSIONS

	SQUARE FOOTAGE APPROX.
APRON EXISTING	262,500
APRON FUTURE	317,492

NOTE:
1. FUTURE DEVELOPMENT OF THIS AREA TO BE COORDINATED BETWEEN CITY AND FAA. AND COULD INCLUDE SALE OF PROPERTY (IF RELEASED BY FAA.) WITH PROCEEDS REINVESTED INTO THE AIRPORT.
2. EXISTING 30' PARALLEL TAXIWAY TO BE REDUCED TO 25.'
3. ALL COORDINATES ARE SHOWN IN NAD 83 (HORIZONTAL) AND NAVD88 (VERTICAL) DATUMS.

LEGEND

	EXISTING	FUTURE
BUILDINGS		
RUNWAY/AIRFIELD PAVEMENT		
PAVEMENT TO BE REMOVED	N/A	
BUILDING RESTRICTION LINE (BRL)	BRL (E)	BRL (F)
AIRPORT PROPERTY LINE		
RUNWAY SAFETY AREA (RSA)		
OBJECT FREE AREA (OFA)		
OBSTACLE FREE ZONE (OFZ)		
TAXIWAY SAFETY AREA (TSA)		
TAXIWAY OBJECT FREE AREA (TOFA)		
RUNWAY PROTECTION ZONE (RPZ)		
GROUND CONTOURS	1850	N/A
AIRPORT REFERENCE POINT (ARP)		
REIL		
SEGMENTED CIRCLE WIND INDICATOR		
VISUAL GUIDANCE INDICATORS (PAPI)		
FENCE - 8' UNLESS NOTED OTHERWISE		
BEACON		SAME
THRESHOLD LIGHTS		
ACCESS ROAD / VEHICLE PARKING		
AIRCRAFT PARKING AREA / TIEDOWNS		
TIEDOWNS TO BE REMOVED	N/A	
MEDIUM INTENSITY RUNWAY LIGHTS (MIRL)		
TAXIWAY MARKING		
RUNWAY MARKING		
WATER / STREAM		SAME
CULVERT		
TREE / PLANT / BUSH LINE		SAME
NON-AVIATION DEVELOPMENT		SAME
GRASS ISLAND	N/A	
FUEL FACILITY	F	F



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DATE: JANUARY 2020		PROJECT NO: 12478.001.01	

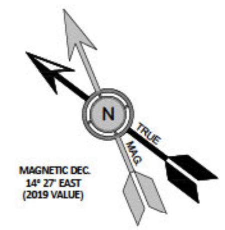
ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

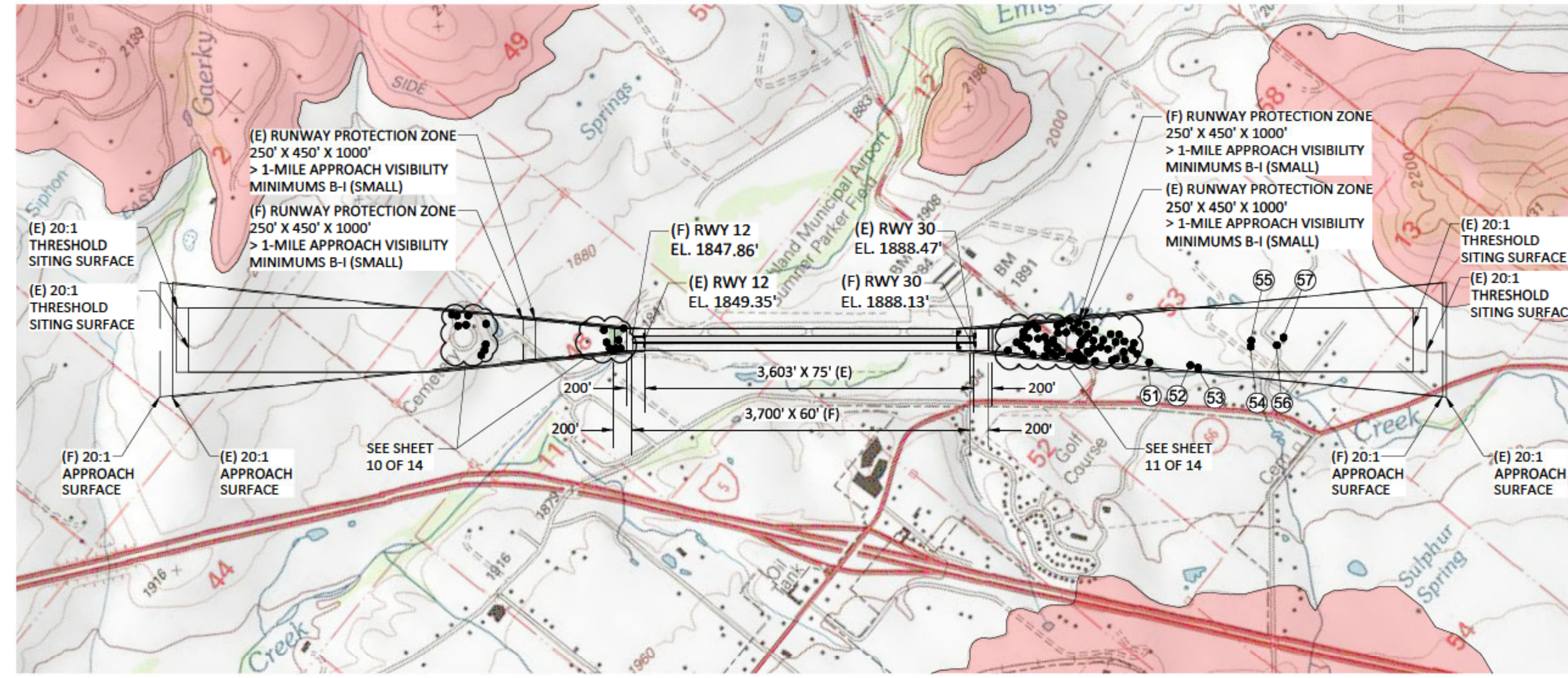
TERMINAL AREA PLAN

FIGURE NO. -

PART 77 APPROACH SURFACE OBSTRUCTIONS

NO.	ITEM	PART 77 SURFACE	MSL ELEV	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (SEE NOTE 3)	AIRPORT PROPERTY	DISPOSITION
51	TREE	APPROACH (RWY 30)/TSS	2,003.7'	246' L	1,958'	27.7'/17.7	NO	TOP/REMOVE
52	TREE	APPROACH (RWY 30)	2,005.0'	277' L	2,409'	6.4'	NO	TOP/REMOVE
53	TREE	APPROACH (RWY 30)	2,007.3'	304' L	2,494'	4.5'	NO	TOP/REMOVE
54	TREE	APPROACH (RWY 30)	2,039.6'	74' L	3,070'	8'	NO	TOP/REMOVE
55	TREE	APPROACH (RWY 30)/TSS	2,052.4'	7' L	3,076'	20.5'/10.5'	NO	TOP/REMOVE
56	TREE	APPROACH (RWY 30)	2,046.9'	58' L	3,357'	< 1'	NO	TOP/REMOVE
57	TREE	APPROACH (RWY 30)	2,049.9'	27' R	3,430'	< 1'	NO	TOP/REMOVE

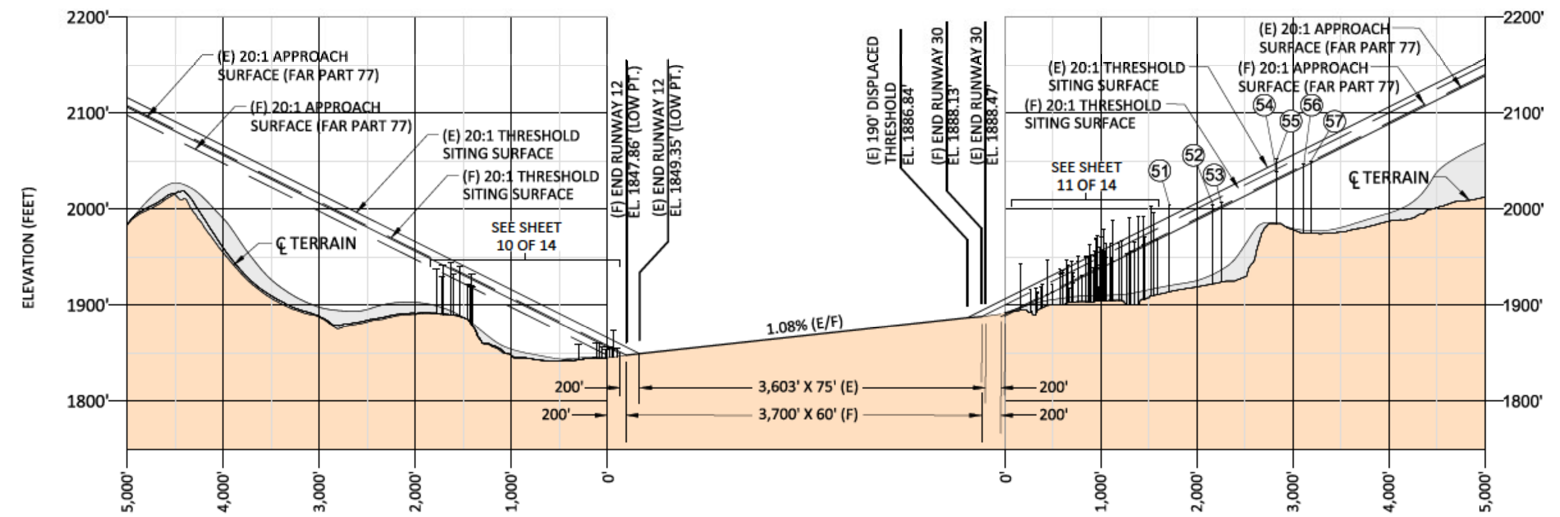




AREAS OF TERRAIN PENETRATION

RUNWAY 12-30 PLAN VIEW

0' 1000' 2000'
Scale: 1"=1000'



0' 100' 200'
SCALE OF FEET
VERTICAL SCALE 1"=100'

RUNWAY 12-30 PROFILE VIEW

0' 1000' 2000'
SCALE OF FEET
HORIZONTAL SCALE 1"=1000'

RUNWAY 12/30

FAR PART 77 DIMENSIONAL STANDARDS
RUNWAY EXISTING LENGTH = 3,603' (RUNWAY TYPE = B-I)
RUNWAY FUTURE LENGTH = 3,700' (RUNWAY TYPE = B-I)

RUNWAY 12
PRIMARY SURFACE WIDTH = 250'
APPROACH SURFACE INNER WIDTH = 250'
APPROACH SURFACE OUTER WIDTH = 1,250'
APPROACH SURFACE LENGTH = 5,000'
RADIUS OF HORIZONTAL SURFACE = 5,000'
APPROACH SLOPE = 20:1

RUNWAY 30
PRIMARY SURFACE WIDTH = 250'
APPROACH SURFACE INNER WIDTH = 250'
APPROACH SURFACE OUTER WIDTH = 1,250'
APPROACH SURFACE LENGTH = 5,000'
RADIUS OF HORIZONTAL SURFACE = 5,000'
APPROACH SLOPE = 20:1

NOTES:
1. DISTANCES FOR NOTED OBSTRUCTIONS ARE BASED ON THE ULTIMATE RUNWAY CONFIGURATION. DIMENSIONS INCLUDE 200' DISTANCE FROM RUNWAY END TO BEGINNING OF APPROACH.
2. DATE OF OBSTRUCTION SURVEY; 01/23/2017.
3. IN THE CASE OF OBSTACLES THAT PENETRATE APPROACH AND TSS SURFACES, PENETRATION AMOUNTS ARE LISTED FOR BOTH SURFACES.

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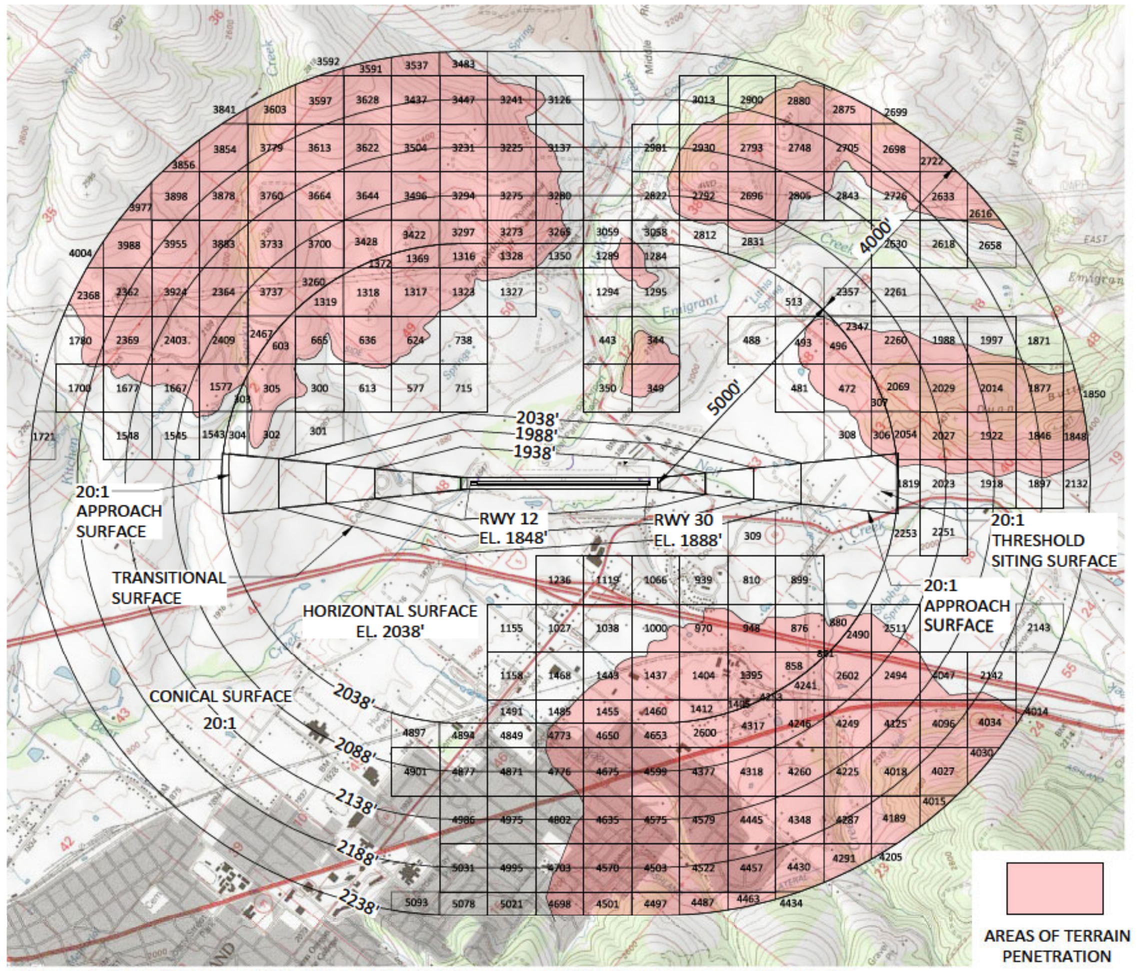
ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

AIRPORT AIRSPACE PLAN (FAR PART 77)

FIGURE NO.
-



NOTE: GRID NUMBERS REPRESENT THE HIGHEST PENETRATING OBJECT WITHIN EACH 1000' X 1000' GRID CELL

FAR PART 77 HORIZONTAL AND CONICAL SURFACES

MAGNETIC DEC.
14° 27' EAST
(2019 VALUE)

0' 2000' 4000'

Scale: 1"=2000'

FAR PART 77 TRANSITIONAL SURFACE

MAGNETIC DEC.
14° 27' EAST
(2019 VALUE)

0' 1000' 2000'

Scale: 1"=1000'

RUNWAY 12/30

FAR PART 77 DIMENSIONAL STANDARDS

RUNWAY EXISTING LENGTH = 3,603' (RUNWAY TYPE = B-I)

RUNWAY FUTURE LENGTH = 3,700' (RUNWAY TYPE = B-I)

RUNWAY 12	RUNWAY 30
PRIMARY SURFACE WIDTH = 250'	PRIMARY SURFACE WIDTH = 250'
APPROACH SURFACE INNER WIDTH = 250'	APPROACH SURFACE INNER WIDTH = 250'
APPROACH SURFACE OUTER WIDTH = 1,250'	APPROACH SURFACE OUTER WIDTH = 1,250'
APPROACH SURFACE LENGTH = 5,000'	APPROACH SURFACE LENGTH = 5,000'
RADIUS OF HORIZONTAL SURFACE = 5,000'	RADIUS OF HORIZONTAL SURFACE = 5,000'
APPROACH SLOPE = 20:1	APPROACH SLOPE = 20:1

NOTES:

1. DISTANCES FOR NOTED OBSTRUCTIONS ARE BASED ON THE ULTIMATE RUNWAY CONFIGURATION. DIMENSIONS INCLUDE 200' DISTANCE FROM RUNWAY END TO BEGINNING OF APPROACH.
2. PART 77 SURFACES BASED ON ULTIMATE AIRSPACE SURFACES.
3. SEE SHEETS 7 - 9 FOR OBSTRUCTION TABLES
4. DATE OF OBSTRUCTION SURVEY: 28 SEPTEMBER 2017

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ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

AIRPORT AIRSPACE PLAN (FAR PART 77)

FIGURE NO. -

SHEET NO. 6 OF 14

PART 77 TRANSITIONAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	PART 77 SURFACE	OBSTACLE ELEVATION (FT)	HEIGHT AGL (FT)	HEIGHT ABOVE AIRPORT (FT)	HEIGHT ABOVE RWY (FT)	LIGHTED	DATE SURVEYED	ELLIPSOID HEIGHT (FT)	PART 77 SURFACE ELEVATION (FT)	PART 77 PENETRATION (FT)	DISPOSITION
100	TREE	TRANSITION	1953.7	*	65	65.3	NO	9/28/2017	1875.7	1962.6	-8.9	NO OBSTRUCTION
101	WINDSOCK	TRANSITION	1914.2	20.4	26	25.7	YES	9/28/2017	1836.2	1904.5	9.7	OBSTRUCTION LIGHT
102	AIRFIELD LIGHT	TRANSITION	1893.4	2.9	5	4.9	YES	9/28/2017	1815.4	1890.0	3.4	OBSTRUCTION LIGHT
103	AIRFIELD LIGHT	TRANSITION	1888.9	2.8	0	0.4	YES	9/28/2017	1810.9	1886.0	2.9	OBSTRUCTION LIGHT
104	AIRFIELD LIGHT	TRANSITION	1887.6	3.7	-1	-0.8	YES	9/28/2017	1809.6	1883.8	3.8	OBSTRUCTION LIGHT
105	TREE	TRANSITION	1927.9	*	39	39.5	NO	9/28/2017	1849.9	1919.2	8.7	TO BE REMOVED
106	BUILDING	TRANSITION	1921.4	32.9	33	72.0	NO	9/28/2017	1843.3	1903.6	17.8	OBSTRUCTION LIGHT
107	TREE	TRANSITION	1934.8	*	46	85.5	NO	9/28/2017	1856.8	1909.6	25.2	TO BE REMOVED
108	TREE	TRANSITION	1906.2	*	18	56.9	NO	9/28/2017	1828.2	1898.6	7.6	TO BE REMOVED
109	TREE	TRANSITION	1926.5	*	38	77.2	NO	9/28/2017	1848.5	1923.2	3.3	TO BE REMOVED
110	TREE	TRANSITION	1908.9	*	20	59.5	NO	9/28/2017	1830.8	1916.0	-7.1	NO OBSTRUCTION
111	TREE	TRANSITION	1893.1	*	5	43.8	NO	9/28/2017	1815.1	1900.1	-6.9	NO OBSTRUCTION
112	TREE	TRANSITION	1921.5	*	33	72.1	NO	9/28/2017	1843.4	1911.2	10.3	TO BE REMOVED
113	TREE	TRANSITION	1904.6	*	16	55.3	NO	9/28/2017	1826.6	1886.7	17.9	TO BE REMOVED
114	TREE	TRANSITION	1925.2	*	37	75.8	NO	9/28/2017	1847.1	1910.4	14.8	TO BE REMOVED
115	TREE	TRANSITION	1907.3	*	19	58.0	NO	9/28/2017	1829.3	1881.6	25.7	TO BE REMOVED
116	TREE	TRANSITION	1904.9	*	16	55.6	NO	9/28/2017	1826.9	1911.1	-6.2	NO OBSTRUCTION
117	TREE	TRANSITION	1909.1	*	21	59.8	NO	9/28/2017	1831.1	1889.7	19.5	TO BE REMOVED
118	TREE	TRANSITION	1913.9	*	25	64.6	NO	9/28/2017	1835.9	1872.8	41.1	TO BE REMOVED
119	TREE	TRANSITION	1904.7	*	16	55.4	NO	9/28/2017	1826.7	1877.8	26.9	TO BE REMOVED
120	TREE	TRANSITION	1901.6	*	13	52.2	NO	9/28/2017	1823.6	1877.8	23.8	TO BE REMOVED
121	TREE	TRANSITION	1890.9	*	2	41.6	NO	9/28/2017	1812.9	1862.5	28.4	TO BE REMOVED
122	TREE	TRANSITION	1873.7	*	-15	24.3	NO	9/28/2017	1795.6	1855.4	18.3	TO BE REMOVED
123	TREE	TRANSITION	1869.3	*	-19	20.0	NO	9/28/2017	1791.3	1873.9	-4.6	NO OBSTRUCTION
124	TREE	TRANSITION	1928.4	*	40	79.1	NO	9/28/2017	1850.4	1922.8	5.6	TO BE REMOVED
125	TREE	TRANSITION	1917.3	*	29	68.0	NO	9/28/2017	1839.3	1920.5	-3.2	NO OBSTRUCTION
126	TREE	TRANSITION	1923.0	*	35	73.7	NO	9/28/2017	1845.0	1926.6	-3.6	NO OBSTRUCTION
127	TREE	TRANSITION	1917.5	*	29	68.1	NO	9/28/2017	1839.5	1924.8	-7.3	NO OBSTRUCTION
128	TREE	TRANSITION	1951.0	*	63	101.7	NO	9/28/2017	1873.0	1956.8	-5.8	NO OBSTRUCTION
129	TREE	TRANSITION	1916.6	*	28	67.3	NO	9/28/2017	1838.6	1924.2	-7.5	NO OBSTRUCTION
130	TREE	TRANSITION	1939.6	*	51	90.2	NO	9/28/2017	1861.6	1930.7	8.9	TO BE REMOVED
131	TREE	TRANSITION	1922.2	*	34	72.9	NO	9/28/2017	1844.2	1927.3	-5.1	NO OBSTRUCTION
132	TREE	TRANSITION	1948.4	*	60	99.1	NO	9/28/2017	1870.4	1936.0	12.4	TO BE REMOVED
133	TREE	TRANSITION	1858.7	*	-30	9.3	NO	9/28/2017	1780.6	1866.0	-7.3	NO OBSTRUCTION
134	TREE	TRANSITION	1940.9	*	52	52.5	NO	9/28/2017	1862.9	1921.2	19.7	TO BE REMOVED
135	TREE	TRANSITION	1986.4	*	98	97.9	NO	9/28/2017	1908.4	1931.5	54.9	TO BE REMOVED
136	TREE	TRANSITION	1986.0	*	98	97.6	NO	9/28/2017	1908.0	1943.7	42.3	TO BE REMOVED
137	TREE	TRANSITION	1981.9	*	93	93.4	NO	9/28/2017	1903.9	1933.2	48.7	TO BE REMOVED
138	TREE	TRANSITION	1961.7	*	73	73.2	NO	9/28/2017	1883.7	1931.0	30.7	TO BE REMOVED
139	TREE	TRANSITION	1970.7	*	82	82.2	NO	9/28/2017	1892.7	1952.4	18.3	TO BE REMOVED
140	TREE	TRANSITION	1891.7	*	3	42.4	NO	9/28/2017	1813.7	1893.0	-1.3	NO OBSTRUCTION
141	TREE	TRANSITION	1905.6	*	17	56.2	NO	9/28/2017	1827.6	1909.7	-4.1	NO OBSTRUCTION
142	TREE	TRANSITION	1908.8	*	20	59.5	NO	9/28/2017	1830.8	1900.8	8.0	TO BE REMOVED
143	TREE	TRANSITION	1930.3	*	42	81.0	NO	9/28/2017	1852.3	1911.7	18.6	TO BE REMOVED
144	TREE	TRANSITION	1891.3	*	3	41.9	NO	9/28/2017	1813.2	1876.7	14.6	TO BE REMOVED
145	TREE	TRANSITION	1904.3	*	16	55.0	NO	9/28/2017	1826.3	1895.0	9.3	TO BE REMOVED
146	TREE	TRANSITION	1907.0	*	19	57.6	NO	9/28/2017	1828.9	1895.5	11.5	TO BE REMOVED
147	TREE	TRANSITION	1900.6	*	12	51.3	NO	9/28/2017	1822.6	1902.9	-2.3	NO OBSTRUCTION
148	TREE	TRANSITION	1896.3	*	8	46.9	NO	9/28/2017	1818.3	1878.4	17.9	TO BE REMOVED
149	TREE	TRANSITION	1885.0	*	-3	35.7	NO	9/28/2017	1807.0	1870.3	14.7	TO BE REMOVED
150	UTILITY POLE	TRANSITION	1935.1	35.0	47	46.6	NO	9/28/2017	1857.1	1929.2	5.9	OBSTRUCTION LIGHT
151	TREE	TRANSITION	1928.1	*	40	78.8	NO	9/28/2017	1850.1	1937.9	-9.8	NO OBSTRUCTION
152	TREE	TRANSITION	1934.6	*	46	46.1	NO	9/28/2017	1856.6	1893.3	41.3	TO BE REMOVED
153	TREE	TRANSITION	1930.0	*	42	41.6	NO	9/28/2017	1852.0	1893.7	36.4	TO BE REMOVED
154	TREE	TRANSITION	1938.8	*	50	50.3	NO	9/28/2017	1860.8	1890.1	48.7	TO BE REMOVED
155	UTILITY POLE	TRANSITION	1930.0	35.5	42	41.6	NO	9/28/2017	1852.0	1923.3	6.7	OBSTRUCTION LIGHT
156	TREE	TRANSITION	1965.7	*	77	77.3	NO	9/28/2017	1887.7	1912.8	52.9	TO BE REMOVED
157	TREE	TRANSITION	1952.2	*	64	63.7	NO	9/28/2017	1874.2	1901.5	50.7	TO BE REMOVED
158	TREE	TRANSITION	1975.2	*	87	86.7	NO	9/28/2017	1897.2	1893.5	81.7	TO BE REMOVED
159	TREE	TRANSITION	1927.8	*	39	39.3	NO	9/28/2017	1849.8	1886.2	41.6	TO BE REMOVED
160	TREE	TRANSITION	1934.8	*	46	46.4	NO	9/28/2017	1856.8	1922.0	12.8	TO BE REMOVED
161	TREE	TRANSITION	1970.5	*	82	82.0	NO	9/28/2017	1892.4	1909.1	61.4	TO BE REMOVED
162	TREE	TRANSITION	1917.2	*	29	28.7	NO	9/28/2017	1839.1	1916.1	1.1	TO BE REMOVED
163	TREE	TRANSITION	1959.9	*	71	71.4	NO	9/28/2017	1881.8	1922.1	37.8	TO BE REMOVED
164	TREE	TRANSITION	1935.0	*	47	85.7	NO	9/28/2017	1857.0	1903.5	31.5	TO BE REMOVED
165	TREE	TRANSITION	1928.8	*	40	79.4	NO	9/28/2017	1850.8	1914.5	14.3	TO BE REMOVED
166	TREE	TRANSITION	1889.4	*	1	40.1	NO	9/28/2017	1811.4	1891.7	-2.3	NO OBSTRUCTION
167	TREE	TRANSITION	1916.0	*	28	66.6	NO	9/28/2017	1837.9	1912.8	3.2	TO BE REMOVED
168	TREE	TRANSITION	1945.3	*	57	96.0	NO	9/28/2017	1867.3	1914.5	30.8	TO BE REMOVED
169	TREE	TRANSITION	1896.2	*	8	46.8	NO	9/28/2017	1818.1	1886.4	9.8	TO BE REMOVED

PART 77 TRANSITIONAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	PART 77 SURFACE	OBSTACLE ELEVATION (FT)	HEIGHT AGL (FT)	HEIGHT ABOVE AIRPORT (FT)	HEIGHT ABOVE RWY (FT)	LIGHTED	DATE SURVEYED	ELLIPSOID HEIGHT (FT)	PART 77 SURFACE ELEVATION (FT)	PART 77 PENETRATION (FT)	DISPOSITION
170	TREE	TRANSITION	1921.3	*	33	71.9	NO	9/28/2017	1843.2	1884.1	37.2	TO BE REMOVED
171	TREE	TRANSITION	1949.0	*	61	99.7	NO	9/28/2017	1871.0	1885.4	63.6	TO BE REMOVED
172	TREE	TRANSITION	1905.8	*	17	56.4	NO	9/28/2017	1827.7	1902.3	3.5	TO BE REMOVED
173	TREE	TRANSITION	1899.8	*	11	50.5	NO	9/28/2017	1821.8	1909.3	-9.5	NO OBSTRUCTION
174	TREE	TRANSITION	1948.0	*	60	98.6	NO	9/28/2017	1869.9	1875.3	72.7	TO BE REMOVED
175	TREE	TRANSITION	1937.3	*	49	88.0	NO	9/28/2017	1859.3	1863.5	73.8	TO BE REMOVED
176	TREE	TRANSITION	1899.9	*	11	50.6	NO	9/28/2017	1821.9	1852.3	47.6	TO BE REMOVED
177	TREE	TRANSITION	1896.0	*	8	46.7	NO	9/28/2017	1818.0	1862.5	33.5	TO BE REMOVED
178	ANTENNA	TRANSITION	1924.2	27.0	36	35.7	NO	9/28/2017	1846.2	1905.4	18.8	OBSTRUCTION LIGHT
179	ANTENNA	TRANSITION	1916.2	20.4	28	27.7	NO	9/28/2017	1838.2	1904.4	11.8	OBSTRUCTION LIGHT
180	TREE	TRANSITION	1936.0	*	48	47.6	NO	9/28/2017	1858.0	1912.7	23.3	TO BE REMOVED
181	TREE	TRANSITION	1983.5	*	95	134.2	NO	9/28/2017	1905.5	1961.7	21.8	TO BE REMOVED
182	TREE	TRANSITION	1992.1	*	104	142.8	NO	9/28/2017	1914.1	1963.0	29.1	TO BE REMOVED
183	TREE	TRANSITION	1946.6	*	58	97.2	NO	9/28/2017	1868.5	1945.6	1.0	TO BE REMOVED
184	TREE	TRANSITION	1994.2	*	106	105.8	NO	9/28/2017	1916.2	1998.9	-4.7	NO OBSTRUCTION
185	TREE	TRANSITION	1951.5	*	63	63.0	NO	9/28/2017	1873.5	1944.3	7.2	TO BE REMOVED
186	TREE	TRANSITION	2012.3	*	124	123.8	NO	9/28/2017	1934.3	1991.2	21.1	TO BE REMOVED
187	TREE	TRANSITION	1991.9	*	103	103.4	NO	9/28/2017	1913.8	1987.8	4.1	TO BE REMOVED
188	TREE	TRANSITION	1967.4	*	79	78.9	NO	9/28/2017	1889.3	1933.3	34.1	TO BE REMOVED
189	TREE	TRANSITION	1971.4	*	83	82.9	NO	9/28/2017	1893.4	1927.5	43.9	TO BE REMOVED
190	TREE	TRANSITION	1942.9	*	54	54.4	NO	9/28/2017	1864.8	1945.2	-2.3	NO OBSTRUCTION
191	TREE	TRANSITION	1926.8	*	38	77.5	NO	9/28/2017	1848.8	1928.2	-1.4	NO OBSTRUCTION
192	TREE	TRANSITION	1945.9	*	57	57.4	NO	9/28/2017	1867.8	1924.1	21.8	TO BE REMOVED
193	TREE	TRANSITION	1991.4	*	103	142.0	NO	9/28/2017	1913.3	1985.9	5.4	TO BE REMOVED
194	TREE	TRANSITION	1925.9	*	37	76.6	NO	9/28/2017	1847.9	1928.9	-3.0	NO OBSTRUCTION
195	TREE	TRANSITION	2013.5	*	125	125.0	NO	9/28/2017	1935.5	1997.4	16.1	TO BE REMOVED
196	TREE	TRANSITION	1857.8	*	-31	8.4	NO	9/28/2017	1779.7	1855.2	2.6	TO BE REMOVED
197	TREE	TRANSITION	1921.1	*	33	71.8	NO	9/28/2017	1843.1	1920.2	0.9	TO BE REMOVED
198	TREE	TRANSITION	1928.9	*	40	79.6	NO	9/28/2017	1850.8	1890.9	38.0	TO BE REMOVED
199	TREE	TRANSITION	1913.4	*	25	64.1	NO	9/28/2017	1835.4	1865.9	47.5	TO BE REMOVED
200	TREE	TRANSITION	1940.7	*	52	52.2	NO	9/28/2017	1862.7	1923.0	17.7	TO BE REMOVED
201	TREE	TRANSITION	1982.3	*	94	93.9	NO	9/28/2017	1904.3	1943.1	39.2	TO BE REMOVED
202	TREE	TRANSITION	2015.7	*	127	127.3	NO	9/28/2017	1937.7	1984.0	31.7	TO BE REMOVED
203	TREE	TRANSITION	2033.0	*	145	144.5	NO	9/28/2017	1955.0	1997.5	35.5	TO BE REMOVED
204	TREE	TRANSITION	2023.6	*	135	135.2	NO	9/28/2017	1945.6	2008.6	15.0	TO BE REMOVED
205	TREE	TRANSITION	2034.1	*	146	145.6	NO	9/28/2017	1956.1	2035.8	-1.7	NO OBSTRUCTION
206	TREE	TRANSITION	2022.7	*	134	134.2	NO	9/28/2017	1944.7	2024.7	-2.0	NO OBSTRUCTION
207	TREE	TRANSITION	2016.6	*	128	128.2	NO	9/28/2017	1938.6	2011.1	5.5	TO BE REMOVED
208	TREE	TRANSITION	2024.8	*	136	136.3	NO	9/28/2017	1946.8	2030.8	-6.0	NO OBSTRUCTION
209	UTILITY POLE	TRANSITION	1957.5	41.3	69	69.1	NO	9/28/2017	1879.5	1955.2	2.3	OBSTRUCTION LIGHT
210	TREE	TRANSITION	1946.4	*	58	57.9	NO	9/28/2017	1868.4	1935.6	10.8	TO BE REMOVED
211	TREE	TRANSITION	1952.7	*	64	64.2	NO	9/28/2017	1874.7	1943.6	9.1	TO BE REMOVED
212	TREE	TRANSITION	2041.0	*	153	152.6	NO	9/28/2017	1963.0	2025.4	15.6	TO BE REMOVED
213	TREE	TRANSITION	2011.8	*	123	123.3	NO	9/28/2017	1933.7	2018.5	-6.7	NO OBSTRUCTION
214	TREE	TRANSITION	2028.4	*	140	139.9	NO	9/28/2017	1950.3	2029.6	-1.2	NO OBSTRUCTION
215	TREE	TRANSITION	2007.2	*	119	118.8	NO	9/28/2017	1929.2	2011.2	-4.0	NO OBSTRUCTION
216	TREE	TRANSITION	2001.3	*	113	112.8	NO	9/28/2017	1923.3	2006.3	-5.0	NO OBSTRUCTION
217	UTILITY POLE	TRANSITION	1924.8	20.1	36	36.3	NO	9/28/2017	1846.8	1911.8	13.0	OBSTRUCTION LIGHT
218	UTILITY POLE	TRANSITION	1926.9	18.2	38	38.4	NO	9/28/2017	1848.9	1924.0	2.9	OBSTRUCTION LIGHT
219	TREE	TRANSITION	2032.2	*	144	143.8	NO	9/28/2017	1954.2	2017.4	14.8	TO BE REMOVED
220	TREE	TRANSITION	1958.1	*	70	69.7	NO	9/28/2017	1880.1	1948.0	10.1	TO BE REMOVED
221	TREE	TRANSITION	1958.2	*	70	69.8	NO	9/28/2017	1880.3	1949.6	8.6	TO BE REMOVED
222	TREE	TRANSITION	1959.9	*	71	71.5	NO	9/28/2017	1881.9	1949.0	10.9	TO BE REMOVED
223	TREE	TRANSITION	1950.4	*	62	61.9	NO	9/28/2017	1872.4	1945.7	4.7	TO BE REMOVED
224	TREE	TRANSITION	1938.9	*	50	50.4	NO	9/28/2017	1860.9	1930.6	8.3	TO BE REMOVED
225	TREE	TRANSITION	1937.8	*	49	49.3	NO	9/28/2017	1859.8	1919.1	18.7	TO BE REMOVED
226	TREE	TRANSITION	1937.5	*	49	49.1	NO	9/28/2017	1859.5	1889.0	48.5	TO BE REMOVED
227	TREE	TRANSITION	1940.7	*	52	52.2	NO	9/28/2017	1862.7	1906.7	34.0	TO BE REMOVED
228	TREE	TRANSITION	1999.3	*	111	110.9	NO	9/28/2017	1921.4	1984.4	14.9	TO BE REMOVED
229	TREE	TRANSITION	2018.2	*	130	129.7	NO	9/28/2017	1940.2	2009.5	8.7	TO BE REMOVED
230	TREE	TRANSITION	2018.3	*	130	129.8	NO	9/28/2017	1940.3	1991.8	26.5	TO BE REMOVED
231	TREE	TRANSITION	2018.9	*	130	130.4	NO	9/28/2017	1940.9	2003.2	15.7	TO BE REMOVED
232	TREE	TRANSITION	2024.2	*	136	135.7	NO	9/28/2017	1946.2	2025.1	-0.9	NO OBSTRUCTION

"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 3-41-002-011-2017) 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.

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE., #100
BEND, OR 97702
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DESIGNED BY: MD	DRAWN BY: MS	CHECKED BY: WMR	SCALE: AS SHOWN
DATE: JANUARY 2020		PROJECT NO: 12478.001.01	

ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

AIRPORT AIRSPACE PLAN (FAR PART 77)
OBSTRUCTION TABLES

FIGURE NO. -

PART 77 HORIZONTAL SURFACE OBSTRUCTIONS

NO.	ITEM	PART 77 SURFACE	MSL ELEV (FT)	HEIGHT AGL (FT)	HEIGHT ABOVE AIRPORT (FT)	HEIGHT ABOVE RWY (FT)	LIGHTED	DATE SURVEYED	ELLIPSOID HEIGHT (FT)	PART 77 SURFACE ELEVATION (FT)	PART 77 PENETRATION (FT)	DISPOSITION
300	UTILITY POLE	HORIZONTAL	2096.5	57.5	208	247.1	NO	9/28/2017	2018.4	2038.5	58.0	OBSTRUCTION LIGHT
301	TREE	HORIZONTAL	2050.9	*	162	201.5	NO	9/28/2017	1972.8	2038.5	12.4	TO BE REMOVED
302	TREE	HORIZONTAL	2107.2	*	219	257.8	NO	9/28/2017	2029.1	2038.5	68.7	TO BE REMOVED
303	TREE	HORIZONTAL	2099.4	*	211	250.0	NO	9/28/2017	2021.3	2038.5	60.9	TO BE REMOVED
304	TREE	HORIZONTAL	2071.5	*	183	222.1	NO	9/28/2017	1993.4	2038.5	33.0	TO BE REMOVED
305	TREE	HORIZONTAL	2156.7	*	268	307.4	NO	9/28/2017	2078.7	2038.5	118.2	TO BE REMOVED
306	TREE	HORIZONTAL	2251.9	*	363	363.4	NO	9/28/2017	2174.0	2038.5	213.4	TO BE REMOVED
307	TREE	HORIZONTAL	2217.7	*	329	329.2	NO	9/28/2017	2139.8	2038.5	179.2	TO BE REMOVED
308	TREE	HORIZONTAL	2128.3	*	240	239.9	NO	9/28/2017	2050.4	2038.5	89.8	TO BE REMOVED
309	TREE	HORIZONTAL	2068.1	*	180	179.6	NO	9/28/2017	1990.1	2038.5	29.6	TO BE REMOVED
344	TREE	HORIZONTAL	2216.6	*	328	328.1	NO	9/28/2017	2138.6	2038.5	178.1	TO BE REMOVED
349	TREE	HORIZONTAL	2202.5	*	314	314.0	NO	9/28/2017	2124.5	2038.5	164.0	TO BE REMOVED
350	TREE	HORIZONTAL	2175.9	*	287	287.5	NO	9/28/2017	2097.9	2038.5	137.4	TO BE REMOVED
443	TREE	HORIZONTAL	2046.2	*	158	157.8	NO	9/28/2017	1968.3	2038.5	7.7	TO BE REMOVED
472	TREE	HORIZONTAL	2232.5	*	344	344.1	NO	9/28/2017	2154.6	2038.5	194.0	TO BE REMOVED
481	TREE	HORIZONTAL	2101.6	*	213	213.1	NO	9/28/2017	2023.7	2038.5	63.1	TO BE REMOVED
488	TREE	HORIZONTAL	2087.1	*	199	198.7	NO	9/28/2017	2009.2	2038.5	48.6	TO BE REMOVED
493	UTILITY POLE	HORIZONTAL	2107.5	55.2	219	219.1	NO	9/28/2017	2029.6	2038.5	69.1	OBSTRUCTION LIGHT
496	TREE	HORIZONTAL	2174.3	*	286	285.8	NO	9/28/2017	2096.4	2038.5	135.8	TO BE REMOVED
513	TREE	HORIZONTAL	2089.1	*	201	200.7	NO	9/28/2017	2011.2	2038.5	50.6	TO BE REMOVED
577	TREE	HORIZONTAL	2072.9	*	184	223.5	NO	9/28/2017	1994.8	2038.5	34.4	TO BE REMOVED
603	TREE	HORIZONTAL	2180.6	*	292	331.3	NO	9/28/2017	2102.6	2038.5	142.1	TO BE REMOVED
613	TREE	HORIZONTAL	2075.4	*	187	226.1	NO	9/28/2017	1997.4	2038.5	36.9	TO BE REMOVED
624	TREE	HORIZONTAL	2143.9	*	255	294.5	NO	9/28/2017	2065.9	2038.5	105.4	TO BE REMOVED
636	TREE	HORIZONTAL	2178.5	*	290	329.1	NO	9/28/2017	2100.5	2038.5	140.0	TO BE REMOVED
665	TREE	HORIZONTAL	2164.3	*	276	315.0	NO	9/28/2017	2086.3	2038.5	125.8	TO BE REMOVED
715	UTILITY POLE	HORIZONTAL	2046.5	54.6	158	197.1	NO	9/28/2017	1968.5	2038.5	8.0	OBSTRUCTION LIGHT
738	TREE	HORIZONTAL	2042.2	*	154	192.8	NO	9/28/2017	1964.2	2038.5	3.7	TO BE REMOVED
810	TREE	HORIZONTAL	2122.8	*	234	234.3	NO	9/28/2017	2044.8	2038.5	84.3	TO BE REMOVED
858	TREE	HORIZONTAL	2177.3	*	289	288.9	NO	9/28/2017	2099.4	2038.5	138.8	TO BE REMOVED
861	TREE	HORIZONTAL	2144.0	*	256	255.6	NO	9/28/2017	2066.1	2038.5	105.5	TO BE REMOVED
876	TREE	HORIZONTAL	2131.9	*	243	243.4	NO	9/28/2017	2054.0	2038.5	93.4	TO BE REMOVED
880	TREE	HORIZONTAL	2135.4	*	247	247.0	NO	9/28/2017	2057.5	2038.5	96.9	TO BE REMOVED
899	TREE	HORIZONTAL	2085.7	*	197	197.3	NO	9/28/2017	2007.8	2038.5	47.2	TO BE REMOVED
939	TREE	HORIZONTAL	2090.1	*	202	201.7	NO	9/28/2017	2012.1	2038.5	51.6	TO BE REMOVED
948	TREE	HORIZONTAL	2130.8	*	242	242.3	NO	9/28/2017	2052.8	2038.5	92.3	TO BE REMOVED
970	TREE	HORIZONTAL	2139.9	*	251	251.5	NO	9/28/2017	2061.9	2038.5	101.4	TO BE REMOVED
1000	TREE	HORIZONTAL	2113.1	*	225	224.6	NO	9/28/2017	2035.1	2038.5	74.6	TO BE REMOVED
1027	TREE	HORIZONTAL	2107.9	*	219	219.4	NO	9/28/2017	2029.9	2038.5	69.4	TO BE REMOVED
1038	TREE	HORIZONTAL	2079.9	*	191	191.5	NO	9/28/2017	2001.9	2038.5	41.4	TO BE REMOVED
1066	BUILDING	HORIZONTAL	2067.2	49.0	179	178.7	NO	9/28/2017	1989.2	2038.5	28.7	OBSTRUCTION LIGHT
1119	TREE	HORIZONTAL	2051.0	*	163	162.5	NO	9/28/2017	1973.0	2038.5	12.5	TO BE REMOVED
1155	TREE	HORIZONTAL	2058.9	*	170	209.5	NO	9/28/2017	1980.8	2038.5	20.4	TO BE REMOVED
1158	TREE	HORIZONTAL	2059.6	*	171	210.2	NO	9/28/2017	1981.5	2038.5	21.1	TO BE REMOVED
1236	TREE	HORIZONTAL	2039.8	*	151	190.5	NO	9/28/2017	1961.8	2038.5	1.3	TO BE REMOVED
1284	TREE	HORIZONTAL	2189.1	*	301	300.6	NO	9/28/2017	2111.1	2038.5	150.6	TO BE REMOVED
1289	TREE	HORIZONTAL	2135.6	*	247	247.1	NO	9/28/2017	2057.7	2038.5	97.1	TO BE REMOVED
1294	UTILITY POLE	HORIZONTAL	2118.6	55.5	230	230.1	NO	9/28/2017	2040.6	2038.5	80.1	OBSTRUCTION LIGHT
1295	UTILITY POLE	HORIZONTAL	2117.9	52.9	229	229.4	NO	9/28/2017	2039.9	2038.5	79.4	OBSTRUCTION LIGHT
1316	UTILITY POLE	HORIZONTAL	2191.5	85.4	303	342.2	NO	9/28/2017	2113.6	2038.5	153.0	OBSTRUCTION LIGHT
1317	UTILITY POLE	HORIZONTAL	2275.1	74.9	387	425.7	NO	9/28/2017	2197.1	2038.5	236.6	OBSTRUCTION LIGHT
1318	UTILITY POLE	HORIZONTAL	2222.2	59.1	334	372.8	NO	9/28/2017	2144.2	2038.5	183.7	OBSTRUCTION LIGHT
1319	UTILITY POLE	HORIZONTAL	2196.7	46.5	308	347.3	NO	9/28/2017	2118.7	2038.5	158.2	OBSTRUCTION LIGHT
1323	UTILITY POLE	HORIZONTAL	2145.9	54.3	257	296.6	NO	9/28/2017	2068.0	2038.5	107.4	OBSTRUCTION LIGHT
1327	UTILITY POLE	HORIZONTAL	2130.8	41.6	242	281.5	NO	9/28/2017	2052.8	2038.5	92.3	OBSTRUCTION LIGHT
1328	UTILITY POLE	HORIZONTAL	2183.5	51.0	295	334.2	NO	9/28/2017	2105.6	2038.5	145.0	OBSTRUCTION LIGHT
1350	BUSH	HORIZONTAL	2158.6	*	270	309.2	NO	9/28/2017	2080.7	2038.5	120.1	TO BE REMOVED
1369	TREE	HORIZONTAL	2313.9	*	425	464.5	NO	9/28/2017	2235.9	2038.5	275.4	TO BE REMOVED
1372	TREE	HORIZONTAL	2272.9	*	384	423.6	NO	9/28/2017	2195.0	2038.5	234.4	TO BE REMOVED
1395	TREE	HORIZONTAL	2166.3	*	278	277.8	NO	9/28/2017	2088.4	2038.5	127.8	TO BE REMOVED
1404	TREE	HORIZONTAL	2154.7	*	266	266.2	NO	9/28/2017	2076.7	2038.5	116.2	TO BE REMOVED
1405	GROUND	HORIZONTAL	2131.8	*	243	243.3	NO	9/28/2017	2053.8	2038.5	93.3	OBSTRUCTION LIGHT
1412	TREE	HORIZONTAL	2199.8	*	311	311.4	NO	9/28/2017	2121.9	2038.5	161.3	TO BE REMOVED
1437	TREE	HORIZONTAL	2140.2	*	252	251.7	NO	9/28/2017	2062.2	2038.5	101.7	TO BE REMOVED
1443	TREE	HORIZONTAL	2144.1	*	256	255.6	NO	9/28/2017	2066.1	2038.5	105.6	TO BE REMOVED
1455	TREE	HORIZONTAL	2156.7	*	268	268.3	NO	9/28/2017	2078.8	2038.5	118.2	TO BE REMOVED
1460	TREE	HORIZONTAL	2166.0	*	278	277.6	NO	9/28/2017	2088.1	2038.5	127.5	TO BE REMOVED
1468	TREE	HORIZONTAL	2105.9	*	217	217.5	NO	9/28/2017	2027.9	2038.5	67.4	TO BE REMOVED
1485	TREE	HORIZONTAL	2144.5	*	256	295.1	NO	9/28/2017	2066.5	2038.5	106.0	TO BE REMOVED
1491	TREE	HORIZONTAL	2115.4	*	227	266.0	NO	9/28/2017	2037.4	2038.5	76.9	TO BE REMOVED

PART 77 CONICAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	PART 77 SURFACE	OBSTACLE ELEVATION (FT)	HEIGHT AGL (FT)	HEIGHT ABOVE AIRPORT (FT)	HEIGHT ABOVE RWY (FT)	LIGHTED	DATE SURVEYED	ELLIPSOID HEIGHT (FT)	PART 77 SURFACE ELEVATION (FT)	PART 77 PENETRATION (FT)	DISPOSITION
1543	UTILITY POLE	CONICAL	2142.8	58.1	254	293.5	NO	9/28/2017	2064.7	2052.4	90.4	OBSTRUCTION LIGHT
1545	UTILITY POLE	CONICAL	2116.0	47.2	228	266.7	NO	9/28/2017	2038.0	2076.5	39.5	OBSTRUCTION LIGHT
1548	UTILITY POLE	CONICAL	2132.9	64.6	244	283.6	NO	9/28/2017	2054.8	2118.5	14.4	OBSTRUCTION LIGHT
1577	TREE	CONICAL	2201.4	*	313	352.0	NO	9/28/2017	2123.4	2078.8	122.6	TO BE REMOVED
1667	TREE	CONICAL	2257.2	*	369	407.8	NO	9/28/2017	2179.1	2124.1	133.1	TO BE REMOVED
1677	TREE	CONICAL	2204.0	*	316	354.7	NO	9/28/2017	2126.0	2142.6	61.4	TO BE REMOVED
1700	TREE	CONICAL	2191.1	*	303	341.8	NO	9/28/2017	2113.0	2188.5	2.6	TO BE REMOVED
1721	TREE	CONICAL	2254.0	*	365	404.6	NO	9/28/2017	2175.8	2232.6	21.4	TO BE REMOVED
1780	TREE	CONICAL	2288.5	*	400	439.2	NO	9/28/2017	2210.5	2195.7	92.8	TO BE REMOVED
1819	FENCE	CONICAL	2070.0	6.1	182	181.6	NO	9/28/2017	1992.1	2048.8	21.2	OBSTRUCTION LIGHT
1846	ANTENNA	CONICAL	2696.7	28.6	808	808.3	NO	9/28/2017	2618.9	2201.4	495.3	OBSTRUCTION LIGHT
1848	TREE	CONICAL	2678.1	*	790	789.6	NO	9/28/2017	2600.2	2218.4	459.7	TO BE REMOVED
1850	TREE	CONICAL	2623.8	*	735	735.4	NO	9/28/2017	2546.0	2234.5	389.3	TO BE REMOVED
1871	TREE	CONICAL	2206.6	*	318	318.2	NO	9/28/2017	2128.8	2204.9	1.7	TO BE REMOVED
1877	TREE	CONICAL	2484.0	*	596	595.6	NO	9/28/2017	2406.2	2200.2	283.8	TO BE REMOVED
1897	TREE	CONICAL	2284.4	*	396	396.0	NO	9/28/2017	2206.6	2181.7	102.7	TO BE REMOVED
1918	TREE	CONICAL	2242.9	*	354	354.5	NO	9/28/2017	2165.1	2143.5	99.5	TO BE REMOVED
1922	TREE	CONICAL	2496.1	*	608	607.6	NO	9/28/2017	2418.2	2152.8	343.3	TO BE REMOVED
1988	TREE	CONICAL	2241.4	*	353	352.9	NO	9/28/2017	2163.5	2120.2	121.2	TO BE REMOVED
1997	TREE	CONICAL	2215.2	*	327	326.7	NO	9/28/2017	2137.3	2144.0	71.2	TO BE REMOVED
2014	TREE	CONICAL	2412.0	*	524	523.5	NO	9/28/2017	2334.1	2133.2	278.8	TO BE REMOVED
2023	TREE	CONICAL	2162.7	*	274	274.2	NO	9/28/2017	2084.8	2091.0	71.7	TO BE REMOVED
2027	TREE	CONICAL	2447.8	*	559	559.4	NO	9/28/2017	2369.9	2102.3	345.6	TO BE REMOVED
2029	TREE	CONICAL	2413.4	*	525	524.9	NO	9/28/2017	2335.5	2087.8	325.6	TO BE REMOVED
2054	TREE	CONICAL	2309.7	*	421	421.3	NO	9/28/2017	2231.8	2063.6	246.2	TO BE REMOVED
2069	TREE	CONICAL	2346.6	*	458	458.2	NO	9/28/2017	2268.7	2057.8	288.8	TO BE REMOVED
2132	GROUND	CONICAL	2255.7	*	367	367.2	NO	9/28/2017	2177.8	2218.7	37.0	OBSTRUCTION LIGHT
2142	ANTENNA	CONICAL	2416.6	306.2	528	528.1	NO	9/28/2017	2338.7	2195.1	221.5	OBSTRUCTION LIGHT
2143	ANTENNA	CONICAL	2418.1	307.3	530	529.7	NO	9/28/2017	2340.3	2213.9	204.3	OBSTRUCTION LIGHT
2251	TREE	CONICAL	2074.2	*	186	185.7	NO	9/28/2017	1996.3	2063.2	11.0	TO BE REMOVED
2253	TREE	CONICAL	2068.6	*	180	180.2	NO	9/28/2017	1990.7	2050.7	17.9	TO BE REMOVED
2260	UTILITY POLE	CONICAL	2210.8	57.3	322	322.3	NO	9/28/2017	2132.9	2059.2	151.6	OBSTRUCTION LIGHT
2261	UTILITY POLE	CONICAL	2120.7	72.6	232	232.2	NO	9/28/2017	2042.8	2089.2	31.5	OBSTRUCTION LIGHT
2347	TREE	CONICAL	2187.9	*	299	299.5	NO	9/28/2017	2110.0	2041.5	146.4	TO BE REMOVED
2357	TREE	CONICAL	2097.0	*	209	208.6	NO	9/28/2017	2019.1	2060.6	36.4	TO BE REMOVED
2362	ELEC PYLON	CONICAL	2445.2	56.9	557	595.9	NO	9/28/2017	2367.2	2178.1	267.1	OBSTRUCTION LIGHT
2364	ELEC PYLON	CONICAL	2308.7	71.9	420	459.3	NO	9/28/2017	2230.7	2124.3	184.4	OBSTRUCTION LIGHT
2368	TREE	CONICAL	2364.8	*	476	515.5	NO	9/28/2017	2286.8	2204.2	160.6	TO BE REMOVED
2369	TREE	CONICAL	2399.2	*	511	549.8	NO	9/28/2017	2321.2	2187.3	211.9	TO BE REMOVED
2403	TREE	CONICAL	2273.0	*	385	423.6	NO	9/28/2017	2194.9	2105.3	167.7	TO BE REMOVED
2409	TREE	CONICAL	2214.7	*	326	365.3	NO	9/28/2017	2136.7	2089.9	124.8	TO BE REMOVED
2467	TREE	CONICAL	2209.4	*	321	360.0	NO	9/28/2017	2131.3	2039.7	169.7	TO BE REMOVED
2490	INTERSTATE	CONICAL	2105.9	17.0	217	217.4	NO	9/28/2017	2028.0	2045.1	60.8	OBSTRUCTION LIGHT
2494	TREE	CONICAL	2173.9	*	285	285.4	NO	9/28/2017	2096.0	2097.1	76.8	TO BE REMOVED
2511	TREE	CONICAL	2105.7	*	217	217.2	NO	9/28/2017	2027.8	2083.8	21.9	TO BE REMOVED
2600	CELL TOWER	CONICAL	2267.5	126.6	379	379.0	YES	9/28/2017	2189.5	2046.6	220.9	OBSTRUCTION LIGHT
2602	TREE	CONICAL	2184.1	*	296	295.6	NO	9/28/2017	2106.2	2046.6	137.5	TO BE REMOVED
2616	TREE	CONICAL	2332.0	*	444	443.5	NO	9/28/2017	2254.2	2222.9	109.1	TO BE REMOVED
2618	TREE	CONICAL	2217.3	*	329	328.8	NO	9/28/2017	2139.5	2203.7	13.6	TO BE REMOVED
2630	UTILITY POLE	CONICAL	2181.0	58.3	293	292.6	NO	9/28/2017	2103.2	2170.4	10.6	OBSTRUCTION LIGHT
2633	UTILITY POLE	CONICAL	2323.4	77.0	435	435.0	NO	9/28/2017	2245.6	2218.0	105.4	OBSTRUCTION LIGHT
2658	TREE	CONICAL	2286.5	*	398	398.0	NO	9/28/2017	2208.7	2228.6	57.9	TO BE REMOVED
2696	CELL TOWER	CONICAL	2455.7	67.3	567	567.2	YES	9/28/2017	2377.8	2119.1	336.6	OBSTRUCTION LIGHT
2698	TREE	CONICAL	2525.0	*	637	636.5	NO	9/28/2017	2447.2	2238.0	287.0	TO BE REMOVED
2699	TREE	CONICAL	2475.2	*	587	586.8	NO	9/28/2017	2397.4	2234.4	240.8	TO BE REMOVED
2705	TREE	CONICAL	2351.1	*	463	462.6	NO	9/28/2017	2273.3	2213.8	137.3	TO BE REMOVED
2722	GROUND	CONICAL	2359.1	*	471	470.7	NO	9/28/2017	2281.3	2231.6	127.5	OBSTRUCTION LIGHT
2726	GROUND	CONICAL	2274.4	*	386	385.9	NO	9/28/2017	2196.6	2200.1	74.3	OBSTRUCTION LIGHT

"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 3-41-002-011-2017) 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.

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE., #100
BEND, OR 97702
541.322.8962 OFFICE
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DESIGNED BY: MD | DRAWN BY: MS | CHECKED BY: WMR | SCALE: AS SHOWN

DATE: JANUARY 2020 | PROJECT NO: 12478.001.01

ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

AIRPORT AIRSPACE PLAN (FAR PART 77)
OBSTRUCTION TABLES

FIGURE NO.
-

SHEET NO.
8 OF 14

PART 77 CONICAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	PART 77 SURFACE	OBSTACLE ELEVATION (FT)	HEIGHT AGL (FT)	HEIGHT ABOVE AIRPORT (FT)	HEIGHT ABOVE RWY (FT)	LIGHTED	DATE SURVEYED	ELLIPSOID HEIGHT (FT)	PART 77 SURFACE ELEVATION (FT)	PART 77 PENETRATION (FT)	DISPOSITION
2748	GROUND	CONICAL	2437.0	*	549	548.5	NO	9/28/2017	2359.1	2173.7	263.3	OBSTRUCTION LIGHT
2792	CELL TOWER	CONICAL	2448.7	66.2	560	560.3	YES	9/28/2017	2370.9	2119.9	328.8	OBSTRUCTION LIGHT
2793	UTILITY POLE	CONICAL	2404.8	31.1	516	516.3	NO	9/28/2017	2326.9	2132.4	272.4	OBSTRUCTION LIGHT
2805	GROUND	CONICAL	2230.5	*	342	342.0	NO	9/28/2017	2152.6	2126.0	104.5	OBSTRUCTION LIGHT
2812	TREE	CONICAL	2127.5	*	239	239.1	NO	9/28/2017	2049.6	2062.8	64.7	TO BE REMOVED
2822	UTILITY POLE	CONICAL	2229.0	79.8	341	340.5	NO	9/28/2017	2151.1	2096.4	132.6	OBSTRUCTION LIGHT
2831	TREE	CONICAL	2149.5	*	261	261.0	NO	9/28/2017	2071.6	2075.0	74.5	TO BE REMOVED
2843	GROUND	CONICAL	2186.1	*	298	297.6	NO	9/28/2017	2108.3	2152.4	33.7	OBSTRUCTION LIGHT
2875	TREE	CONICAL	2321.7	*	433	433.2	NO	9/28/2017	2243.9	2225.2	96.5	TO BE REMOVED
2880	TREE	CONICAL	2396.5	*	508	508.0	NO	9/28/2017	2318.7	2192.1	204.4	TO BE REMOVED
2900	TREE	CONICAL	2326.6	*	438	438.2	NO	9/28/2017	2248.8	2185.1	141.5	TO BE REMOVED
2930	TREE	CONICAL	2439.0	*	550	550.5	NO	9/28/2017	2361.1	2123.5	315.5	TO BE REMOVED
2981	TREE	CONICAL	2156.0	*	268	267.6	NO	9/28/2017	2078.2	2114.0	42.0	TO BE REMOVED
3013	BUSH	CONICAL	2184.2	*	296	295.8	NO	9/28/2017	2106.4	2174.0	10.2	TO BE REMOVED
3058	TREE	CONICAL	2077.6	*	189	189.2	NO	9/28/2017	1999.7	2041.3	36.3	TO BE REMOVED
3059	TREE	CONICAL	2081.6	*	193	193.1	NO	9/28/2017	2003.6	2043.0	38.6	TO BE REMOVED
3126	TREE	CONICAL	2212.2	*	324	362.8	NO	9/28/2017	2134.3	2188.2	24.0	TO BE REMOVED
3137	TREE	CONICAL	2217.8	*	329	368.4	NO	9/28/2017	2139.9	2120.3	97.5	TO BE REMOVED
3225	TREE	CONICAL	2414.0	*	526	564.7	NO	9/28/2017	2336.2	2129.0	285.0	TO BE REMOVED
3231	TREE	CONICAL	2492.9	*	604	643.5	NO	9/28/2017	2415.0	2162.8	330.1	TO BE REMOVED
3241	TREE	CONICAL	2393.8	*	505	544.4	NO	9/28/2017	2315.9	2164.1	229.7	TO BE REMOVED
3260	UTILITY POLE	CONICAL	2252.1	54.7	364	402.8	NO	9/28/2017	2174.1	2052.6	199.5	OBSTRUCTION LIGHT
3265	UTILITY LINE	CONICAL	2256.6	56.6	368	407.3	NO	9/28/2017	2178.7	2048.8	207.8	OBSTRUCTION LIGHT
3273	TREE	CONICAL	2458.4	*	570	609.1	NO	9/28/2017	2380.5	2056.4	402.0	TO BE REMOVED
3275	TREE	CONICAL	2435.7	*	547	586.4	NO	9/28/2017	2357.8	2066.4	369.3	TO BE REMOVED
3280	TREE	CONICAL	2341.5	*	453	492.2	NO	9/28/2017	2263.6	2071.3	270.2	TO BE REMOVED
3294	TREE	CONICAL	2270.8	*	382	421.5	NO	9/28/2017	2192.9	2072.4	198.4	TO BE REMOVED
3297	TREE	CONICAL	2227.5	*	339	378.1	NO	9/28/2017	2149.5	2062.7	164.8	TO BE REMOVED
3422	TREE	CONICAL	2319.4	*	431	470.1	NO	9/28/2017	2241.5	2047.6	271.9	TO BE REMOVED
3428	TREE	CONICAL	2280.2	*	392	430.8	NO	9/28/2017	2202.2	2042.8	237.4	TO BE REMOVED
3437	TREE	CONICAL	2588.5	*	700	739.1	NO	9/28/2017	2510.6	2175.9	412.6	TO BE REMOVED
3447	TREE	CONICAL	2528.4	*	640	679.0	NO	9/28/2017	2450.5	2175.8	352.6	TO BE REMOVED
3483	GROUND	CONICAL	2276.8	*	388	427.5	NO	9/28/2017	2199.0	2217.8	59.0	OBSTRUCTION LIGHT
3496	TREE	CONICAL	2321.6	*	433	472.3	NO	9/28/2017	2243.7	2102.2	219.4	TO BE REMOVED
3504	GROUND	CONICAL	2520.4	*	632	671.1	NO	9/28/2017	2442.6	2164.5	355.9	OBSTRUCTION LIGHT
3537	GROUND	CONICAL	2428.0	*	540	578.7	NO	9/28/2017	2350.2	2227.5	200.5	OBSTRUCTION LIGHT
3591	FENCE	CONICAL	2671.1	5.3	783	821.7	NO	9/28/2017	2593.3	2238.3	432.8	TO BE REMOVED
3592	FENCE	CONICAL	2703.7	7.7	815	854.3	NO	9/28/2017	2625.9	2232.0	471.7	TO BE REMOVED
3597	TREE	CONICAL	2834.6	*	946	985.2	NO	9/28/2017	2756.8	2234.5	600.1	TO BE REMOVED
3603	TREE	CONICAL	2632.8	*	744	783.4	NO	9/28/2017	2554.9	2219.3	413.5	TO BE REMOVED
3613	FENCE	CONICAL	2541.3	5.6	653	691.9	NO	9/28/2017	2463.4	2185.8	355.5	OBSTRUCTION LIGHT
3622	GROUND	CONICAL	2484.6	*	596	635.2	NO	9/28/2017	2406.7	2165.5	319.1	OBSTRUCTION LIGHT
3628	GROUND	CONICAL	2666.3	*	778	816.9	NO	9/28/2017	2588.4	2217.2	449.1	OBSTRUCTION LIGHT
3644	TREE	CONICAL	2372.7	*	484	523.4	NO	9/28/2017	2294.8	2107.6	265.1	TO BE REMOVED
3664	TREE	CONICAL	2368.5	*	480	519.2	NO	9/28/2017	2290.6	2116.7	251.8	TO BE REMOVED
3700	TREE	CONICAL	2276.0	*	388	426.6	NO	9/28/2017	2198.0	2077.9	198.1	TO BE REMOVED
3733	TREE	CONICAL	2364.5	*	476	515.1	NO	9/28/2017	2286.5	2104.2	260.3	TO BE REMOVED
3737	TREE	CONICAL	2329.9	*	441	480.6	NO	9/28/2017	2251.9	2087.2	242.7	TO BE REMOVED
3760	TREE	CONICAL	2333.4	*	445	484.0	NO	9/28/2017	2255.5	2131.6	201.8	TO BE REMOVED
3779	GROUND	CONICAL	2505.7	*	617	656.4	NO	9/28/2017	2427.9	2204.6	301.1	OBSTRUCTION LIGHT
3841	TREE	CONICAL	2420.0	*	532	570.7	NO	9/28/2017	2342.2	2234.8	185.2	TO BE REMOVED
3854	TREE	CONICAL	2488.3	*	600	639.0	NO	9/28/2017	2410.5	2238.4	249.9	TO BE REMOVED
3856	TREE	CONICAL	2476.4	*	588	627.1	NO	9/28/2017	2398.5	2235.5	240.9	TO BE REMOVED
3878	GROUND	CONICAL	2351.3	*	463	502.0	NO	9/28/2017	2273.4	2203.1	148.2	OBSTRUCTION LIGHT
3883	UTILITY POLE	CONICAL	2347.9	33.3	459	498.6	NO	9/28/2017	2269.9	2146.5	201.4	OBSTRUCTION LIGHT
3898	GROUND	CONICAL	2463.3	*	575	614.0	NO	9/28/2017	2385.4	2234.2	229.1	OBSTRUCTION LIGHT
3924	TREE	CONICAL	2338.8	*	450	489.5	NO	9/28/2017	2260.8	2173.3	165.5	TO BE REMOVED
3955	GROUND	CONICAL	2435.1	*	547	585.8	NO	9/28/2017	2357.2	2205.1	230.0	OBSTRUCTION LIGHT
3977	TREE	CONICAL	2477.0	*	589	627.6	NO	9/28/2017	2399.0	2237.6	239.4	TO BE REMOVED
3988	GROUND	CONICAL	2403.9	*	515	554.5	NO	9/28/2017	2325.9	2217.4	186.5	OBSTRUCTION LIGHT
4004	FENCE	CONICAL	2354.3	4.3	466	505.0	NO	9/28/2017	2276.3	2238.5	115.8	OBSTRUCTION LIGHT

PART 77 CONICAL SURFACE OBSTRUCTIONS

OBSTACLE ID	DESCRIPTION	PART 77 SURFACE	OBSTACLE ELEVATION (FT)	HEIGHT AGL (FT)	HEIGHT ABOVE AIRPORT (FT)	HEIGHT ABOVE RWY (FT)	LIGHTED	DATE SURVEYED	ELLIPSOID HEIGHT (FT)	PART 77 SURFACE ELEVATION (FT)	PART 77 PENETRATION (FT)	DISPOSITION
4014	TREE	CONICAL	2257.9	*	369	369.4	NO	9/28/2017	2180.0	2232.8	25.1	TO BE REMOVED
4015	TREE	CONICAL	2827.7	*	939	939.3	NO	9/28/2017	2750.0	2231.2	596.5	TO BE REMOVED
4018	TREE	CONICAL	2615.7	*	727	727.2	NO	9/28/2017	2537.8	2204.6	411.1	TO BE REMOVED
4027	TREE	CONICAL	2801.3	*	913	912.9	NO	9/28/2017	2723.5	2230.7	570.6	TO BE REMOVED
4030	TREE	CONICAL	2696.2	*	808	807.7	NO	9/28/2017	2618.4	2233.2	463.0	TO BE REMOVED
4034	TREE	CONICAL	2498.2	*	610	609.8	NO	9/28/2017	2420.4	2224.9	273.3	TO BE REMOVED
4047	TREE	CONICAL	2214.7	*	326	326.2	NO	9/28/2017	2136.8	2141.8	72.9	TO BE REMOVED
4096	TREE	CONICAL	2441.9	*	553	553.4	NO	9/28/2017	2364.0	2188.5	253.4	TO BE REMOVED
4125	TREE	CONICAL	2386.0	*	498	497.6	NO	9/28/2017	2308.2	2167.9	218.1	TO BE REMOVED
4189	TREE	CONICAL	2606.3	*	718	717.8	NO	9/28/2017	2528.5	2214.4	391.9	TO BE REMOVED
4205	GROUND	CONICAL	2447.6	*	559	559.2	NO	9/28/2017	2369.9	2232.7	214.9	OBSTRUCTION LIGHT
4225	TREE	CONICAL	2394.5	*	506	506.1	NO	9/28/2017	2316.7	2156.4	238.1	TO BE REMOVED
4241	TREE	CONICAL	2239.2	*	351	350.7	NO	9/28/2017	2161.2	2060.8	178.4	TO BE REMOVED
4246	TREE	CONICAL	2311.4	*	423	422.9	NO	9/28/2017	2233.4	2081.8	229.6	TO BE REMOVED
4249	TREE	CONICAL	2298.2	*	410	409.8	NO	9/28/2017	2220.3	2106.6	191.6	TO BE REMOVED
4253	TREE	CONICAL	2172.3	*	284	283.9	NO	9/28/2017	2094.4	2039.2	133.1	TO BE REMOVED
4260	TREE	CONICAL	2314.9	*	426	426.5	NO	9/28/2017	2237.1	2122.4	192.5	TO BE REMOVED
4287	TREE	CONICAL	2409.1	*	521	520.6	NO	9/28/2017	2331.3	2200.2	208.9	TO BE REMOVED
4291	TREE	CONICAL	2441.2	*	553	552.8	NO	9/28/2017	2363.4	2219.1	222.1	TO BE REMOVED
4317	TREE	CONICAL	2301.2	*	413	412.7	NO	9/28/2017	2223.3	2069.9	231.3	TO BE REMOVED
4318	TREE	CONICAL	2313.7	*	425	425.2	NO	9/28/2017	2235.8	2081.0	232.7	TO BE REMOVED
4348	TREE	CONICAL	2363.1	*	475	474.6	NO	9/28/2017	2285.2	2149.0	214.1	TO BE REMOVED
4377	TREE	CONICAL	2306.3	*	418	417.8	NO	9/28/2017	2228.4	2106.8	199.5	TO BE REMOVED
4430	TREE	CONICAL	2449.4	*	561	560.9	NO	9/28/2017	2371.6	2226.0	223.4	TO BE REMOVED
4434	TREE	CONICAL	2474.1	*	586	585.7	NO	9/28/2017	2396.3	2237.6	236.5	TO BE REMOVED
4445	TREE	CONICAL	2344.8	*	456	456.3	NO	9/28/2017	2266.9	2136.9	207.9	TO BE REMOVED
4457	TREE	CONICAL	2436.2	*	548	547.7	NO	9/28/2017	2358.4	2219.7	216.5	TO BE REMOVED
4463	TREE	CONICAL	2456.7	*	568	568.3	NO	9/28/2017	2378.9	2237.0	219.7	TO BE REMOVED
4487	TREE	CONICAL	2515.1	*	627	626.6	NO	9/28/2017	2437.3	2234.8	280.3	TO BE REMOVED
4497	TREE	CONICAL	2601.4	*	713	712.9	NO	9/28/2017	2523.6	2231.9	369.5	TO BE REMOVED
4501	TREE	CONICAL	2491.7	*	603	603.2	NO	9/28/2017	2413.8	2217.9	273.8	TO BE REMOVED
4503	TREE	CONICAL	2485.4	*	597	596.9	NO	9/28/2017	2407.5	2212.9	272.5	TO BE REMOVED
4522	TREE	CONICAL	2464.4	*	576	575.9	NO	9/28/2017	2386.6	2207.3	257.1	TO BE REMOVED
4570	TREE	CONICAL	2472.8	*	584	584.3	NO	9/28/2017	2394.9	2213.1	259.7	TO BE REMOVED
4575	TREE	CONICAL	2350.7	*	462	462.2	NO	9/28/2017	2272.8	2157.5	193.2	TO BE REMOVED
4579	TREE	CONICAL	2326.0	*	438	437.5	NO	9/28/2017	2248.1	2134.0	192.0	TO BE REMOVED
4599	TREE	CONICAL	2261.3	*	373	372.9	NO	9/28/2017	2183.4	2091.7	169.6	TO BE REMOVED
4635	TREE	CONICAL	2316.1	*	428	427.7	NO	9/28/2017	2238.2	2155.1	161.0	TO BE REMOVED
4650	TREE	CONICAL	2179.3	*	291	290.9	NO	9/28/2017	2101.4	2039.1	140.2	TO BE REMOVED
4653	TREE	CONICAL	2203.1	*	315	314.7	NO	9/28/2017	2125.2	2059.8	143.3	TO BE REMOVED
4675	TREE	CONICAL	2212.7	*	324	324.2	NO	9/28/2017	2134.7	2086.1	126.6	TO BE REMOVED
4698	TREE	CONICAL	2354.8	*	466	505.5	NO	9/28/2017	2276.9	2228.8	126.0	TO BE REMOVED
4703	TREE	CONICAL	2352.4	*	464	463.9	NO	9/28/2017	2274.5	2213.3	139.1	TO BE REMOVED
4773	TREE	CONICAL	2139.0	*	251	250.5	NO	9/28/2017	2061.0	2041.6	97.4	TO BE REMOVED
4776	TREE	CONICAL	2170.5	*	282	282.0	NO	9/28/2017	2092.5	2082.0	88.5	TO BE REMOVED
4802	TREE	CONICAL	2224.8	*	336	375.4	NO	9/28/2017	2146.8	2149.3	75.5	TO BE REMOVED
4849	TREE	CONICAL	2115.5	*	227	266.1	NO	9/28/2017	2037.5	2060.7	54.8	TO BE REMOVED
4871	TREE	CONICAL	2136.9	*	248	287.6	NO	9/28/2017	2058.9	2093.0	43.9	TO BE REMOVED
4877	TREE	CONICAL	2130.4	*	242	281.1	NO	9/28/2017	2052.4	2084.5	45.9	TO BE REMOVED
4894	TREE	CONICAL	2121.7	*	233	272.3	NO	9/28/2017	2043.6	2060.3	61.4	TO BE REMOVED
4897	TREE	CONICAL	2088.0	*	199	238.6	NO	9/28/2017	2009.9	2058.4	29.6	TO BE REMOVED
4901	TREE	CONICAL	2088.0	*	199	238.6	NO	9/28/2017	2009.9	2067.0	21.0	TO BE REMOVED
4975	TREE	CONICAL	2210.3	*	322	361.0	NO	9/28/2017	2132.4	2143.0	67.3	TO BE REMOVED
4986	TREE	CONICAL	2178.2	*	290	328.9	NO	9/28/2017	2100.2	2141.2	37.0	TO BE REMOVED
4995	TREE	CONICAL	2244.8	*	356	395.5	NO	9/28/2017	2166.9	2175.8	69.0	TO BE REMOVED
5021	TREE	CONICAL	2327.6	*	439	478.2	NO	9/28/2017	2249.6	2231.2	96.4	TO BE REMOVED
5031	TREE	CONICAL	2252.2	*	364	402.8	NO	9/28/2017	2174.2	2204.8	47.4	TO BE REMOVED
5078	TREE	CONICAL	2345.7	*	457	496.3	NO	9/28/2017	2267.7	2237.5	108.2	TO BE REMOVED
5093	TREE	CONICAL	2310.7	*	422	461.4	NO	9/28/2017	2232.8	2235.7	75.0	TO BE REMOVED

"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 3-41-002-011-2017) 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.

CENTURY WEST ENGINEERING
BEND OFFICE
1020 SW EMKAY DRIVE., #100
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DESIGNED BY: MD	DRAWN BY: MS	CHECKED BY: WMR	SCALE: AS SHOWN
DATE: JANUARY 2020		PROJECT NO: 12478.001.01	

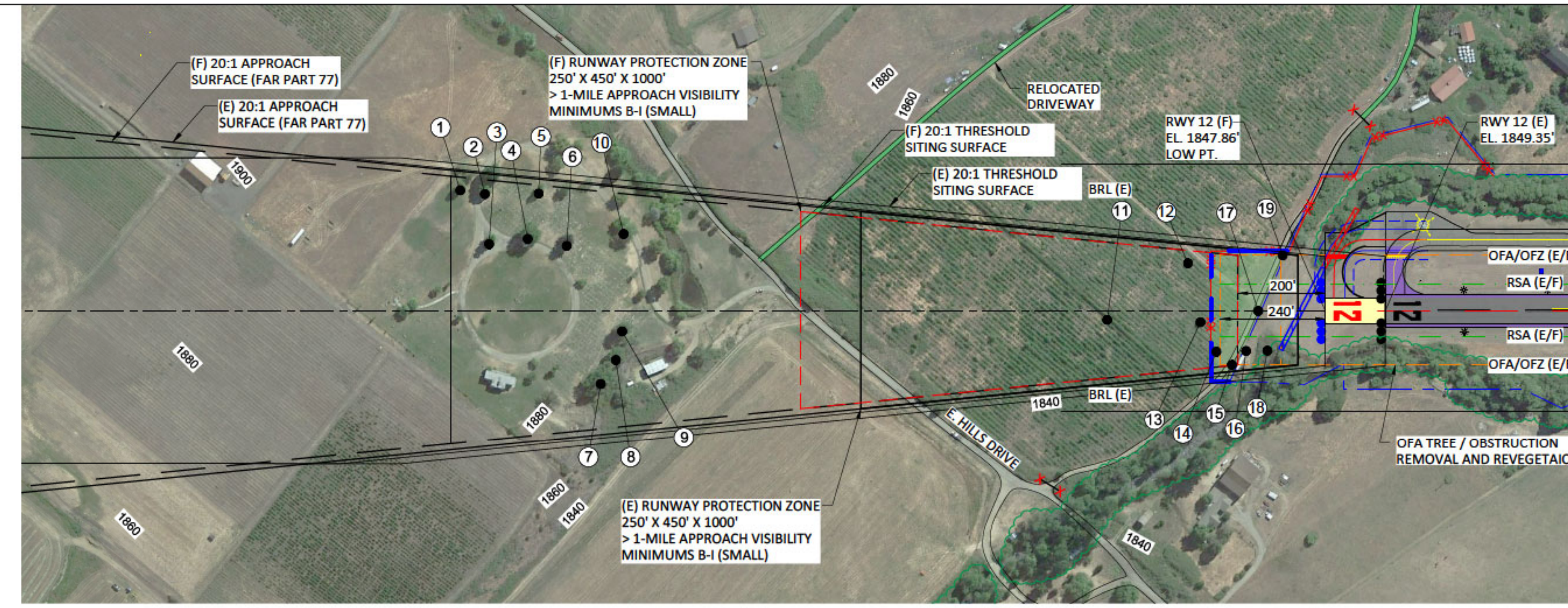
ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

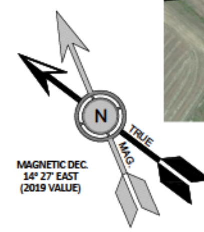
AIRPORT AIRSPACE PLAN (FAR PART 77)
OBSTRUCTION TABLES

FIGURE NO. -

PART 77 APPROACH OBSTRUCTIONS

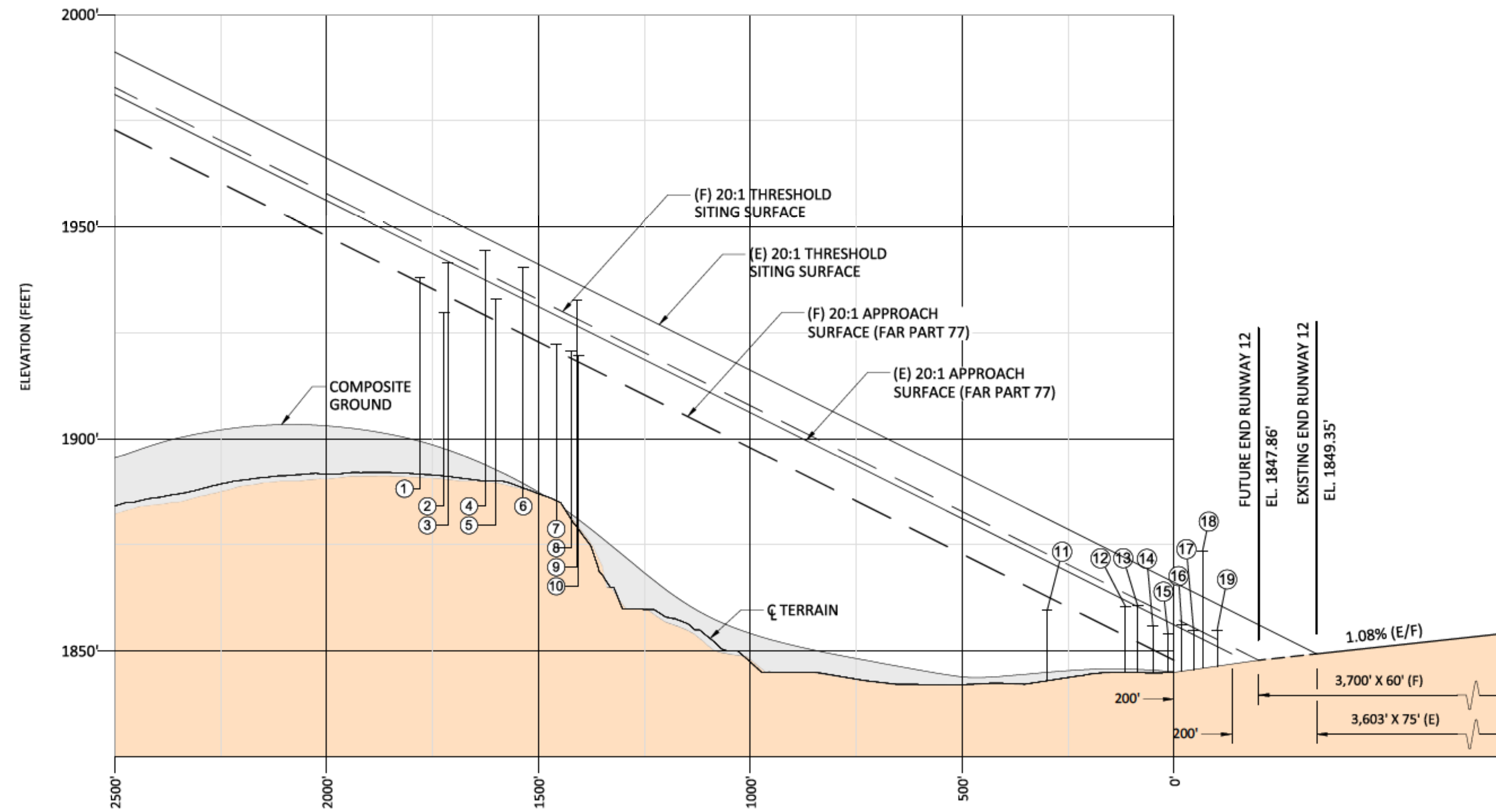
NO.	ITEM	PART 77 SURFACE	MSL ELEV (EST.)	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (ESTIMATED)	AIRPORT PROPERTY	DISPOSITION
1	TREE	APPROACH (RWY 12)	1,938.0'	276' L	1,979'	1.2'	NO	TOP/REMOVE
2	TREE	APPROACH (RWY 12)	1,929.6'	267' L	1,923'	-	NO	NO OBSTRUCTION, FOR REFERENCE ONLY
3	TREE	APPROACH (RWY 12)	1,941.3'	153' L	1,913'	7.8'	NO	TOP/REMOVE
4	TREE	APPROACH (RWY 12)/TSS	1,944.5'	165' L	1,825'	15.4'/5.4'	NO	TOP/REMOVE
5	TREE	APPROACH (RWY 12)	1,932.9'	269' L	1,800'	5.0'	NO	TOP/REMOVE
6	TREE	APPROACH (RWY 12)/TSS	1,940.3'	149' L	1,736'	15.6'/5.6'	NO	TOP/REMOVE
7	TREE	APPROACH (RWY 12)	1,922.1'	167' R	1,659'	1.3'	NO	TOP/REMOVE
8	TREE	APPROACH (RWY 12)	1,920.6'	112' R	1,625'	1.5'	NO	TOP/REMOVE
9	TREE	APPROACH (RWY 12)/TSS	1,932.6'	47' R	1,611'	14.2'/4.2'	NO	TOP/REMOVE
10	TREE	APPROACH (RWY 12)	1,919.7'	176' L	1,606'	1.5'	NO	TOP/REMOVE
11	TREE	APPROACH (RWY 12)	1,859.5'	20' R	500'	-	NO	NO OBSTRUCTION, FOR REFERENCE ONLY
12	TREE	APPROACH (RWY 12)	1,860.5'	109' L	315'	6.9'	NO	TOP/REMOVE
13	TREE	APPROACH (RWY 12)	1,860.7'	26' R	286'	8.5'	NO	TOP/REMOVE
14	TREE	APPROACH (RWY 12)	1,855.9'	93' R	250'	5.5'	NO	TOP/REMOVE
15	DRIVEWAY (+10')	PRIMARY	1,854'	123' R	214'	6.2'	NO	RELOCATE/REMOVE
16	PORTABLE STORAGE	PRIMARY	1,856.1'	91' R	181'	10.8'	YES	RELOCATE/OBSTRUCTION LIGHT
17	DRIVEWAY (+10')	PRIMARY	1,855'	0'	154'	7.2'	NO	RELOCATE/REMOVE
18	TREE	PRIMARY/TSS	1,873.5'	91' R	133'	27.5'/19.0'	YES	TOP/REMOVE
19	DRIVEWAY (+10')	PRIMARY/TSS	1,855'	126' L	98'	7.1'/2.2'	NO	RELOCATE/REMOVE





RUNWAY 12 PLAN VIEW

0' 200' 400'
Scale: 1"=200'



0' 20' 40'
Scale: 1"=20'
Vertical scale

RUNWAY 12 PROFILE VIEW

0' 200' 400'
Scale: 1"=200'
Horizontal scale

NOTES:
1. DISTANCES FOR NOTED OBSTRUCTIONS ARE BASED ON THE ULTIMATE RUNWAY CONFIGURATION. DIMENSIONS INCLUDE 200' DISTANCE FROM RUNWAY END TO BEGINNING OF APPROACH.

2. DATE OF OBSTRUCTION SURVEY; 01/23/2017.

3. IN THE CASE OF OBSTACLES THAT PENETRATE APPROACH AND TSS SURFACES, PENETRATION AMOUNTS ARE LISTED FOR BOTH SURFACES.

"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 3-41-002-011-2017) 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 APPLICABLE PUBLIC LAWS."

NO.	DATE	BY	APPR	REVISIONS

VERIFY SCALES
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DESIGNED BY: MD	DRAWN BY: JLS	CHECKED BY: WMR	SCALE: AS SHOWN
DATE: JANUARY 2020		PROJECT NO: 12478.001.01	

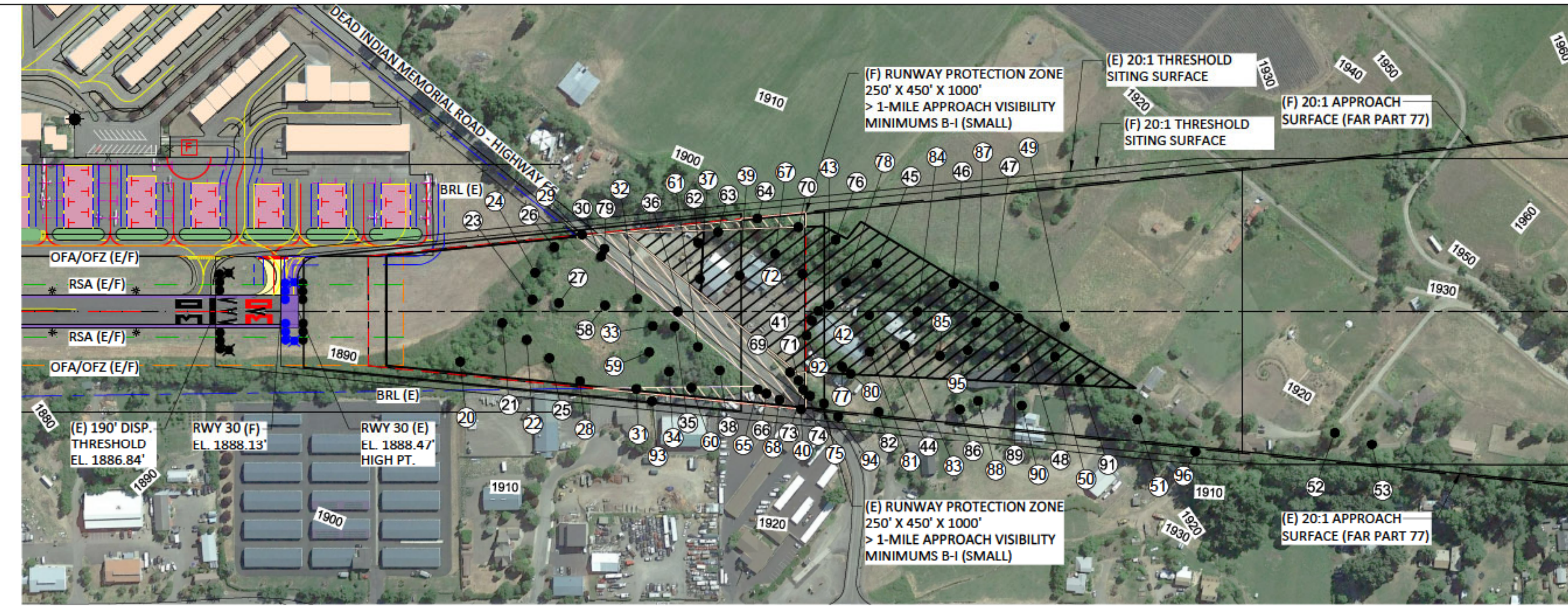
ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

RUNWAY 12 RPZ AND INNER APPROACH PLAN AND PROFILE

FIGURE NO.
-

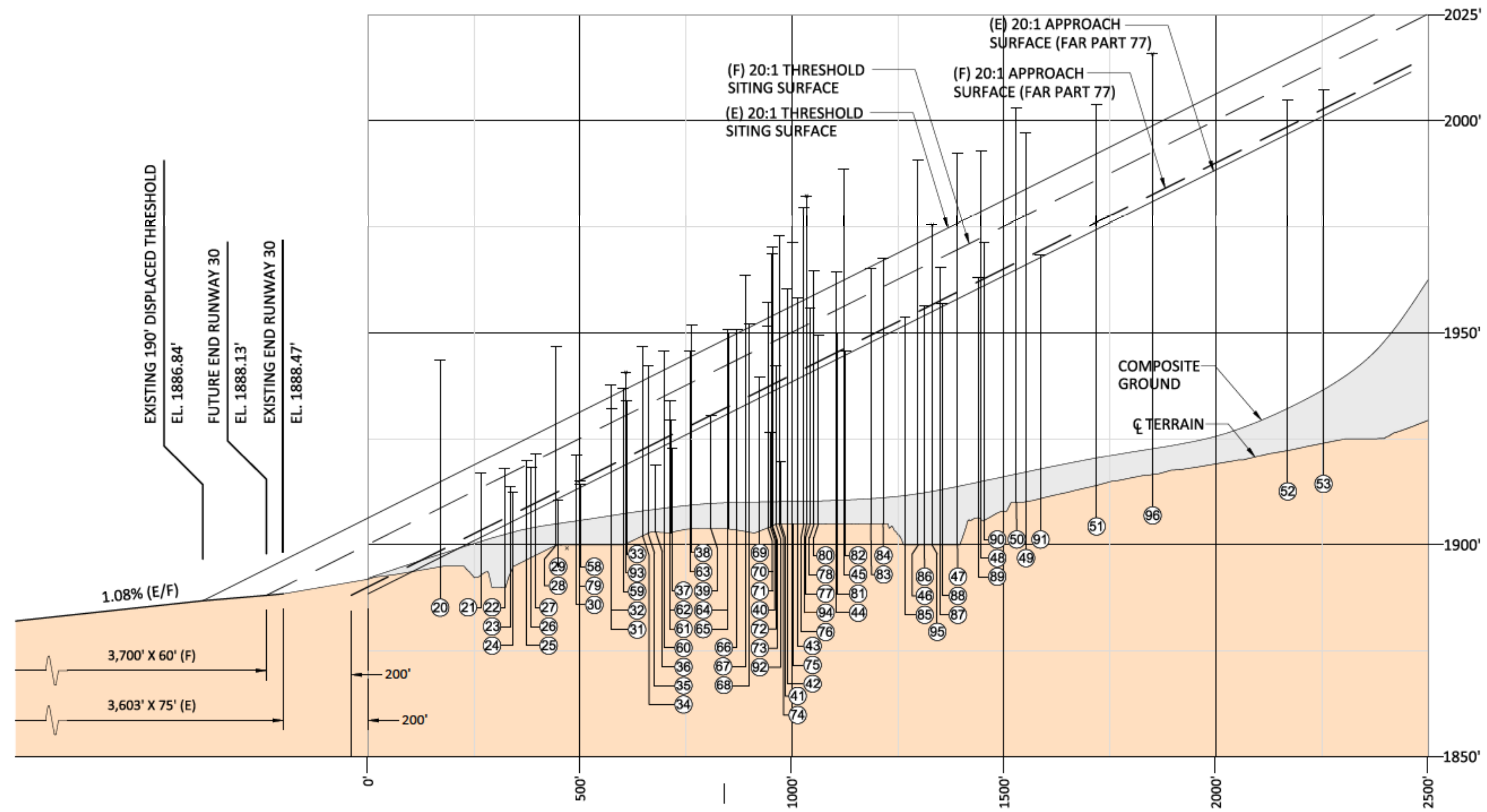
PART 77 APPROACH OBSTRUCTIONS

NO.	ITEM	PART 77 SURFACE	MSL ELEV	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (SEE NOTE 3)	AIRPORT PROPERTY	DISPOSITION
20	TREE	APPROACH (RWY 30)/TSS	1,943.6'	114' L	410'	45.0'/35.0'	YES	TOP/REMOVE
21	TREE	APPROACH (RWY 30)/TSS	1,917.0'	26' L	506'	13.6'/3.6'	YES	TOP/REMOVE
22	BUSH	APPROACH (RWY 30)/TSS	1,918.1'	64' R	562'	11.9'/1.9'	YES	TRIM/REMOVE
23	TREE	APPROACH (RWY 30)	1,913.7'	27' R	576'	6.8'	YES	TOP/REMOVE
24	TREE	APPROACH (RWY 30)	1,912.3'	88' R	581'	5.1'	YES	TOP/REMOVE
25	BUSH	APPROACH (RWY 30)/TSS	1,919.7'	106' L	614'	10.9'/<1'	YES	TRIM/REMOVE
26	TREE	APPROACH (RWY 30)	1,918.2'	147' R	625'	8.8'	YES	TOP/REMOVE
27	TREE	APPROACH (RWY 30)/TSS	1,921.5'	19' R	636'	11.6'/1.6'	YES	TOP/REMOVE
28	TREE	APPROACH (RWY 30)/TSS	1,946.7'	159' L	684"	34.4'/24.4'	YES	TOP/REMOVE
29	HIGHWAY 66 (+15')	APPROACH (RWY 30)	1,910.6'	176' R	688'	-	NO	NO OBSTRUCTION, FOR REFERENCE ONLY
30	TREE	APPROACH (RWY 30)	1,921.2'	126' R	732'	6.5'	YES	TOP/REMOVE
31	TREE	APPROACH (RWY 30)/TSS	1,937.7'	177' L	813'	18.9'/8.9'	YES	TOP/REMOVE
32	TREE	APPROACH (RWY 30)/TSS	1,932.0'	29' R	815'	13.1'/3.1'	YES	TOP/REMOVE
33	TREE	APPROACH (RWY 30)/TSS	1,933.9'	33' L	850'	13.3'/3.3'	YES	TOP/REMOVE
34	TREE	APPROACH (RWY 30)/TSS	1,946.7'	137' L	887'	24.2'/14.2'	YES	TOP/REMOVE
35	TREE	APPROACH (RWY 30)/TSS	1,942.2'	34' R	900'	19.1'/9.1'	YES	TOP/REMOVE
36	HIGHWAY 66 (+15')	APPROACH (RWY 30)	1917.9'	0'	907'	-	NO	NO OBSTRUCTION, FOR REFERENCE ONLY
37	BUILDING	APPROACH (RWY 30)	1,922.7'	75' R	957'	3.3'	NO	OBSTRUCTION LIGHT
38	TREE	APPROACH (RWY 30)/TSS	1,951.7'	134' L	1,003'	23.4'/13.4'	YES	TOP/REMOVE
39	UTILITY POLE	APPROACH (RWY 30)	1,930.4'	82' R	1,049'	-	NO	NO OBSTRUCTION, LIGHT
40	HIGHWAY 66 (+15')	APPROACH (RWY 30)	1,926.4'	223' L	1,189'	-	NO	NO OBSTRUCTION, FOR REFERENCE ONLY
41	UTILITY POLE	APPROACH (RWY 30)	1,919.5'	21' L	1,213'	-	NO	NO OBSTRUCTION, LIGHT
42	TREE	APPROACH (RWY 30)/TSS	1,960.4'	1' R	1,229'	20.8'/10.8'	NO	TOP/REMOVE
43	TREE	APPROACH (RWY 30)/TSS	1,958.3'	16' R	1,254'	17.5'/7.5'	NO	TOP/REMOVE
44	TREE	APPROACH (RWY 30)/TSS	1,964.4'	8' L	1,344'	19.1'/9.1'	NO	TOP/REMOVE
45	TREE	APPROACH (RWY 30)/TSS	1,988.6'	110' R	1,363'	42.3'/32.3'	NO	TOP/REMOVE
46	TREE	APPROACH (RWY 30)/TSS	1,990.7'	64' R	1,537'	35.7'/25.7'	NO	TOP/REMOVE
47	TREE	APPROACH (RWY 30)/TSS	1,992.2'	58' R	1,630'	32.6'/22.6'	NO	TOP/REMOVE
48	TREE	APPROACH (RWY 30)/TSS	1,992.9'	16' L	1,686'	30.5'/20.5'	NO	TOP/REMOVE
49	TREE	APPROACH (RWY 30)/TSS	1,997.0'	34' L	1,792'	29.3'/19.3'	NO	TOP/REMOVE
50	TREE	APPROACH (RWY 30)/TSS	2,003.1'	103' L	1,769'	36.5'/26.5'	NO	TOP/REMOVE
51	TREE	APPROACH (RWY 30)/TSS	2,003.7'	246' L	1,958'	27.7'/17.7'	NO	TOP/REMOVE
52	TREE	APPROACH (RWY 30)	2,005.0'	277' L	2,409'	6.4'	NO	TOP/REMOVE
53	TREE	APPROACH (RWY 30)	2,007.3'	304' L	2,494'	4.5'	NO	TOP/REMOVE
58	BUSH	APPROACH (RWY 30)	1,914.2'	14' R	741'	< 1'	YES	TOP/REMOVE
59	TREE	APPROACH (RWY 30)/TSS	1,936.8'	93' L	842'	16.6'/6.6'	YES	TOP/REMOVE
60	TREE	APPROACH (RWY 30)/TSS	1,945.8'	174' L	939'	20.7'/10.7'	YES	TOP/REMOVE
61	TREE	APPROACH (RWY 30)	1,934.0'	81' L	953'	8.2'	YES	TOP/REMOVE
62	UTILITY POLE	APPROACH (RWY 30)	1,929.5'	157' R	953'	3.7'	NO	OBSTRUCTION LIGHT
63	TREE	APPROACH (RWY 30)/TSS	1,945.7'	181' R	999'	17.6'/7.6'	NO	TOP/REMOVE
64	TREE	APPROACH (RWY 30)/TSS	1,950.7'	212' R	1,089'	18.1'/8.1'	NO	TOP/REMOVE
65	UTILITY POLE	APPROACH (RWY 30)/TSS	1,949.9'	177' L	1,089'	17.3'/7.3'	NO	OBSTRUCTION LIGHT
66	UTILITY POLE	APPROACH (RWY 30)/TSS	1,950.7'	187' L	1,110'	17.1'/7.1'	NO	OBSTRUCTION LIGHT
67	TREE	APPROACH (RWY 30)/TSS	1,963.5'	131' R	1,130'	28.9'/18.9'	NO	TOP/REMOVE
68	UTILITY POLE	APPROACH (RWY 30)/TSS	1,952.1'	201' L	1,140'	17.0'/7.0'	NO	OBSTRUCTION LIGHT
69	TREE	APPROACH (RWY 30)	1,939.7'	138' L	1,164'	3.4'	NO	TOP/REMOVE
70	TREE	APPROACH (RWY 30)/TSS	1,951.4'	192' R	1,183'	14.1'/4.1'	NO	TOP/REMOVE
71	TREE	APPROACH (RWY 30)/TSS	1,957.1'	157' L	1,183'	19.8'/9.8'	NO	TOP/REMOVE
72	TREE	APPROACH (RWY 30)/TSS	1,968.6'	88' R	1,192'	30.9'/20.9'	NO	TOP/REMOVE
73	TREE	APPROACH (RWY 30)/TSS	1,971.1'	177' L	1,194'	32.3'/22.3'	NO	TOP/REMOVE
74	TREE	APPROACH (RWY 30)/TSS	1,972.8'	192' L	1,210'	34.2'/24.2'	NO	TOP/REMOVE
75	TREE	APPROACH (RWY 30)/TSS	1,971.2'	209' L	1,241'	31.0'/21.0'	NO	TOP/REMOVE
76	TREE	APPROACH (RWY 30)/TSS	1,979.6'	163' R	1,268'	38.1'/28.1'	NO	TOP/REMOVE
77	TREE	APPROACH (RWY 30)/TSS	1,955.9'	125' L	1,282'	13.7'/3.7'	NO	TOP/REMOVE
78	TREE	APPROACH (RWY 30)/TSS	1,964.5'	66' R	1,292'	21.8'/11.8'	NO	TOP/REMOVE
79	HIGHWAY 66 (+15')	APPROACH (RWY 30)	1,915.1'	142' L	739'	-	NO	NO OBSTRUCTION, FOR REFERENCE ONLY
80	TREE	APPROACH (RWY 30)	1,949.5'	142' R	1,302'	6.3'	NO	TOP/REMOVE
81	TREE	APPROACH (RWY 30)	1,950.0'	92' L	1,346'	4.6'	NO	TOP/REMOVE
82	TREE	APPROACH (RWY 30)	1,945.6'	229' L	1,366'	-	NO	TOP/REMOVE
83	TREE	APPROACH (RWY 30)/TSS	1,965.0'	77' L	1,425'	15.6'/5.6'	NO	TOP/REMOVE
84	TREE	APPROACH (RWY 30)/TSS	1,967.5'	<1' L	1,455'	16.6'/6.6'	NO	TOP/REMOVE
85	TREE	APPROACH (RWY 30)	1,953.6'	101' L	1,506'	< 1'	NO	TOP/REMOVE
86	TREE	APPROACH (RWY 30)	1,956.3'	223' L	1,552'	< 1'	NO	TOP/REMOVE
87	TREE	APPROACH (RWY 30)	1,965.5'	24' L	1,589'	7.9'	NO	TOP/REMOVE
88	TREE	APPROACH (RWY 30)	1,957.0'	204' L	1,593'	-	NO	TOP/REMOVE
89	TREE	APPROACH (RWY 30)	1,962.9'	129' L	1,678'	< 1'	NO	TOP/REMOVE
90	TREE	APPROACH (RWY 30)	1,971.2'	214' L	1,693'	8.4'	NO	TOP/REMOVE
91	TREE	APPROACH (RWY 30)	1,968.2'	154' L	1,826'	-	NO	TOP/REMOVE
92	TREE	APPROACH (RWY 30)	1,942.3'	55' L	1,201'	4.1'	NO	TOP/REMOVE
93	TREE	TSS	1,940.7'	205' L	848'	3.8'	NO	TOP/REMOVE
94	TREE	TSS	1,982.3'	240' L	1,274'	24.0'	NO	TOP/REMOVE
95	TREE	TSS	1,975.5'	88' L	1,570'	2.4'	NO	TOP/REMOVE
96	TREE	TSS	2,015.0'	321' L	2,090'	16.7'	NO	TOP/REMOVE



RUNWAY 30 PLAN VIEW

0' 200' 400'
Scale: 1"=200'



0' 20' 40'
Scale: 1"=20'
Horizontal scale

RUNWAY 30 PROFILE VIEW

0' 200' 400'
Scale: 1"=200'
Horizontal scale

MAGNETIC DEC. 14° 27' EAST (2019 VALUE)

NOTES:

1. DISTANCES FOR NOTED OBSTRUCTIONS ARE BASED ON THE ULTIMATE RUNWAY CONFIGURATION. DIMENSIONS INCLUDE 200' DISTANCE FROM RUNWAY END TO BEGINNING OF APPROACH.
2. DATE OF OBSTRUCTION SURVEY; 01/23/2017.
3. IN THE CASE OF OBSTACLES THAT PENETRATE APPROACH AND TSS SURFACES, PENETRATION AMOUNTS ARE LISTED FOR BOTH SURFACES.

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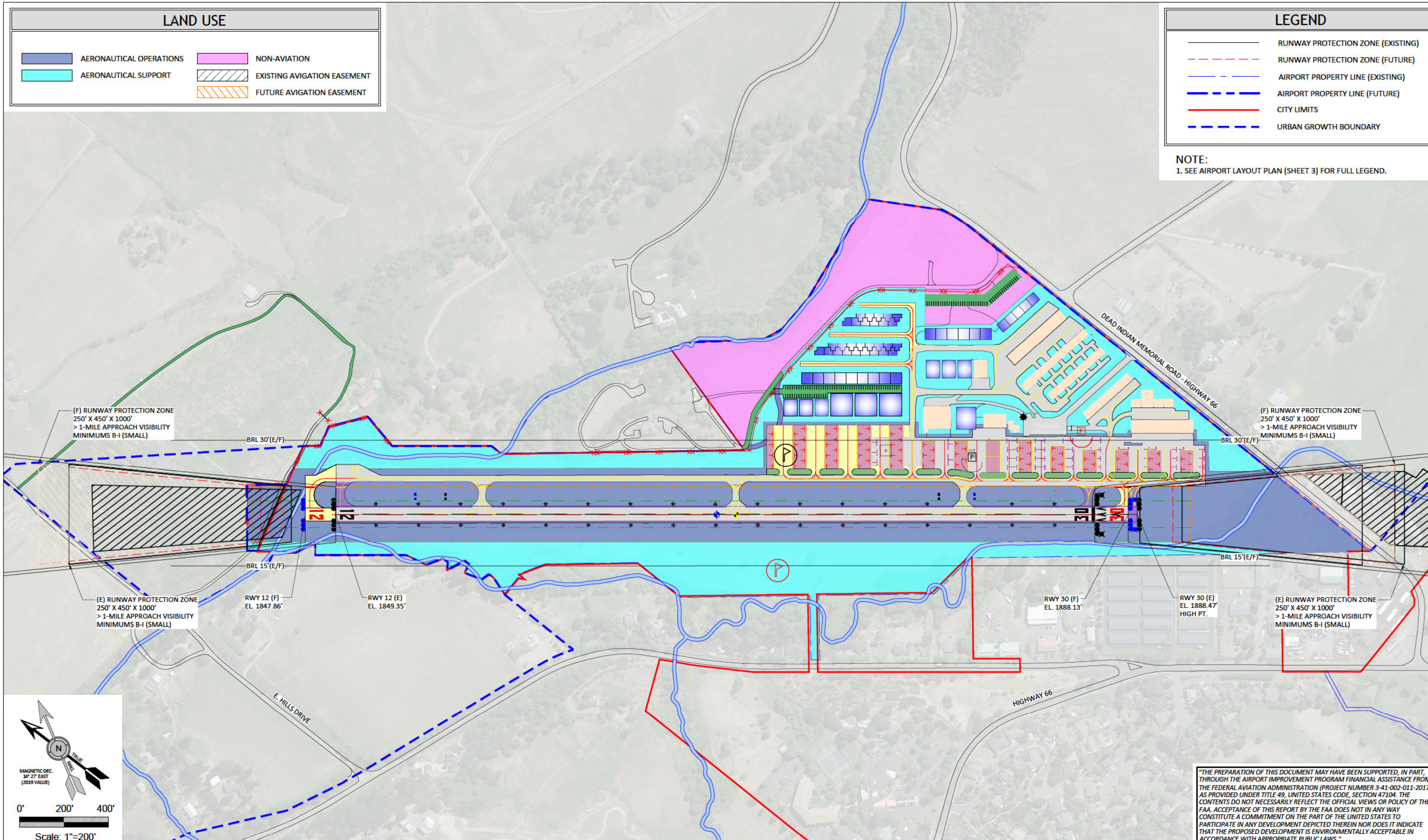
DM	JLS	WMR	AS SHOWN
DATE: JANUARY 2020		PROJECT NO: 12478.001.01	

ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

RUNWAY 30 RPZ AND INNER APPROACH PLAN AND PROFILE

FIGURE NO.
-

SHEET NO.
11 OF 14



LAND USE

- AERONAUTICAL OPERATIONS
- AERONAUTICAL SUPPORT
- NON-AVIATION
- EXISTING AVIGATION EASEMENT
- FUTURE AVIGATION EASEMENT

LEGEND

- RUNWAY PROTECTION ZONE (EXISTING)
- RUNWAY PROTECTION ZONE (FUTURE)
- AIRPORT PROPERTY LINE (EXISTING)
- AIRPORT PROPERTY LINE (FUTURE)
- CITY LIMITS
- URBAN GROWTH BOUNDARY

NOTE:
1. SEE AIRPORT LAYOUT PLAN (SHEET 3) FOR FULL LEGEND.

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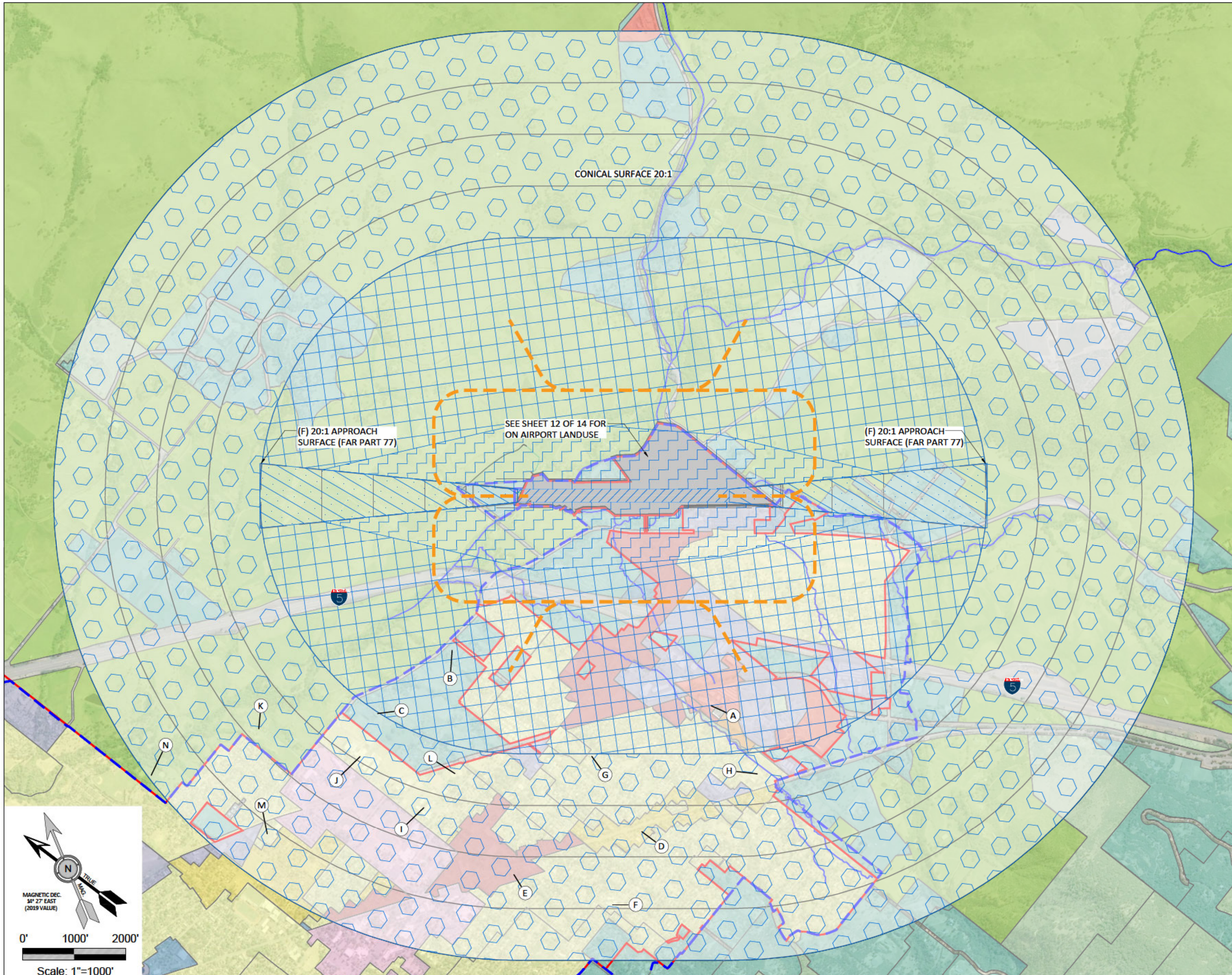
ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

ON AIRPORT LAND USE PLAN

FIGURE NO. -



LEGEND

AGRICULTURAL USE	AG	
BUSINESS USE	BUS	
COMMERCIAL USE	COM	
OPEN SPACE/FOREST USE	OS/F	
INDUSTRIAL USE	IND	
MIXED USE	MU	
PUBLIC SERVICES USE	PUB	
RESIDENTIAL USE - HIGH DENSITY	RH	
RESIDENTIAL USE - LOW DENSITY	RL	
RESIDENTIAL USE - RURAL	RR	
RURAL USE	RUR	
CITY LIMITS		
URBAN GROWTH BOUNDARY		
AIRPORT PROPERTY		
TRAFFIC PATTERN		

LAND USE KEY

LAND USE DESIGNATION	JACKSON COUNTY ZONING DISTRICTS	CITY OF ASHLAND ZONING DISTRICTS
AGRICULTURAL (AG)	EFU	
BUSINESS (BUS)		CM-OE, E-1, HC
COMMERCIAL (COM)	GC, IC, RS	C-1, C-1-D, CM-NC
OPEN SPACE/FOREST (OS/F)	FR, OSR, WR	
INDUSTRIAL (IND)	RLI	CM-CI, M-1
MIXED USE (MU)		CM-MU
PUBLIC SERVICES (PUB)		SO
RESIDENTIAL - HIGH DENSITY (RH)		R-3
RESIDENTIAL - LOW DENSITY (RL)	UR-1	NM, R-1-10, R-1-3.5, R-1-5, R-1-7.5, R-2
RESIDENTIAL - RURAL (RR)	RR-00, RR-10, RR-5	RR-.5, RR-1
RURAL (RUR)	RU-20	

FAR PART 77 SURFACES

PRIMARY SURFACE	
APPROACH SURFACE	
TRANSITIONAL SURFACE	
HORIZONTAL SURFACE	
CONICAL SURFACE	

PUBLIC FACILITIES KEY

NO.	DESCRIPTION
A	LITHIA SPRINGS SCHOOL
B	THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS
C	ASHLAND GRACE POINT
D	FIRST BAPTIST CHURCH - ASHLAND
E	FIRST PRESBYTERIAN CHURCH OF ASHLAND
F	CATHOLIC CHURCH-OUR LADY OF MT.
G	THE SISKIYOU SCHOOL
H	BELLVIEW ELEMENTARY SCHOOL
I	WALKER ELEMENTARY SCHOOL
J	JOHN MUIR ELEMENTARY SCHOOL
K	WILLOW WIND LEARNING CENTER
L	HUNTER PARK
M	GARFIELD PARK
N	NORTH MOUNTAIN PARK

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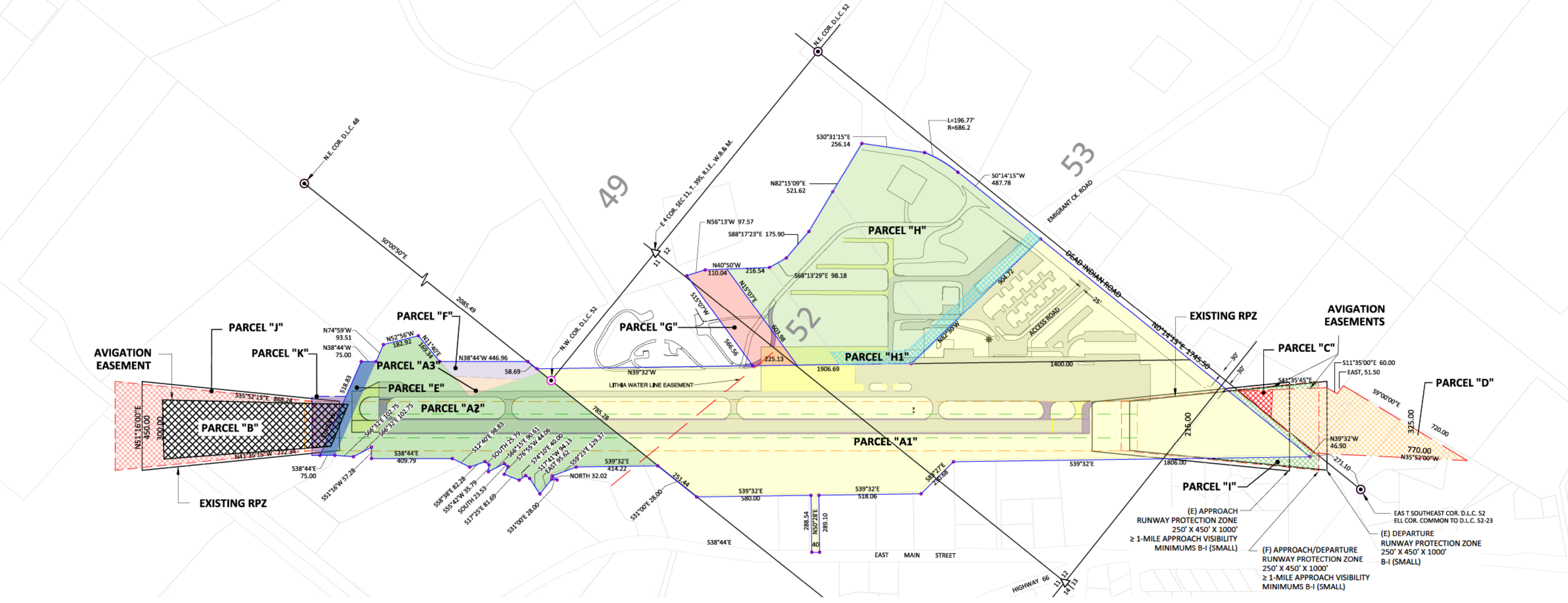
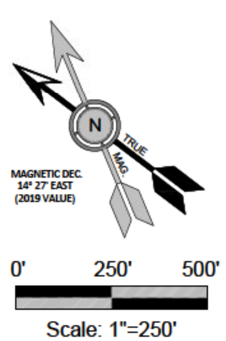
ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

OFF AIRPORT LAND USE PLAN

FIGURE NO.
-





PROPERTY DATA TABLE

PARCEL	GRANTOR	GRANTEE	ACRES	RECORDING INFORMATION DATE	RECORDING INFORMATION DEED RECORD	TAXLOTS	INTEREST	FED. AGREEMENT	PURPOSE
A1		CITY OF ASHLAND	53.17	1964	66-08979	391E12301, 391E11D2000	FEE SIMPLE	9-35-066-C701	DEVELOPMENT
A2	HOWARD JR. & MARY K. PRIBBENO	CITY OF ASHLAND	14.05	1964	65-4299	391E11300	FEE SIMPLE	9-35-066-C701	DEVELOPMENT
A3	GENE & MILDRED JONES	CITY OF ASHLAND	0.38	1967	67-05935	391E11300	FEE SIMPLE	9-35-066-C701	DEVELOPMENT
B	GENE & MILDRED JONES & HOWARD JR. AND MARY PRIBBENO	CITY OF ASHLAND	5.24	1967	67-05936	66-08979	EASEMENT		APPROACH PROTECTION
C	*	CITY OF ASHLAND	0.29	*	66-05796	66-08979	EASEMENT	7-41-0002-01	APPROACH PROTECTION
D	*	CITY OF ASHLAND	4.80	*	72-05391	66-08979	EASEMENT	7-41-0002-01	APPROACH PROTECTION
E	*	CITY OF ASHLAND	0.82	*	*	391E11300	FEE SIMPLE	ADAP-03	DEVELOPMENT
F	*	CITY OF ASHLAND	0.83	*	*	391E11300	FEE SIMPLE	ADAP-03	DEVELOPMENT
G	YMCA OF ASHLAND OREGON	CITY OF ASHLAND	2.50	1984	84-02576	391E12307	FEE SIMPLE	AIP-01	DEVELOPMENT
H		CITY OF ASHLAND	23.52	1989	89-11525	391E12310, 391E12309, 391E12308, 391E12312	FEE SIMPLE	AIP-04	DEVELOPMENT
H1	CITY OF ASHLAND	DONALD P. & RUBY H. THOMAS	1.85			391E12312	EASEMENT	AIP-04	ACCESS EASEMENT
I	PROPOSED AVIGATION EASEMENT		1.02						APPROACH PROTECTION
J	PROPOSED AVIGATION EASEMENT		3.44						APPROACH PROTECTION
K	PROPOSED PROPERTY ACQUISITION		0.74						DEVELOPMENT

NOTE: * INDICATES FORMAL TITLE SEARCH MAY BE REQUIRED TO PROVIDE MISSING INFORMATION

TOTALS

PROPERTY TYPE	EXISTING	FUTURE
FEE SIMPLE	95.27 AC.	96.01 AC.
EASEMENTS FROM OTHERS	10.33 AC.	14.79 AC.
EASEMENTS TO OTHERS	1.85 AC.	1.85 AC.

LEGEND

red dashed line	EASEMENT LINE
blue solid line	EXISTING PROPERTY LINE
blue dashed line	FUTURE PROPERTY LINE
grey line	COUNTY TAXLOT LINE
black line	RPZ
green dash-dot line	RSA
orange dashed line	ROFA

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FEDERAL AVIATION ADMINISTRATION APPROVAL

APPROVAL DATE: ____________

SIGNATURE

CITY OF ASHLAND APPROVAL

APPROVAL DATE: ____________

SIGNATURE

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ASHLAND MUNICIPAL AIRPORT
SUMNER PARKER FIELD

EXHIBIT "A" AIRPORT PROPERTY MAP

FIGURE NO. -

Chapter 7

Airport Compatible Land Use Planning

Chapter 7 – Airport Compatible Land Use Planning

An evaluation of both on-airport and off-airport land uses in the vicinity of the airport to address the potential development of a broad range of land uses that are compatible with airport operations and support the region's economic development strategy.

Introduction

This chapter describes land use associated with the Ashland Municipal Airport and its surroundings, describes federal regulations established to protect airports and airspace, and summarizes state statutes and rules that guide land use planning and airport protection. The intent of this chapter is to summarize all existing land use controls affecting the Airport, identify any potential land use or zoning incompatibilities, and if applicable, provide recommendations for improving land use compatibility.

Government Roles in Airport Land Use

FEDERAL

The Federal Aviation Administration (FAA) does not have authority to regulate off airport land use, including the construction of built items. Land use regulation is a local responsibility and FAA has a technical advisory role based on its interest in protecting the airspace associated with an airport as part of the national airspace system. The FAA does have a role in regulating on-airport land use through approval of the Airport Layout Plan (ALP) and airport sponsor compliance with the FAA Airport Improvement Program (AIP) grant assurances. These assurances include measures to maintain airport land use compatibility and protect the aeronautical function of airports.

The FAA's current guidance on regulating non-aeronautical land uses on federally obligated airports is addressed in the FAA Reauthorization Act of 2018 (Title I—Authorizations, Subtitle C—Airport

Improvement Program Modifications, Sec. 163), which narrows the FAA's direct or indirect regulation of non-aeronautical property transactions (including leases) and limits the requirement for ALP amendments depicting non-aeronautical developments that may in turn, trigger environmental review. The intent of the law is to ensure the aeronautical functions of an airport are adequately preserved, but to enable airport sponsors to responsibly pursue non-aeronautical development that benefits the operation of the airport.

Under **14 Code of Federal Regulations (CFR), Part 77,** the FAA has the authority to review proposed construction through its Form 7460-1 Notice of Proposed Construction or Alteration process. The FAA review addresses compatibility both on and off airport based on the potential for creating a "hazard to air navigation" associated with obstructions/penetrations in defined airspace. FAA airspace reviews include FAR Part 77 surfaces; Terminal Instrument Procedures (TERPS) surfaces, visual runway traffic patterns, and visual navigation aid (e.g., VASI, PAPI, etc.) protected airspace. When a proposed structure penetrates navigable airspace, the FAA will issue a letter objecting to the proposed action (determination of presumed hazard to air navigation) for the consideration of local authorities. When proposed actions do not present a hazard to air navigation, a "no objection" finding is issued. It is important to note that this analysis is based on an obstruction evaluation and is not intended to address land use compatibility in terms of noise exposure or proximity to an airport or runway.

The FAA recommends local jurisdictions include the following language in their development codes to recognize and protect airports from incompatible development: "Nothing in this chapter shall diminish the responsibility of project proponents to submit a Notice of Proposed Construction or Alteration to the Federal Aviation Administration if required, in accordance with **FAR Part 77**, **Objects Affecting Navigable Airspace**."

FAR Part 150, **Airport Noise Compatibility Planning** provides guidance for land use compatibility around airports. The Airport Noise and Capacity Act of 1990 (ANCA), defines the federal policy on the regulation of airport noise (operating curfews, aircraft restrictions, etc.), with the intent of standardizing noise controls throughout the national system.

STATE

The State of Oregon has created statutes and rules that provide standards and guidelines for local governments to use in order to create zoning ordinances to encourage compatible land uses around airports. The State of Oregon's laws and statutes are provided by the Airport Planning Rule, which is located in **Oregon Administrative Rules (OAR),** contained in **Chapter 660, Department of Land Conservation and Development; Division 12, Transportation Planning** and **Division 13, Airport Planning** to address airport protection and function. Local governments shall follow State rules as described in **OAR 660** for planning and managing public-use airports. Division 12 states that local governments shall participate and develop a Transportation System Plan with "measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation."

Division 13, Airport Planning states, "the policy of the State of Oregon is to encourage and support the continued operation and vitality of Oregon's airports." It includes "rules that are intended to promote a convenient and economic system of airports in the State and for land use planning to reduce risks to aircraft operations and nearby land uses." A summary of these requirements is provided below:

- **660-013-0030 Preparation and Coordination of Aviation Plans** states "A city or county with planning authority for one or more airports, or areas within safety zones or compatibility zones described in this division, shall adopt comprehensive plan and land use regulations for airports consistent with the requirements of this division and ORS 836.600 through 836.630."
- **660-013-0040 Aviation Facility Planning Requirements** provides a list of planning requirements including a map showing the location of the airport boundary, a map or description of existing and planned facilities, a projection of future aeronautical needs, etc.
- **660-013-0070 Local Government Safety Zones for Imaginary Surfaces** specifies that "local governments shall adopt an Airport Safety Overlay Zone to promote aviation safety by prohibiting structures, trees and other objects of natural growth from penetrating airport imaginary surfaces."
- **660-13-0080 Local Government Land Use Compatibility Requirements for Public Use Airports** provides a list of requirements including prohibiting new residential development and public assembly uses within the Runway Protection Zone (RPZ) and limits establishment of uses within the noise impact boundary.
- **660-013-0100 Airport Uses at Non-Towered Airports** requires local governments to adopt land use regulations that authorize a range of defined airport uses within the airport boundary of non-towered airports.
- **660-013-0140 Safe Harbors** defines "safe harbor" requirements that may be used by local governments including existing comprehensive plans, land use regulations, Airport Master Plans, and Airport Layout Plans.
- **660-013-155 Planning Requirements for Small Airports** specifies that airports are to be subject to the planning and zoning requirements within ORS 836.

Division 13 implements **Oregon Revised Statutes (ORS) 836.600** through **836.630**, which promotes land use planning to reduce unnecessary risk to aircraft operations. Several key statutes important in land use planning are summarized below:

- **836.608 Airport operation as matter of state concern (local planning documents to recognize airport location, limitations on use, and expansion of facility)** - requires local governments to recognize airport locations within planning documents. It also prohibits limitations on use and includes a process by which airports can add new land uses on their property.

- **836.610 Local government land use plans and regulations to accommodate airport zones and uses including funding and rules** - requires local governments to amend their land use regulations and comprehensive plans in accordance to 836.616 and 836.619.

- **836.616 Rules for airport uses and activities** - identifies types of permitted land uses and activities on airport property and requires local government to meet standards for safe land uses near airports.

- **836.623 Local compatibility and safety requirements more stringent than state requirements (criteria, water impoundments, report to federal agency, and application to certain activities)** - allows local governments to adopt land use compatibility and safety requirements that are more stringent than the minimum required by Land Conservation and Development Commission rules. It provides rules which limit the size of water impoundments near airports in an effort to reduce wildlife attractants.

LOCAL

In Oregon, protecting airports from incompatible land uses and establishing compatible land uses around airports is the responsibility of local governments through comprehensive planning and local zoning authority. As with other local land use regulations, the requirements are unrelated to property ownership, and are not limited to jurisdiction where the airport is physically located.

The City of Ashland has land use jurisdiction for Ashland Municipal Airport and for all lands located in the city limits. Ashland Municipal Airport is located within the Ashland city limits, approximately three miles southeast of downtown Ashland.

Jackson County has land use jurisdiction for all other lands in the vicinity of the Airport, including the areas of the Ashland Urban Growth Boundary (UGB) located outside the city limits and for all unincorporated areas outside the UGB.

The City and County have adopted policies and goals within comprehensive planning elements and established airport overlay and base zoning language to ensure their off- and on-airport land uses are compatible with the Airport for long-term growth. However, City and County comprehensive plans as well as zoning ordinances may require updating to be more consistent with modern airport planning terminology, growth and expansion at the Airport, and consistency with the Oregon rules and statutes noted above. Further analysis of the specific local comprehensive plan documents and local zoning ordinances is examined in more detail below.

Comprehensive Planning

JACKSON COUNTY

The Jackson County Comprehensive Plan is the official long-range land use policy document for Jackson County. The plan sets forth general land use planning policies and allocates land uses into resource, residential, commercial and industrial categories. The following is a summary of those sections of the Jackson County Comprehensive Plan related to the Ashland Municipal Airport.

Environmental Quality Element

The County utilizes an Airport Approach overlay zone and very low density residential zoning surrounding the facility to ensure land use compatibility for not only safety and airspace obstruction concerns, but also as a mechanism to regulate land uses and densities regarding noise. The County will continue to work with airport authorities, affected agencies, concerned citizens, and the cities of Ashland and Medford on any matters affecting noise emanating from these aviation facilities and their flight operation activities. Methodologies for dealing with airport-related noise, such as zoning, land acquisition, and sound-proofing of structures are discussed in these airport master plans.

Public Facilities and Services Element

The City operates an activated sludge plant which discharges effluent into Bear Creek. The Ashland City Airport is served by holding tanks and septic systems, but, as of February 1994, connection to the city sewer is planned when funding is available.

Construction for sanitary sewer to the Airport was completed in 1999.

Transportation System Plan (TSP) Element

In addition to a general summary of aviation facilities within Jackson County, the TSP identifies a handful of Aviation System Policies specific to public use airports in Jackson County like the Ashland Municipal Airport.

4.2.5-A The County's first aviation planning priority is the preservation and protection of existing commercial and general aviation facilities and uses for all public use airports.

4.2.5-B The County will plan for and support the expansion and enhancement of commercial and general aviation facilities and uses for all public use airports as planning deficiencies are identified.

4.2.5-D The County will support multi-modal transportation improvement and service enhancements to improve access to the air system facilities, including the Medford International Airport.

General Implementation Element

The County Comprehensive Plan identifies several implementation techniques that may be utilized for areas within the "airport flight path zones" beyond the more traditional methods of implementation such as zoning, ordinances and review, and building codes. Some of the techniques identified include outright purchase, advance acquisition, purchase and leaseback, eminent domain, scenic & conservation easements, and covenants deed restrictions.

CITY OF ASHLAND

The City of Ashland Comprehensive Plan is the guiding document for all development within the City. The Plan incorporates specific elements related to development including: citizen participation, environmental resources, population projections and growth, housing, economy, aesthetic resources, public services, transportation, energy and urbanization. The following is a summary of those sections of the Comprehensive Plan related to the Ashland Municipal Airport.

Introduction and Definitions

PUBLIC SCHOOLS AND FACILITIES (2.04.14) These are areas needed for existing or future public uses, such as schools, treatment plants, airport, and so forth. These areas should be programmed into the City or school system budgets and purchased prior to projected development. In cases of possible combined uses (e.g., school parks), a joint acquisition should be encouraged.

Environmental Resources

GOAL To make a continuing effort to reduce noise levels, and insure that new development is developed in a way to minimize noise impacts.

56) Insure that residential development is kept away from the maximum noise area around the Ashland Airport, and that new residential development near the Airport is aware of the potential for noise, and waives the right to file nuisance suits in the future

Transportation Element

10.26 Commercial Freight and Passenger Transportation Goals and Policies

GOALS (10.26.01) To provide efficient and effective movement of goods, services and passengers by air, rail, water, pipeline, and highway freight transportation while maintaining the high quality of life of Ashland.

POLICIES 1) Review development within the Airport Overlay Zone to ensure compatibility with the Ashland Municipal Airport.

Urbanization

12.08 Description of the Urban Growth Boundary – "…across the freeway, the urban growth boundary continues along East Main until it comes to the City's Municipal Airport and two areas reserved for expansion of the Municipal Airport. However, there are no plans for any residential development in this area."

Airport Vicinity Zoning

JACKSON COUNTY

Jackson County has land use jurisdiction for most of the lands in the vicinity of the Airport, including the areas of the Ashland Urban Growth Boundary (UGB) located outside the city limits and all unincorporated areas outside the UGB. The County land and respective zoning surrounding the Airport is typically Exclusive Farm Use (EFU) and Rural Residential 5 (RR5) which is generally compatible with airport operations.

CITY OF ASHLAND

The City of Ashland zoning districts in the vicinity of the Airport provide a reasonable level of compatibility with airport operations. Aside from the roads located partially within the Runway Protection Zone (RPZs), there are no known areas of incompatible land use or significant aircraft noise exposure in the vicinity of Ashland Municipal Airport. The relocation and/or minimizing the impacts of the existing RPZ incompatibilities is recommended in the master plan. Control of the RPZ through purchase where practical is also recommended.

Airport Base Zoning

CITY OF ASHLAND

Ashland Municipal Airport is located within the Ashland city limits which provides jurisdiction and regulations for all on-airport development through AMC Title 18 Land Use. As depicted in Figure 2-9 in Chapter 2 of this Airport Master Plan, Ashland Municipal Airport is zoned (Employment) E-1 in Part 18.2 – Zoning Regulations, which does not provide clear guidance on typical aviation related uses such as hangar development, taxiways, runways, etc. within airport property. The code as currently written directs any Airport specific inquiries to Chapter 18.3.7 Airport Overlay, which provides for the "protection of properties that lie within close proximity to the Ashland Airport where aircraft are likely to be flying at relatively low elevations."

It is recommended the City of Ashland adopt a base zone specific to the Airport comparable to either the "Appendix G – Model Public Use Airport Zone" from the ODA Airport Land Use Compatibility Guidebook, or an overlay comparable to the Jackson County "Airport Boundary Overlay" in Chapter 7.3.2 of the Jackson County Land Use Ordinance, or implement a master plan based method for permitting on airport land uses similar to what is currently done within the City of Ashland for the SOU (Southern Oregon University District) and HC (Health Care Services District) zones.

Airport Overlay Zoning

JACKSON COUNTY

Section 7.3.1 of the Jackson County Land Use Ordinance provides Airport Approach (AA) and Airport Concern (AC) overlays intended to reduce risks to aircraft operations and land uses within close proximity to the Airport as defined by FAR Part 77 surfaces. This section of the Jackson County ordinance references a 1976 Approach and Clear Zone Plan for the Ashland Municipal Airport.

It is recommended the City of Ashland work with Jackson County to update the reference of the 1976 Approach and Clear Zone Plan within Section 7.3.1 to read as the "adopted Ashland Airport Master Plan's "Airspace Plan" on file with the City of Ashland."

CITY OF ASHLAND

The City of Ashland Airport Overlay Zone provided in Chapter 18.3.7 is intended to prevent the establishment of airspace obstructions in the areas around the Airport to comply with "FAR Part 77 Safe, Efficient Use, and Preservation of the Navigable Airspace" through the establishment of airspace surfaces associated with the Airport and runway environment.

Section 18.3.7.020 indicates "this chapter applies to properties located in the Airport Overlay (A) on the Zoning map (Figure 2-9 of this Airport Master Plan Report). In addition to the provisions of this ordinance, the requirements of section 18.3.7.030 Airport Overlay Regulations apply within the Airport Overlay."

It is recommended the City of Ashland adopt an airport overlay zone specific to the Airport Part 77 Surfaces comparable to the "Appendix E – Model Public Use Airport Safety and Compatibility Overlay Zone" from the ODA Airport Land Use Compatibility Guidebook, or an overlay comparable to the Jackson County "Airport Approach and Airport Concern Overlays" in Chapter 7.3.1 of the Jackson County Land Use Ordinance, or another more specific approach that best suits the City of Ashland while still being consistent with State land use laws and FAR Part 77 requirements and federal grant assurances.

Land Use Summary and Recommendations

To remain in compliance with State of Oregon land use laws (OAR 660) it is recommended the City of Ashland work with Jackson County to update the outdated County Comprehensive Plan language to prepare for the changes planned within this updated Airport Master Plan for the Ashland Municipal Airport. Additionally, the City will need to take appropriate steps to adopt the Airport Master Plan in to the City of Ashland Comprehensive Plan. As a final step, it is recommended the City of Ashland update the base zone and overlay zone for consistency with the Master Plan and City of Ashland Comprehensive Plan.

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Chapter 8

Capital Improvement and Implementation Plan

Chapter 8 – Capital Improvement and Implementation Plan

The Capital Improvement and Implementation Plan details the specific projects, costs, available funding sources, and an implementation schedule needed to realize the preferred alternative.

Overview and Purpose

The purpose of this chapter is to present the projects identified in the twenty-year Capital Improvement Program (CIP) that have been developed and assembled based on the analyses conducted in the Facility Requirements and Development Alternatives evaluations (Chapters 4 and 5). The CIP projects are summarized in **Table 8-1** later in the chapter. The CIP is organized into short, intermediate, and long-term planning periods that reflect both project prioritization and financial capabilities. 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 city and FAA to support the development program based on existing funding mechanisms.

The Master Plan preferred alternative includes both airside elements and landside elements. Minor pavement maintenance items such as vegetation removal and crack filling are not included in the CIP, but will need to be undertaken by the City on an annual or semi-annual basis.

A brief environmental review was prepared and is presented in Chapter 2 – Inventory of Existing Conditions. The review provides an overview of areas of potential concern associated with proposed development. In addition, all federally funded projects will require some level of project-specific environmental study, as determined by FAA.

Individual projects for the first five years of the planning period are listed in order of priority by year. Projects for the intermediate and long-term phases of the planning period (years 6-20) are listed in order of priority but have not been assigned a year. Each project's eligibility for FAA funding is noted, based on current federal legislation and funding formulas. Specific project details are depicted on the updated Airport Layout Plan and Terminal Area Plan drawings contained in Chapter 6.

A primary source of potential funding identified in this plan is the FAA's Airport Improvement Program (AIP). Funds from this program are derived from the Aviation Trust Fund, which is the depository for all federal aviation taxes collected on such items as airline tickets, aviation fuel, lubricants, tires, aircraft registrations, and other aviation related fees. These funds are distributed by FAA under appropriations set by Congress for all airports in the United States included in the federal airport system (National Plan of Integrated Airport Systems – NPIAS).

However, as noted in **Table 8-1**, the projected twenty-year total for FAA eligible projects in the CIP significantly exceeds current FAA funding levels through the non-primary entitlement program, which is $150,000 annually. While other types of FAA funding may be available for some projects, it is reasonable to assume not all eligible projects are likely to be funded despite establishing FAA funding eligibility. The City must maximize the use of available FAA and other outside funding sources as it manages its CIP. In some cases, the limited availability of outside funds may require deferring some projects, or increasing funding with additional local, state, or private funding.

Airport Development Schedule and Cost Estimates

Cost estimates for each individual project were developed in 2019 dollars based on typical construction costs associated with the specific type of project. The project costs listed in the CIP 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 2019-dollar amounts to account for subsequent inflation as the plan is carried out in future years. This can be accomplished by converting the appropriate change in the United States Consumer Price Index (USCPI) to a multiplier using the following formula:

$$\frac{X}{I} = Y$$

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

USCPI-U
267.370 **(1982-1984 = 100)** **March 2019**

Multiplying the change ratio (Y) times any 2019-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 city in its financial management program.

The following sections outline the recommended development program and funding assumptions. The scheduling has been prepared according to the facility requirements determined through the master plan evaluation. The projected staging of development projects is based on anticipated needs and investment priorities. Actual activity levels may vary from projected levels; therefore, the staging of development in this section should be viewed as a general guide. When activity does vary from projected levels, implementation of development projects should occur when demand warrants, rather than according to the estimated staging presented in this chapter. In addition to major projects, the airport will continue to require regular facility maintenance such as pavement maintenance, vegetation control, sweeping, lighting repair, and fuel system maintenance.

The following summary describes the key projects.

Short-Term Projects

The short-term program contains highest priority work items including safety related improvements. These items will need to be incorporated into the State Capital Improvement Program (SCIP) managed by the FAA Seattle Airport District Office and the Oregon Department of Aviation (ODA). To assist with this process, the short-term projects are scheduled in specific calendar years for the first five years of the planning period (2019-2023).

[1] U.S. Consumer Price Index for All Urban Consumers (USCPI-U)

The primary focus for short-term development is to address the pavement conditions on the airfield. Specific short-term projects are listed below.

SHORT-TERM PROJECTS (YEARS 2019-2023):

- Pavement Management Plan (PMP) Maintenance Work
- Rehabilitate Taxiway: Phase I - Design
- Rehabilitate Taxiway: Phase II - Construction
- Pavement Management Plan (PMP) Maintenance

Intermediate & Long-Term Projects

Several intermediate - or long-term projects are considered to be current needs. However, it was necessary to shift some projects to subsequent planning periods based on the limited funding resources available. Individual projects may be completed sooner in the event additional funding can be obtained.

INTERMEDIATE-TERM PROJECTS (YEARS 2024-2028):

- Environmental Assessment – Fencing/Road Realignment/Apron Expansion/Threshold
- Fencing Project and Road Realignment
- Pavement Management Plan (PMP) Maintenance
- OFA Obstruction Removal
- Displaced Threshold Removal and Runway Seal Coat
- Apron Redesign and Expansion/Fuel Tank Relocation

LONG-TERM PROJECTS (YEARS 2029-2038):

- Airport Master Plan Update
- Pavement Management Plan (PMP) Maintenance
- Construction of Hangar Taxilanes
- Environmental Assessment – Runway Extension
- Pavement Management Plan (PMP) Maintenance
- Runway Extension: Phase I – Design
- Runway Extension/Displace Threshold Removal: Phase II - Runway Extension (Construction of Runway/Taxiway, culvert, land acquisition, private drive relocation, etc)

TABLE 8-1: 20-YEAR CAPITAL IMPROVEMENT PROGRAM

ASHLAND MUNICIPAL AIRPORT

20-YEAR CAPITAL IMPROVEMENT PROGRAM

Prepared by Century West Engineering

20-CAPITAL IMPROVEMENT PROGRAM								
Short-Term	Project	Project Category	Project Cost	FAA GA Entitlement	Other FAA **	Local Costs ***		
2019	No Projects		$0	$0	$0	$0	FY 2019 NPE + Accum.	$449,249
							NPE Used	$0
Subtotal - Year 1			**$0**	**$0**	**$0**	**$0**	NPE Remaining	$449,249
2020	PMP*	Rehabilitation	$20,000	$18,000	$0	$2,000	FY 2020 NPE + Accum.	$599,249
							NPE Used	$18,000
Subtotal - Year 2			**$20,000**	**$18,000**	**$0**	**$2,000**	NPE Remaining	$581,249
2021	Rehabilitate Taxiway: Phase I - Design	Design	$263,000	$236,700	$0	$26,300	FY 2021 NPE + Accum.	$731,249
							NPE Used	$236,700
Subtotal - Year 3			**$263,000**	**$236,700**	**$0**	**$26,300**	NPE Remaining	$494,549
2022	Rehabilitate Taxiway: Phase II - Construction	Construction	$2,598,000	$644,549	$1,693,651	$259,800	FY 2022 NPE + Accum.	$644,549
							NPE Used	$644,549
Subtotal - Year 4			**$2,598,000**	**$644,549**	**$1,693,651**	**$259,800**	NPE Remaining	$0
2023	PMP*	Rehabilitation	$20,000	$18,000	$0	$2,000	FY 2023 NPE +Accum.	$150,000
							NPE Used	$18,000
Subtotal - Year 5			**$20,000**	**$18,000**	**$0**	**$2,000**	NPE Remaining	$132,000
		5-YEAR TOTAL:	**$2,901,000**	**$917,249**	**$1,693,651**	**$290,100**		

* Participation in ODA PMP/PEP program is assumed. Actual project costs and local cost share to be determined.

** Other FAA Funding Total listed for reference only based on general project eligibility; FAA funding levels are expected to be below projected needs.

*** Local (City) costs at 10% (City may apply for a ODA grant for a portion of matching funds)

Note: Contingencies for project engineering, and construction services are included in lump sum project costs. Environmental contingencies are not included.

TABLE 8-1: 20-YEAR CAPITAL IMPROVEMENT PROGRAM (CONT.)

20-CAPITAL IMPROVEMENT PROGRAM							
Intermediate-Term	Project	Project Category	Total Cost	FAA GA Entitlement	FAA Eligible **	Local Costs***
Non-Primary Entitlements Accumulation Total (5-Years)				**$750,000**		
2024-2028	EA (OFA Obstruction Removal/Fencing/Road Realignment/Apron	Environmental	$350,000		$315,000	$35,000
	Fencing Project and Road Realignment	Design/Construction	$700,000		$630,000	$70,000
	PMP*	Planning	$20,000		$18,000	$2,000
	OFA Obstruction Removal	Design/Construction	$180,000		$162,000	$18,000
	Displaced Threshold Removal and Runway Seal Coat	Design/Construction	$1,080,000		$972,000	$108,000
	Apron Redesign and Expansion/Fuel Tank Relocation	Design/Construction	$6,840,000		$6,156,000	$684,000
Subtotal - Year 6-10		**10-YEAR TOTAL:**	**$9,170,000**	**$750,000**	**$8,253,000**	**$917,000**
Long-Term	Project	Project Category	Total Coast	FAA GA Entitlement	FAA Eligible **	Local Costs***
Non-Primary Entitlements Accumulation Total (10-Years)				**$1,500,000**		
2029-2038	Airport Master Plan Update	Planning	$400,000		$360,000	$40,000
	PMP*	Planning	$20,000		$18,000	$2,000
	Hangar Taxilanes	Design/Construction	$2,240,000		$2,016,000	$224,000
	Environmental Assessment (Runway Extension)	Planning	$500,000		$450,000	$50,000
	PMP*	Planning	$20,000		$18,000	$2,000
	Phase I - Runway Extension	Design	$420,000		$378,000	$42,000
	Phase II - Runway Extension (Construction of Runway/Taxiway, culvert, land acquisition, private drive relocation, etc)	Construction	$6,320,000		$5,688,000	$632,000
Subtotal Year 11-20		**10-YEAR TOTAL:**	**$9,920,000**	**$1,500,000**	**$8,928,000**	**$992,000**

* Participation in ODA PMP/PEP program is assumed. Actual project costs and local cost share to be determined.

** Other FAA Funding Total listed for reference only based on general project eligibility; FAA funding levels are expected to be below projected needs.

*** Local (City) costs at 10% (City may apply for a ODA grant for a portion of matching funds)

Note: Contingencies for project engineering, and construction services are included in lump sum project costs. Environmental contingencies are not included.

Capital Funding Sources & Programs

Federal Grants

Federal funding is provided through the Federal Airport Improvement Program (AIP). The Airport Improvement Program is the latest evolution of a funding program originally authorized by Congress in 1946 as the Federal Aid to Airports Program (FAAP). The AIP provides Entitlement funds for commercial service and cargo airports based on the number of annual enplaned passengers and amount of air cargo handled. Other appropriations of AIP funds go to states, general aviation airports, reliever airports, and other commercial service airports, as well as 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. These annual entitlement funds can only be used for eligible capital improvement projects and may not be used to support airport operation and maintenance costs.

AIP funding programs include:

- AIP Entitlement Grants: The FAA Reauthorization Act of 2018 was signed into law in October of 2018, extending the authorization for Federal Aviation Administration (FAA) programs, including the AIP program, and related revenue authorities through 2023. Ashland Municipal Airport is classified in the current NPIAS as a Local General Aviation Airport. FAA Order 5100.38D, Airport Improvement Handbook, adjusts the percentage of Federal shares for allowable project costs for certain states. In the Order, Table 4-8 "Federal Shares by Airport Classification in Public Land States" stipulates that the Federal match in the State of Oregon is 90-percent for Non-primary General Aviation airports.

- AIP Discretionary Grants: The FAA also provides Discretionary grants to airports for projects that have a high Federal priority and enhance safety, security, or capacity. These grants are over and above Entitlement funding. Discretionary grant amounts can vary significantly compared to Entitlements 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 Program. Money is available in the FAA Facilities and Equipment (F&E) program to purchase navigation 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 funded in total (i.e., 100 percent) by the FAA, while remaining projects would likely be eligible for funding through the AIP or PFC 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 this category of project to be considered a much lower priority than other airfield needs.

State of Oregon

No specific level of Oregon Department of Aviation (ODA) funding has been assumed in the CIP presented in **Table 8-1**. It is recommended that the city maximize use of any ODA or other State funding available in the planning period.

PAVEMENT MAINTENANCE PROGRAM

The Pavement Management Program (PMP) programs airfield pavement maintenance funds on established multi-year cycles. The PMP is funded by a portion of the fuel tax revenues. Forty-five percent of the original fuel taxes collected ($0.01/gallon on Jet-A and $0.09/gallon on AVGAS) are used to fund the PMP. (It should be noted that the remainder of the revenues collected from the original $0.01/gallon Jet-A and $0.09/gallon AVGAS fuel taxes equaling 55 percent are used to fund the operation of Oregon's 28 state owned airports and ODA administrative costs.) This program is intended to preserve and maintain existing airfield pavements in order to maximize their useful lives and the economic value of the pavement. Several short-term pavement maintenance projects are identified in the most recent PMP as noted earlier. The program funds pavement maintenance and associated improvements (crack filling, repair, sealcoats, etc.), including some items that have not traditionally been eligible for FAA funding.

Funding for the PMP is generated through collection of aviation fuel taxes. ODA manages the PMP through an annual consultant services contract and work is programmed on a three-year regional rotation. The program includes a regular schedule of inspections and subsequent field work. Benefits from the PMP include:

- Economy of scale in bidding contracts;
- Federal/State/Local partnerships that maximize airport improvement funds; and

- PMP is not a grant program and local match is on a sliding scale (50% - 5% required).

The PMP includes the following features:

- Review prior year's Pavement Condition Index (PCI) reports;
- Only consider PCIs below 70;
- Apply budget;
- Limit work to patching, crack sealing, fog sealing, slurry sealing;
- Add allowance for markings; and
- Program to include approximately 20 airports per year, depending on funding levels.

FINANCIAL AID TO MUNICIPALITIES (FAM) GRANTS

ODA's Financial Aid to Municipalities (FAM) grant program has been suspended in recent years due to a lack of funding. House Bill 2075 (discussed later in this chapter) established a new source of funding revenue for aviation programs within the state. This bill resulted in the creation of three new programs that have essentially replaced FAM Grants. In order to facilitate these new programs, the rules used to administer funds under FAM have been amended to incorporate the language of House Bill 2075 and serve as the funding mechanism for these new programs.

CONNECT OREGON GRANTS

The Oregon Legislature authorized funding for air, marine, rail, and transit infrastructure, known as ConnectOregon in 2005. This program is intended to improve commerce, reduce delay, and enhance safety for the state's multi-modal transportation system.

Lottery-based bonds, sold by the Oregon Department of Administrative Services are used to fund the program. The funds are deposited into Oregon's Multimodal Transportation Fund and administered by the Oregon Department of Transportation Local Government Section. ConnectOregon funds cannot be used for projects eligible for Oregon's Highway Fund, thereby providing less competition for aviation projects seeking ConnectOregon funding.

In 2014, after the fifth installment of funding, the Legislature had provided $382 million to the program. Connect Oregon grants fund up to 80-percent of project costs with a 20-percent sponsor match and loans up to 100-percent of project costs.

HOUSE BILL 2075

House Bill 2075 (HR 2075) increased the tax on aircraft fuels, providing new revenues for the State Aviation Account. HR 2075 increased the fuel tax on both Jet-A and AVGAS by $0.02/gallon resulting in a new tax on Jet-A of $0.03 per gallon and AVGAS of $0.11 per gallon. The additional $0.02/gallon in revenues on Jet-A and AVGAS generated by HR 2075will be distributed to fund a variety of aviation needs through ODA's new Aviation System Action Program (ASAP) fund.

ASAP allocates and distributes the additional $0.02/gallon revenues generated by HR 2075 among three new programs: COAR - Critical Oregon Airport Relief Program; ROAR – Rural Oregon Aviation Relief Program; and SOAR – State Owned Airports Reserve Program. The specific programs are outlined below. COAR - Fifty percent of the revenues from the $0.02/gallon fuel tax increase will be distributed as follows:

(A) To assist airports in Oregon with match requirements for Federal Aviation Administration (FAA) Airport Improvement Program grants;
(B) To make grants for emergency preparedness and infrastructure projects, in accordance with the Oregon Resilience Plan, including seismic studies, emergency generators, etc.;
(C) To make grants for:
   1. Services critical or essential to aviation including, but not limited to, fuel, sewer, water and weather equipment.
   2. Aviation-related business development including, but not limited to, hangars, parking for business aircraft and related facilities.
   3. Airport development for local economic benefit including, but not limited to, signs and marketing.

ROAR – Twenty-five percent of the revenues from the $0.02/gallon fuel tax increase will be distributed to assist commercial air service to rural Oregon.

SOAR – Twenty-five percent of the revenues from the $0.02/gallon fuel tax increase will be distributed to state owned airports for:

(A) Safety improvements recommended by the Oregon State Aviation Board and local community airports;
(B) Infrastructure projects at public use airports.

STATE CAPITAL IMPROVEMENT PROGRAM (SCIP)

The FAA's Seattle Airport District Office (ADO) is working with state aviation agencies in Oregon and Washington to develop a coordinated "State" Capital Improvement Program, known as the SCIP. The SCIP is intended to become the primary tool used by FAA, state aviation agencies, and local airport sponsors to prioritize funding. The program has reached full implementation with current and near-term future funding decisions prioritized through evaluation formulas. Airport sponsors are asked to provide annual updates to their short-term project lists in order to maintain a current system of defined project needs. The short-term priorities identified in the master plan CIP will be imported into the SCIP and will be subject to additional prioritization for funding in competitive statewide evaluations.

Local Funding

The locally funded (city/tenant) portion of the CIP for the twenty-year planning period is estimated to be approximately $1,950,100 as currently defined. Hangar and building construction and maintenance costs have not been included in the CIP, since no FAA funding is assumed.

A portion of local matching funds are generated through airport revenues, including fuel sales, land leases, and hangar rentals. Airport sponsors occasionally fund infrastructure and revenue-generating development, including hangars and buildings, either through an inter fund loan or the issuance of long-term debt (revenue or general obligation bonds).

Airport Rates and Fees

The primary aviation use rates and fees at Ashland Municipal Airport are summarized in **Table 8-2**. A review of existing rates and fees indicates that the airport's fee structure is generally comparable with other similarly sized Oregon airports. Rates at individual general aviation airports vary based primarily on market conditions. For example, hangar rental rates in the Portland metro area or in the Bend-Redmond area are typically higher than at airports in other parts of the state. An airport's ability to effectively raise rates must consider local and regional market conditions and the potential for nearby competitive airports to attract tenants through more economical rates. The rates and fees structure should be subject to regular review and adjustment to reflect inflation, market conditions and specific facility improvements.

TABLE 8-2: AIRPORT RATES AND FEES

Ground Lease Rate per square foot:	$0.15
Fuel Flowage Fee (Jet-A) per gallon:	$0.07
Fuel Flowage Fee (100LL) per gallon:	$0.07
Landing Fee (Large GA) per 1,000lbs MGLW:	No Charge
Hangar Lease Rate per square foot:	$0.25

Cash Flow Analysis

A projection of airport operating revenues and expenses for the twenty-year planning period is presented in **Table 8-3,** based on data provided by the City and the noted assumptions on future events. According to data provided by the City for the time period of 2007-2017, the airport regularly operates with a small surplus (based on operating revenues and expenses only), with the exception of the 2010 and 2014 fiscal years which were impacted by airfield construction projects. The general operating position of the airport is expected to remain at this level through the planning period. Basic business decisions will need to be made regarding the financial feasibility of renovating individual city-owned buildings. These decisions should be made based on market conditions, expected return on investment, and any intangible benefits provided to the community that would result from the project.

The airport has two primary revenue categories: airport leases including ground leases, hangar leases, and tiedown leases, and fuel sales. Both of these revenue streams are managed by the FBO in exchange for 25% of the revenue. Financial records provided by the City do not distinguish between the individual revenue and expenditure sources.

For the purposes of projecting future revenues, it is assumed that revenues will increase at an average rate of 3.5 percent annually, through the twenty-year planning period. This rate assumes both an increase in revenue-producing activities on the airport (new leases, fuel sales, etc.) and periodic increases in current rates and fees to account for inflation and market conditions.

For the purposes of projecting future expenses, it is assumed that expenses will increase at an average rate of 3 percent annually, through the twenty-year planning period. Additional maintenance expenses are anticipated as the airfield continues to expand physically. The actual timing of facility expansion will depend on market demand and availability of funding for the new facilities identified in the twenty-year CIP. The costs of maintaining the airfield can be reasonably expected to increase incrementally as the facility expands.

Ongoing capital improvement expenditures will include local match for state and federal grants and the full or partial cost of projects not eligible for FAA or state funding.

Revenue Assumptions:

A. All revenues will increase at 3.5% per year (inflation factor)

Expense Assumptions:

A. All operating expenses assumed to increase at 3% per year (inflation factor).

B. No increase in airport staffing assumed.

TABLE 8-3: OPERATING REVENUES AND EXPENSES

Ashland Municipal Airport Projected Finances			
FY	Revenue	Expenditure	Balance
2007	$118,961.36	$118,496.23	$465.13
2008	$289,060.39	$257,508.32	$31,552.07
2009	$400,375.59	$386,816.22	$13,559.37
2010	$118,362.79	$186,615.83	($68,253.04)
2011	$126,054.06	$98,130.71	$27,923.35
2012	$112,861.72	$89,270.57	$23,591.15
2013	$144,061.68	$111,075.48	$32,986.20
2014	$135,185.06	$171,393.73	($36,208.67)
2015	$139,960.76	$102,933.12	$37,027.64
2016	$126,195.46	$104,806.21	$21,389.25
2017	$147,719.18	$113,398.33	$34,320.85
2018*	$152,889.35	$116,800.28	$36,089.07
2019*	$158,240.48	$120,304.29	$37,936.19
2020*	$163,778.90	$123,913.42	$39,865.48
2021*	$169,511.16	$127,630.82	$41,880.34
2022*	$175,444.05	$131,459.74	$43,984.30
2023*	$181,584.59	$135,403.54	$46,181.05
2024*	$187,940.05	$139,465.64	$48,474.41
2025*	$194,517.95	$143,649.61	$50,868.34
2026*	$201,326.08	$147,959.10	$53,366.98
2027*	$208,372.49	$152,397.87	$55,974.62
2028*	$215,665.53	$156,969.81	$58,695.72
2029*	$223,213.82	$161,678.90	$61,534.92
2030*	$231,026.31	$166,529.27	$64,497.04
2031*	$239,112.23	$171,525.15	$67,587.08
2032*	$247,481.16	$176,670.90	$70,810.25
2033*	$256,143.00	$181,971.03	$74,171.97
2034*	$265,108.00	$187,430.16	$77,677.84
2035*	$274,386.78	$193,053.07	$81,333.71
2036*	$283,990.32	$198,844.66	$85,145.66
2037*	$293,929.98	$204,810.00	$89,119.98
2038*	$304,217.53	$210,954.30	$93,263.23
* Forecasted Estimate			

Chapter 9

Recycling and Solid Waste Management Plan

Chapter 9 – Recycling and Solid Waste Management Plan

Introduction

The Recycling and Solid Waste Management Plan discusses the solid waste generated at Ashland Municipal Airport, their recycling practice, and any opportunities for reducing waste at the airport.

On September 30, 2014, the Federal Aviation Administration (FAA) established guidance on preparing airport recycling and solid waste management plans as an element of an airport master plan update. This guidance was in response to Section 133 of the FAA Modernization and Reform Act (FMRA) of 2012[1] that established the requirement for all airport master plan updates to include a recycling plan that addresses the following:

- Local Recycling Management and Programs;
- Waste Audit;
- Recycling Feasibility;
- Plan to Minimize Solid Waste Generation;
- Operational and Maintenance Requirements;
- Waste Management Contracts;

[1] 49 United States Code, §§ 132 and 133.

- Potential for Cost Savings or Revenue Generation; and
- Future Development and Recommendations.

The types of waste generated at general aviation airports include:

- Construction and Demolition Waste – Solid waste produced during the excavation, clearing, demolition, construction, and or renovation of airport pavements, buildings, roads, or utilities.
- Yard Waste – Yard waste includes grass clippings, weeds, trees, shrubs, and other debris generated
- during landscape maintenance.
- Hazardous Wastes – Hazardous wastes are identified in regulation 40 CFR 261.31-33, which are typically corrosive, ignitable, toxic, or reactive. This type of waste requires specific handling, treatment, and disposal.
- Universal Hazardous Waste – The Environmental Protection Agency (EPA) provide less stringent
- regulations for universal wastes as defined in 40 CFR Part 273, Universal Waste Rule.

To assist airports in developing their recycling program, the FAA has created the *Recycling, Reuse, and Waste Reduction at Airports: A Synthesis Document.* The FAA provides guidance to airports in two key focus areas:

- Programs to encourage recycling, reduction and reuse of materials; and
- Programs to encourage airports to reduce their energy consumption.

Local Recycling Management and Programs

STATE OF OREGON

In 1983, the Recycling Opportunity Act was the first law in the U.S. to require that people statewide be provided with an opportunity to recycle. This statute established solid waste management policies for waste prevention, reuse and recycling. In order to conserve energy and natural resources the statute uses a solid waste management hierarchy:

- Reduce the amount of waste generated;
- Reuse materials for their original intended use;
- Recycle what can't be reused;
- Compost what can be reused or recycled;
- Recover energy from what cannot be reused, recycled, or composted; and
- Dispose of residual materials safely.

The Recycling Opportunity Act also required that:

- Wasteshed counties, except for the City of Milton-Freewater and the greater Portland tri-county area known as the Metro wasteshed, to have recycling depots; and
- Cities with populations over 4,000 to provide monthly curbside recycling collection service to all garbage service customers.

The 1991 Oregon Recycling Act (Senate Bill 66) strengthened the states recycling requirements and created a recovery goal of 50 percent by year 2000. This statute also established a household hazardous waste program; required recycled content in glass containers, directories and newsprint publications; established requirements for recycling rigid plastic containers to promote market development; and required the Department of Environmental Quality to calculate annual recovery rates and develop a solid waste management plan. In 2005, House Bill 3744 established a new wasteshed goal and extended Oregon's statewide recovery goals of 45 percent in 2005 and 50 percent in 2009.

In 2011, DEQ convened a workgroup to help develop a long-term vision and framework for responsible materials management in Oregon. The Oregon Environmental Quality Commission adopted the resulting Materials Management in Oregon: 2050 Vision and Framework for Action (2050 Vision). The 2050 Vision is also Oregon's State Integrated Resource and Solid Waste Management Plan and guides statewide policy for managing materials throughout their entire life cycles, including recovery, reduction, reuse, and recycling.

- In June 2015, the Oregon Legislature passed Senate Bill (SB 263), to enable DEQ, local governments, and Oregonians to make progress under the 2050 Vision. Among other things, SB 263:
- Raised statewide recovery rates;
- Set statewide material-specific recovery rates for food waste, plastic waste, and carpet waste;
- Made wastesheds' self-determined recovery goals voluntary to give local governments more flexibility;
- Increased to thirteen the number of recycling program elements available to local governments;
- Amended the expanded education and promotion program element to include a contamination reduction education aspect;
- Increased minimum numbers of recycling program elements required for certain cities based on their population sizes and distances from Portland;

- Added seven waste prevention education and reuse program elements, requiring minimums ranging from three to five elements depending on cities' populations or location within Metro;
- Allows a local government using a DEQ-approved alternative program the flexibility of meeting either the lesser of its recovery goal or recovery levels comparable to similar communities;
- Expands statewide the opportunity to recycle to residential and commercial tenants of multi-tenant properties with collection service; and
- Permits DEQ to develop outcome-based recovery goals to measure recovery using methods besides materials' weight, such as energy savings.

Under the current legislation, the State's mandatory rate of material recovery from the general solid waste stream is 52% for 2020 and rises to 55% for 2025 and subsequent years. The law also sets mandatory material-specific recovery rates for: food waste (25% by 2020); plastic waste (25% by 2020); and carpet waste (25% by 2025).

CITY OF ASHLAND

The City of Ashland utilizes the Jackson County Solid Waste Management Plan. The city partners with the Jackson County Recycling and Recology Ashland to provide waste reduction, recycling, and composting services to the community. The City's Conservation Division administers the Earth Advantage residential new construction program within Ashland. This program certifies new homes who have met strict standards in five categories including: energy, health, water, materials, and land, which includes waste reduction and recycling through the construction process.

The City of Ashland has established a demolition ordinance that includes recycling and reuse planning and implementation for any demolition project. The city verifies that the demolition complies with the debris diversion and recycling plan that was submitted with the permit application.

JACKSON COUNTY

Jackson County Ordinance Chapter 1864 governs the Solid Waste Franchising and Nuisance Abatement within the county. Additionally, County Administration assists the Jackson County Board of Commissioners in planning, administering, and implementing the Jackson County Wasteshed Recover Plan.

The Jackson County Recycling Partnership, LLC is a consortium of local governments and waste haulers that were formed to address the county-wide solid waste issues. Their mission is to "promote education about the benefits of recycling, waste prevention, hazardous waste reduction, and composting throughout Jackson County."

Waste Audit

Ashland Municipal Airport creates a limited amount of waste is generated on site due to the size of the airport. Specific sources of on-site waste include:

- Fixed base operator (FBO) building generates paper waste, plastic bottles, aluminum cans and other typical office trash. As part of the FBO operations, they can produce used oil and aircraft parts such as tires, filters, etc.
- Private hangars and buildings can create a variety of waste, depending on the function of the building. Hangars typically produce anything from typical household trash to used oil and aircraft parts.

Waste Disposal

No state or federal requirements apply to the waste that is generated on the airport. Each individual tenant is responsible for disposal of their own waste and any hazardous materials. Recology Ashland provides trash removal for the airport and tenants. There are both waste and recycling dumpsters located on airport property for use.

CONSTRUCTION WASTE

Construction waste at Ashland may include waste generated from excavation, construction, demolition, renovation, or maintenance of airport facilities and structures. It is the responsibility of the contractor for each specific project on airport.

Recycling Feasibility

Table 9-1 includes the recyclable materials list for Valley View Transfer Station.

TABLE: 9-1: RECYCLABLE ITEMS

Valley View Transfer Station	
Cardboard	Air Conditioners
Newspaper	Tires & Rims
Aluminum Cans	Oil
Glass	Furniture
Vehicle Batteries	Home Appliances
Plastic	Toilets
Yard Waste	Light Bulbs
Concrete & Rock	Propane Tanks

Plan to Minimize Solid Waste Generation

METHODS TO REDUCE SOLID WASTE

There are limited opportunities to reduce solid waste generation at the airport, since little waste is produced. However, the airport should still establish a goal to reduce the amount of solid waste generated. While the airport is not responsible for waste generated by airport tenants, informational brochures on recycling opportunities could be distributed to all the airport tenants to encourage them to recycle their waste.

Operational and Maintenance Requirements

Operational and maintenance requirements at the airport are minimal. The City of Ashland is responsible for mowing the airfield. When the airfield is mowed, the clippings are left in place, which is a standard practice for airports. Additional maintenance would include items such as weed management in pavement cracks and changing of airfield light bulbs. The airport does not use chemical deicing for airfield pavements during winter months.

Waste Management Contracts

Hangar leases provided by the City were reviewed for information regarding waste and recycling. No hauling or landfill contracts are available.

The hangar leases dictate that "Lessee shall provide proper containers for trash and garbage and shall keep the premises free and clear of weeds, rubbish, debris, and litter at all times." Although tenants are responsible for their own waste from the hangar, no mention for the opportunity for recycling is included in the lease.

To promote additional recycling opportunities, language could be added to the hangar lease that encourages the tenant to use the Transfer Station and to be conscientious of any waste generated in their hangar.

Potential for Cost Savings or Revenue Generation

The potential for cost savings is limited since individual tenants are responsible for costs associated with solid waste disposal and recycling.

Revenue generation is also limited due to the small amount of waste generated. Any potential for additional revenue would accrue to the individual tenants since they contract with the waste disposal and recycling provider.

Future Development and Recommendations

FUTURE DEVELOPMENT

Future development projects at the airport include tenant improvements, landside and airside facility development, and rehabilitation projects. The demolition and waste associated with each of these projects would be the responsibility of the contractor performing the work. It is assumed that the demolition waste would be taken to the transfer station or landfill.

RECOMMENDATIONS

Immediate

An immediate recommendation would be for the City to create an Airport Solid Waste and Recycling Plan, utilizing guidance from FAA in the *Airport Recycling, Reuse, and Waste Reduction at Airports: A Synthesis Document*.

It is recommended to continue the existing practice of leaving airfield clippings. This practice saves money on disposal fees while preserving the aesthetics of the infield area and providing needed nutrients to the turf.

Short-Term

A short-term recommendation would be to add a statement into hangar leases advising tenants of the recycling options available through Recology Ashland and to encourage tenants to recycle and minimize waste. Additionally, informational brochures on recycling opportunities could be distributed to all of the hangar tenants to encourage them to recycle their waste.

Ongoing

An ongoing recommendation would be to reevaluate the airport's solid waste plan, especially after development has occurred. Any increase in hangars and additional businesses at the airport may increase the amount of waste generated.

Modifications to Specifications

Language in construction contract documents could be added that encourages contractors to recycle waste at the Recology Ashland and to minimize waste caused by construction activities as much as practical.

Appendix A

ESA

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memorandum

date	October 20, 2017
to	Samantha Peterson, Century West Engineering
cc	Project File D160938.00
from	Susan Cunningham and Luke Johnson
subject	Ashland Municipal Airport – Master Plan Update Draft Environmental Screening

The City of Ashland is in the process of updating the Ashland Airport Master Plan. The Master Plan will provide the City with a plan to address the development needs at the airport for a 20-year planning horizon and develop a realistic program for implementation within known funding constraints. Century West Engineering has been retained by the City to develop the Master Plan. ESA is be a subconsultant to Century West for the following elements that will be included in the Master Plan:

- Air Quality
- Biotic Resources
- Federally-listed Endangered and Threatened Species
- Floodplains
- Land use
- Section 4(f)
- Stormwater and Water Quality
- Wetlands and Waters of the US

ESA gathered and utilizing existing maps of the airport environs and environmental documents to document existing conditions. An on-site field verification of site conditions was not conducted. This summary is intended to reference any known or potential environmental conditions or issues that could be affected by proposed airport development that have been identified in recent environmental efforts conducted on or in the vicinity of the Airport.

AIR QUALITY

at the Airport will need to comply with the updated PM_{10} attainment and maintenance plans. Under the 1990 Clean Air Act Amendments, the Rogue Valley (Jackson County, Ashland, Phoenix, Talent, Medford, Jacksonville, Central Point, White City, and Eagle Point) became a nonattainment area for particulate matter (PM_{10}). These communities shared a common airshed, known as the Medford-Ashland Air Quality Maintenance Area (AQMA). During the 1980s, particulate pollution in the AQMA reached some of the highest levels in the nation and violated the federal air quality health standards also known as National Ambient Air Quality Standard. This violation meant two things:

1. DEQ needed to write a plan to bring the Medford-Ashland AQMA back into compliance with the standard; and
2. Added restrictions would be placed on Rogue Valley communities to limit new and expanding industries and significant transportation projects would need to be reviewed to determine their compliance with the plan.

The plan and rules addressing industry and residential woodstove curtailment were prepared by DEQ in 1991. The Environmental Quality Commission (EQC) adopted the plan and rules shortly thereafter. All emission reduction measures adopted by the EQC were successfully implemented and air quality monitoring in the AQMA demonstrated that the PM_{10} standards were met in 1992. The Medford-Ashland AQMA currently meets the PM_{10} standards and EPA's tougher new standards for fine particulate ($PM_{2.5}$).

On December 10, 2004, the EQC approved an updated PM_{10} attainment and maintenance plans. This plan continues all of the PM_{10} strategies from the 1991 attainment plan and continues the strictest requirements for managing emissions growth from future new and expanding major industry under the New Source Review program. EPA approved the plans in 2005. Future development

BIOTIC RESOURCES

Habitat at the Ashland Airport consists mostly of mowed herbaceous species that is regularly mowed. Emigrant Creek flows west on the northeastern property boundary and Neil Creek flows north along the western property boundary. Both creeks support steelhead (StreamNet 2017) and are confined within steep side slopes and have a narrow riparian fringe of Himalayan blackberry, white alder, black cottonwood, Oregon ash, Pacific willow, and black hawthrone (SWCA 205).

Migratory birds include species that nest in the United States and Canada during the summer and migrate south to warmer regions of the United States, Mexico, Central and South America, and the Caribbean for the winter. The Migratory Bird Treaty Act (MBTA) protects migratory birds and most resident birds within the United States. With a few exceptions, all bird species that are native to the United States are protected by the MBTA. Under the MBTA, it is illegal to pursue; hunt; take; capture; kill; attempt to take, capture, or kill; possess; offer for sale; and export, import, or transport birds, their parts (e.g., feathers), and active nests (and the eggs or young within). Unlike the federal Endangered Species Act, the MBTA does not include harassment or destruction of habitat in its list of prohibitions or within its definition of take. Also, unlike the Bald and Golden Eagle Protection Act, the MBTA does not include disturbance within its definition of take. Using this definition, the MBTA prohibition that is germane to the Airport and any construction, operation, or maintenance activities is the killing of an individual or egg (through destruction of an active nest).

The U.S. Fish and Wildlife's (USFWS) Information for Planning and Conservation (IPaC) tool was used to identify MBTA protected species that may be present in the project area. The IPaC Tool identified four birds covered under the MBTA that may breed in the vicinity of the Airport. The birds identified, breeding timing, and the potential for suitable breeding habitat on the Airport are listed in a table below. To avoid impacts to migratory birds, development activities need to avoid destruction of an active nest, therefore it is recommended that clearing and grading activities start before the breeding window of March 15 or after September 1. Birds are likely to avoid building nests in active construction sites. Additionally, once the breeding habitat is removed, there will be no take on migratory birds for the operation and maintenance of the facility.

Table 1. MBTA species that may breed in the vicinity of the Airport

MBTA Species	Potential Breeding Habitat On Airport	Breeding Season In Ashland, OR Area
Allen's hummingbird (*Selasphorus sasin*)	The riparian fringe of both Emigrant and Neil Creeks provide potential breeding habitat for these species.	Feb 1 to Jul 15
Great blue heron (*Ardea herodias*)		Mar 15 to Aug 15
Olive-sided flycatcher (*Contopus cooperi*)		May 20 to Aug 31
Rufous hummingbird (*Selasphorus rufus*)		Apr 15 to Jul 15

FEDERAL-LISTED ENDANGERED AND THREATENED SPECIES

The UFWS and the National Marine Fisheries Service websites were queried to determine what species and critical habitat protected under the Endangered Species Act could occur in the vicinity of the Airport. The agencies indicated the following species could occur in the vicinity of the airport:

- Gray wolf – Endangered (project is outside designated critical habitat)
- Northern spotted owl – Threatened (project is outside designated critical habitat)
- Gentner's fritillary (*Fritillaria gentneri)* – Endangered

The potential presence of listed species within the project area was further evaluated by reviewing data from the Oregon Biodiversity Information Center (ORBIC, 2017).

Gray wolf – it is highly unlikely that gray wolf would occur at the Airport given that the Airport is within Ashland's urban growth boundary. Generally, gray wolfs are not found in areas with high human density/activity and a lack of ungulate prey. Additionally, and there are no documented sightings of gray wolves within a mile radius of the Airport.

Northern spotted owl – it is highly unlikely that northern spotted owls would occur at the Airport give that the Airport is within Ashland's urban growth boundary and there is not suitable habitat. Northern spotted owls are found in old growth forests. There is not suitable habitat on or near the Airport to support northern spotted owls. Additionally, and there are no documented sightings of northern spotted owls within a mile radius of the Airport.

Gentner's fritillary – it is highly unlikely that Gentner's fritillary occurs at the Airport. Gentner's fritillary typically grows in or on the edge of open woodlands at elevations from 306 to 1,544 meters (1,004 to 5,064 feet) with Oregon white oak and Pacific madrone as the most common overstory plants. Gentner's fritillary can also grow in open chaparral/grassland habitat, which is often found within or adjacent to the mixed hardwood forest type, but always where some wind or sun protection is provided by other shrubs. It does not grow on very dry sites. Flowering typically occurs from April to June. Gentner's fritillary is known only from scattered localities in southwest Oregon, along the Rogue and Illinois River drainages in Josephine and Jackson counties. It is highly localized in a 48 kilometers (30 miles) radius around Jacksonville, Oregon, on land managed by the Bureau of Land Management, Forest Service, Oregon Department of Transportation, Southern Oregon University, City of Jacksonville, and private landowners.

FLOODPLAINS

The Airport is located within the floodplains of both Neil Creek and Emigrant Creek. Development Standards for floodplains are regulated under Chapter 18.3.10.080 of the Ashland Municipal Code. Flood zones are geographic areas that the Federal Emergency Management Agency (FEMA) has defined according to varying levels of flood risk. These zones are depicted on the City's Flood Insurance Rate Map (FIRM), which was last updated in 2017. Approximately seven percent of the Airport property is within the flood zone AE, the regulatory floodway, of Emigrant Creek, which is an area determined by base flood elevations to have a one percent annual chance of flooding. This Emigrant Creek floodplain includes the north and northeastern Airport property. A small portion of the Airport's western boundary is with thin the FEMA floodplain of Neil Creek, which was reduced as result of the FIRM update in 2017. This area is designated as flood zone A, which is an area that is determined to have a percent annual chance of flooding, however, no base flood elevations have been completed to support this finding.

These floodplain maps will be used by the City and Jackson County officials for floodplain management and permitting purposes related to any future development at the Airport.

LAND USE

The Airport is zone Employment (E-1) and has an Airport Overlay. The Airport Overlay is intended to be applied to properties that lie within close proximity to the Ashland Airport where aircraft are likely to be flying at relatively low elevations. Further, the zone is intended to prevent the establishment of airspace obstructions in such areas through height restrictions and other land use controls. Application of the overlay zone does not alter the requirements of the parent zone except as specifically provided herein.

Emigrant Creek and Neil Creek flow through and adjacent to Ashland Airport property. Both creeks are classified by the City of Ashland as "Locally Significant Streams", and their riparian corridors are protected as Goal 5 resources under Ashland's Municipal Code Chapter 18.3.11 – Water Resources Protection Zones. City code establishes Stream Bank Protection Zones that include these streams plus a riparian buffer extending 50 feet from the streams' top-of-bank. The location of the existing airport perimeter fence is not consistent with the City water resources protection requirements (fence is within 50-foot riparian setback), and fences can interfere with the stream and riparian functions and processes those code requirements are intended to protect (e.g., hydrologic functions, wildlife habitat/movement, etc.). Chapter 18.1.11.050.B.3 does allow for certain types of fences to be installed in the upland half of the riparian buffer furthest away from the stream, as long as they conform to the requirements of subsection 18.3.11.080.K.

SECTION 4(F)

There are no properties protected under Section 4(f) (as defined by FAA Order 1050.1F) in or near the Airport. This includes publicly owned parks, recreation areas, and wildlife or waterfowl refuges of national, state or local significance or land from a historic site of national, state or local significance.

STORMWATER AND WATER QUALITY

The Airport is permitted by the DEQ for a 1200-Z Industrial Stormwater General Permit (application # 954985) under the National Pollutant Discharge Elimination System (NPDES), Section 402 of the Clean Water Act. Any noncompliance with the requirements of this permit constitutes a violation of the Clean Water Act. As a requirement of this permit, a Stormwater Pollution Control Plan (SWPCP) must be kept current and revised as necessary to reflect applicable changes to the site. The Airport is responsible for monitoring the applicable statewide benchmark pollutants identified in the permit (Table 2) four times per year or, if applicable, the Airport must monitor for the Impairment Pollutants identified in the permit assignment letter.

The 1200-Z permit requires that the Airport not contribute to a violation of instream water quality for the two stream adjacent to the Airport property, Neil Creek to the south and west and Emigrant Creek to the north and east. These two creeks are tributaries to Bear Creek, which has a TMDL that was approved by the EPA in 2007. DEQ presumes that compliance with the terms and conditions of the 1200-Z permit complies with the TMDL; however, it is possible that the Bear Creek TMDL establishes wasteload allocation for industrial stormwater discharges. These wasteload allocations and additional requirements for industrial stormwater discharges would have been identified in the permit assignment letter. Finally, for airports with more than 1,000 annual non-propeller aircraft departures that discharge stormwater from airfield pavement deicing activities, there shall be no discharge of airfield pavement deicers containing urea. To comply with this limitation, the Airport must do one of the following: (1) certify annually on the annual report that the Airport does not use pavement deicers containing urea; or (2) meet the effluent limitation specified in the 1200-Z permit.

Table 2. Permit 1200-Z regional water quality benchmarks[1]

Parameter	Units	Regional WQ Benchmark
Total Copper	mg/L	0.020
Total Lead	mg/L	0.015
Total Zinc	mg/L	0.090
pH	SU	5.5 – 9.0
TSS	mg/L	100
Total Oil & Grease	mg/L	10
E. coli	counts/100 ml	406*
BOD5	mg/L	N/A
Total Phosphorus	mg/L	N/A

[1] does not include Impairment Pollutant wasteloads potentially listed in the Bear Creek TMDL

In the event of future development, the Ashland Airport would need to apply for a 1200-C Construction Stormwater General Permit under the NPDES. Under Ashland's Municipal Code Chapter 18.4.6.080, the Airport would need to apply for development permit from the City and the subsequent surface water management plan must be approved by the City Engineer.

WETLANDS AND WATERS OF THE U.S./OREGON

Wetlands are under the jurisdiction of both Oregon Department of State Lands (DSL) and the US Army Corps of Engineers (Corps) and are protected under the State of Oregon Removal Fill Law and Section 404 of the Clean Water Act. Both agencies use the Corps of Engineers Wetland Delineation Manual (Experimental Laboratory 1987) and the Arid West Wetland Delineation Supplement Manual (Corps of Engineers 2008) for determining what a wetland is and the extent of a wetland. An area is determined to be a wetland if it has a dominance of hydrophytic vegetation (plants that grow in wet conditions), hydric soils, and positive wetland hydrology.

The Natural Resource Conservation Service maps the majority of the Airport as having Adkins fine sandy loam. This soil services is not listed as a hydric soil.

A Local Wetlands Inventory was conducted for the City of Ashland and was adopted by DSL in 2005. The LWI indicates that one potential wetland could occur on the northeast corner of Airport property, on the east side of Emigrant Creek. The LWI also identified Emigrant Creek and Neil Creek as occurring on Airport property. No other wetlands or bodies were indicated to occur on Airport property.

Glossary of Terms

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 in-transit 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.

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.

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.

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 an 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.

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).

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.

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

RVZ – Runway Visibility Zone

TDG – Taxiway Deign 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

LIST OF ABBREVIATIONS

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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