ALBANY MUNICIPAL AIRPORT | AIRPORT MASTER PLAN

CENTURY WEST
ENGINEERING CORPORATION

C I T Y   O F   A L B A N Y

ALBANY MUNICIPAL AIRPORT | AIRPORT MASTER PLAN REPORT

FINAL REPORT, JANUARY 2016

PREPARED FOR

PREPARED BY

CENTURY WEST ENGINEERING

1020 SW Emkay Drive #100 | Bend, OR 97239 | 541.322.8962

Table of Contents

List of Tables

List of Figures

List of Appendices

Chapter 1 – Introduc on & Project Overview

Chapter 1 – Introduction and Project Overview

Introduction

The City of Albany is preparing an updated Airport Master Plan for Albany Municipal Airport (S12) in cooperation with the Federal Aviation Administration (FAA) 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 Airport Master Plan is to define the current, short-term and long-term needs of the Airport through a comprehensive evaluation of facilities, conditions and FAA airport planning and design standards. The study also addresses elements of local planning (land use, transportation, environmental, economic development, etc.) that have the potential of affecting the planning, development and operation of the airport. FAA Advisory Circular 150/5070-6B Airport Master Plans defines the specific requirements and evaluation methods established by FAA for the study.

Project Need

The FAA requires airports to periodically update their master plans as conditions change in order to maintain current planning. This project updates the 2002 Airport Master Plan (Century West Engineering), which has provided the primary airport planning guidance for the Airport over the last ten years. As many of the previous airport master plan recommendations have been implemented in response to this demand, the need now exists to update the long-term planning for the Airport. In addition to addressing changing local conditions, recently updated FAA standards and current trends within the aviation industry also need to be reflected in updated airport planning. The 2012-2032 Airport Master Plan and Airport Layout Plan (ALP) replaces the previous master plan and meets the FAA's requirement to maintain current planning.

Project Funding

Funding for the Airport Master Plan Update is provided through an FAA Airport Improvement Program (AIP) grant (90%) with a local match (10%) provided by the City of Albany. The AIP is a dedicated fund administered by FAA with the specific purpose of maintaining and improving the nation's public use airports. The AIP is funded exclusively through fees paid by users of general aviation and commercial aviation and the funds can only be used for eligible aviation related projects.

Airport History

The previous master plan briefly summarized the history of Albany Municipal Airport: "The airport site has been in continuous aviation use since around 1920. The City of Albany purchased the original airport property from Lena Sternberg for $14,000 in 1929. [1] Since that time the airport has developed and additional smaller parcels have been acquired. The airport experienced an initial surge of activity in the late 1920s and early 1930s as aviation became increasingly important. The airport's role of providing basic facilities for business and general aviation users has been largely unchanged through most of its 80+ years."

In 1998, the Oregon State Historic Preservation Office (SHPO) certified a 58.77-acre parcel within Albany Municipal Airport for placement on the National Register of Historic Places.[2] As noted above, the airport's origins dating back to 1929 are considered unique and historically significant. Four items were identified as historic, contributing buildings and structures (from the period 1929 –1947) in the 1998 application:

- *Large Hangar #1*
- *Steel Tower for Rotating Beacon*
- *Workshop Hangar #2*
- *Section of tangential runway extending northeast from the south end of the main runway"*

A copy of the City of Albany's Historic Overlay District (Article 7, Albany Development Code) is provided in **Appendix A**.

[1] Local historical records

[2] National Register of Historic Place Registration Form

History of Airport Planning

Formal airport planning for Albany Municipal Airport began in 1978 with the first FAA-funded airport master plan. A regional airport study was conducted in the mid-1980s for Linn County that evaluated the feasibility of closing the airports in Albany and Lebanon and constructing a new airport to serve the area. In the absence of local support for acquiring a new airport site or establishing a new airport sponsorship in the unincorporated areas of Linn County, operation and improvement of the existing airports has continued. A master plan update was completed in 2002 (Century West), following the City's long-term commitment to maintain the Airport. The updated airport planning coincided with a very active period of hangar construction that included five T-hangars and several conventional hangars on the Airport. The City also completed several airfield improvement projects including runway rehabilitation, taxiway/taxilane improvements, new security fencing, access road improvements, new aircraft tiedowns, airfield lighting, and drainage improvements.

The previous airport planning studies, the 2002 ALP drawings, airfield design drawings, historic and new (2012) aerial photography, City GIS mapping, and local planning studies were used as primary information sources for preparing the updated Airport Master Plan and ALP.

Study Organization

Work in progress on the Airport Master Plan Update was documented in a series of technical memoranda (originally presented as draft chapters). The chapters were prepared to document progress in the study, facilitate the review of preliminary results, and to obtain input early and throughout the master planning process. Information compiled in the chapters was updated as necessary as conditions changed or new information became availiable.

The draft chapters and supporting documents were prepared over a period of approximately 12 months. Each draft chapter was reviewed locally and also by the FAA and Oregon Department of Aviation (ODA) for consistency with federal and state regulations, policies and standards.

The Albany Municipal Airport Master Plan includes the following chapters:

- *Chapter 1 – Introduction and Project Overview*
- *Chapter 2 – Inventory of Facilities*
- *Chapter 3 – Aviation Activity Forecasts*
- *Chapter 4 –Facility Requirements Analyses*
- *Chapter 5 – Airport Development Alternatives*
- *Chapter 6 – Environmental Review*
- *Chapter 7 –Financial and Development Program*

- *Chapter 8 – Airport Layout Plan*
- *Chapter 9 – Airport Land Use Compatability*
- *Chapter 10 – FAA Compliance Review*

Local Citizen Participation

The City of Albany is committed to an inclusive, transparent planning process and has made all project work products available for public review. The public involvement element of the Airport Master Plan Update provided several ways for all interested individuals, organizations, or groups to participate in the project. The following section has been updated to reflect events during the study.

First, all draft work products developed during the project 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. Copies of the draft work products were available for public review and comment at the Airport Manager's office and at City Hall throughout the project. Comment forms were available for both electronic and printed versions of the draft work products.

Second, a series of public meetings were held during the project to facilitate public participation. The project team presented information, provided updates on study progress and identified upcoming decision points in a workshop format to facilitate discussion. The project team utilized a variety of tools to encourage citizen participation, including surveys, project newsletters, and project updates posted on the City's webpage.

Third, a local planning advisory committee (PAC) was formed 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 airport users, neighbors, local business, local government representation, and other interests. Representatives from the FAA Seattle Airports District Office and the Oregon Department of Aviation (ODA) served as *ex officio* members of the PAC. The PAC met periodically throughout the project, reviewed and commented on draft work products, discussed key project issues and provided local knowledge and expertise to the planning process.

The PAC meetings were open to public and time was provided to ensure that all interested stakeholders were provided an opportunity to participate in the project.

Summary

The FAA-defined airport master planning process requires a sequential, systematic approach which leads to selection of a preferred development option for the airport that is integrated into the Airport Layout Plan (ALP) and Airport Capital Improvement Program (ACIP). To meet this goal, the Airport Master Plan Update will:

- *Provide an updated assessment of existing facilities and activity;*
- *Forecast airport activity measures (design aircraft, based aircraft, aircraft operations, etc.) for the current 20-year planning period;*
- *Examine previous planning recommendations (2002 Airport Master Plan) as appropriate, to meet the current and projected airport facility needs, consistent with FAA airport design standards;*
- *Determine current and future facility requirements for both demand-driven development and conformance with FAA design standards;*
- *Provide consistency between airport planning and land use planning to promote maximum compatibility between the airport and surrounding areas;*
- *Prepare 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.*
- *Evaluate airport sponsor compliance with FAA Airport Improvement Program (AIP) grant assurances.*

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.

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 Albany Municipal Airport (Airport Identifier Code: S12). The airport is owned and operated by the City of Albany, Oregon.

This project replaces the 2002 Airport Master Plan Update, which serves as a primary source for inventory data.[1] Where available, more current or comprehensive data have been included in the chapter to illustrate current conditions. Existing airfield facilities were examined during on-site inspections to update facility inventory data. The consultants also worked closely with airport staff to review the current facility and operational data maintained by the City. Data from a variety of sources are used in this evaluation; a summary of data sources used is provided at the end of the chapter. Aerial photography was flown in September 2012 specifically for this project.

Airport Locale

Albany is located in Linn County in the heart of Oregon's Willamette Valley, approximately 65 miles south of Portland. Albany is the largest city in Linn County and is the county seat. Albany provides a variety of professional, educational, business, and recreational services for the community and numerous smaller outlying communities in the region. The July 2012 population estimate for Albany was 50,710 (Portland State University); Linn County's 2012 population estimate was 118,035.

U.S. Interstate 5 (I-5) travels through Albany and borders the west edge of the airport. Salem is approximately 22 miles north and Eugene is 40 miles south on I-5. State Highway 20 extends west and

[1] Albany Municipal Airport Master Plan Update (Century West Engineering)

east through Albany, just south of the airport. Highway 20 extends across Oregon, and connects Albany to several nearby communities including Lebanon, Sweet Home, and Corvallis. U.S. Highway 99E runs south from Albany to Harrisburg and Junction City.

Albany Municipal Airport is located approximately two miles from the city center, immediately east of U.S. Interstate 5 (I-5) and entirely within the Albany city limits. A combination of transportation corridors, public facilities, commercial, and residential development surrounds the airport and creates a generally urbanized setting. The Linn County Fair & Expo Center and the Timber-Linn Memorial Park are located along the eastern edge of the Airport.

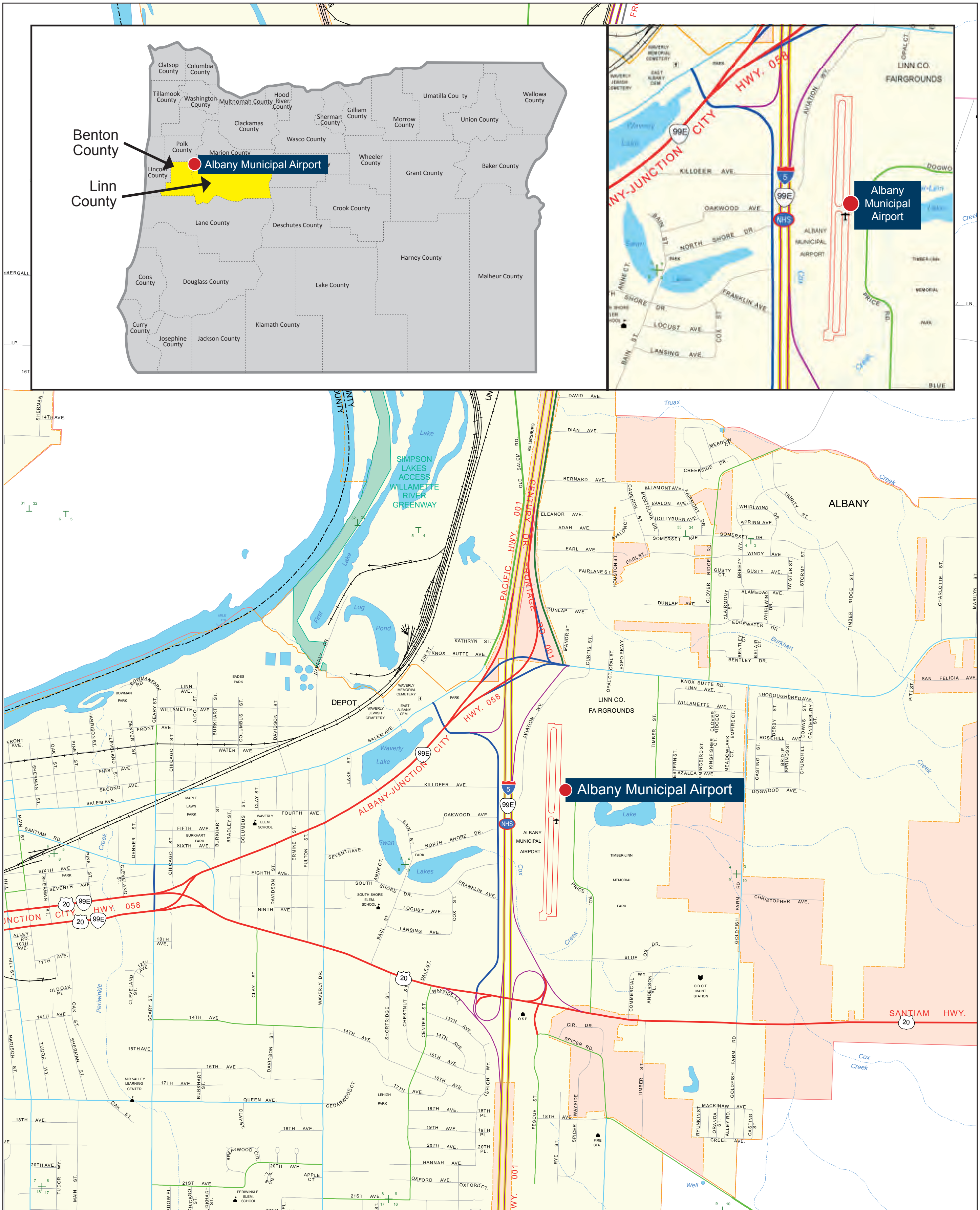
Albany Municipal Airport is one of two public use airports in Linn County; the other is Lebanon State Airport, located 8.5 miles southeast. The nearest airports with scheduled commercial air service are located in Eugene and Portland.

A location and vicinity map for Albany Municipal Airport is provided in **Figure 2-1**.

Climate

Moderate temperatures and precipitation characterize the central Willamette Valley region. Based on recorded climatic data for the period 1928 and 1963, Albany's average maximum temperature is 81.6 degrees Fahrenheit (July) and the average minimum temperature is 32.5 degrees (January). Albany averages 39.63 inches of precipitation and 7.4 inches of snowfall annually.[2] Approximately 46 percent of annual precipitation occurs during the three-month period of November, December and January. Precipitation during the summer months (June, July and August) averages just 2.2 inches. Prevailing winds in the Willamette Valley generally follow a north-south pattern, which is generally aligned with Runway 16/34.

[2] Western Regional Climate Center (Albany, Oregon Station No. 350078)


Benton County
Linn County
Albany Municipal Airport
Clatsop County
Columbia County
Tillamook County
Washington County
Multnomah County
Hood River County
Umatilla County
Wallowa County
Clackamas County
Sherman County
Gilliam County
Morrow County
Union County
Polk County
Wasco County
Marion County
Lincoln County
Wheeler County
Grant County
Baker County
Crook County
Lane County
Deschutes County
Harney County
Malheur County
Coos County
Douglas County
Lake County
Curry County
Josephine County
Jackson County
Klamath County
LINN CO. FAIRGROUNDS
HWY. 058
ALBANY-JUNCTION CITY
Albany Municipal Airport
ALBANY
DEPOT
SIMPSON LAKES ACCESS WILLAMETTE RIVER GREENWAY
PACIFIC HWY. 001
CENTURY DR.
FRONTAGE RD.
KNOX BUTTE RD.
SANTIAM HWY.
ALBANY MUNICIPAL AIRPORT

Historical Aviation Activity

Albany Municipal Airport accommodates a wide variety of aeronautical activity, including small single- and multi-engine aircraft, business class turbine aircraft (business jets and turboprops), and helicopters.

The **2002 Airport Master Plan** estimated that Albany Municipal Airport had 65 based aircraft and approximately 17,704 aircraft takeoffs and landings (operations) in 2000 (a ratio of 272 operations per based aircraft). The 2007 Oregon Aviation Plan (OAP) forecast update listed 72 based aircraft and 23,899 annual aircraft operations at Albany Municipal Airport in 2005 (332 operations per based aircraft). A forecast note indicates that FAA Terminal Area Forecast (TAF) data was used for all historic data and as a baseline for the updated forecasts in the OAP.

An updated count of 80 based aircraft at Albany Municipal Airport was conducted by airport management in Fall 2012. Based on a ratio of 250 to 350 operations per based aircraft (typical of a small to medium activity general aviation airport), the current level of annual operations at Albany Municipal Airport is estimated between 20,000 and 28,000. Based on a review of the two most recent aviation forecasts, current activity appears to have trended upward since the last master plan. A detailed analysis of aviation activity data will be presented in the updated Aviation Activity Forecasts (Chapter three). Current airport activity is summarized in **Table 2-1**.

TABLE 2-1: ALBANY MUNICIPAL AIRPORT (S12) BASED AIRCRAFT AND OPERATIONS

ACTIVITY TYPE	ACTIVITY LEVEL
Based Aircraft (*Fall 2012 Airport Management Count)*	
Single-Engine Piston	73
Multi-Engine Piston	4
Turboprop	0
Turbojet	3
Rotorcraft	0
Total Based Aircraft	80
Annual Aircraft Operations ➢ Oregon Aviation Plan (OAP) Operations Estimate (2007) ➢ 2012 Estimate (based on FAA-defined ratio of 250 to 350 operations per based aircraft)	 23,899 20,000 to 28,000

Airfield

SITE CONFIGURATION

Albany Municipal Airport consists of approximately 147 acres (per current FAA airport record form) located immediately adjacent to U.S. Interstate 5 (I-5). The airfield consists of a single runway, oriented in a north-south alignment. The north and south ends of the airport are bounded by major surface roadways and interchanges for I-5. All existing structures and most landside facilities on the airport are located on the west side of the runway; additional aircraft parking aprons are located east and south of the runway. Vehicle access to the west side of the airport is provided via Aviation Way, which connects with Knox Butte Road SE near the northeast corner of the airport.

Cox Creek is a primary local drainage and enters the airport from the east. The creek travels through the southern portion of the airport before turning north and running along the airport-I-5 right of way before crossing I-5 to the west.

AIRFIELD FACILITIES

Albany Municipal Airport has one runway (16/34) that is oriented in a north/south direction (160-340 degree magnetic heading). The runway is lighted and equipped to support day and night operations in both visual and instrument weather conditions. The runway is served by a taxiway system that provides access to all developed areas of the airfield. All airfield pavements are asphalt.

The published airfield elevation is 226 feet above mean sea level (MSL).[3] The airport traffic pattern altitude is 1,000 feet above ground level (1,226 feet above mean sea level (MSL)). The airport utilizes standard left traffic patterns for both runway ends.

Albany Municipal Airport is a non-towered airfield and pilots use the airport Unicom/common traffic advisory frequency (CTAF) for communications on the ground and in the vicinity of the airport.

Figure 2-2 depicts existing airfield facilities. **Table 2-2** summarizes airport data.

[3] Surveyed by the National Geodetic Survey. Datums: Municipal Geodetic Vertical Datum of 1988 (NGVD 88); North American Datum of 1983 (NAD 83)

ALBANY MUNICIPAL AIRPORT | AIRPORT MASTER PLAN

EXISTING CONDITIONS | **FIG. 2-2**

CENTURY WEST ENGINEERING CORPORATION

TABLE 2-2: AIRPORT DATA

AIRPORT NAME/DESIGNATION	ALBANY MUNICIPAL AIRPORT (S12)
Airport Owner	City of Albany, Oregon
Date Established	1920 (per local historic records); 1940 activation listed in FAA records
Federal Airport Category	National Plan of Integrated Airport Systems (NPIAS): General Aviation FAA Airport Reference Code: B-I (as depicted on 2002 ALP)
State Airport Category	Category IV – Local General Aviation Airport (Oregon Aviation Plan)
Airport Acreage	Approximately 147 Acres as indicated on current FAA Airport Master Record Form 5010-1.
Airport Reference Point (ARP) Coordinates	N 44° 38.27' W 123° 03.57'
Airport Elevation	226 feet Mean Sea Level (MSL)
Airport Traffic Pattern Configuration/Altitude	Left Traffic (Rwy 16/34); 1,226 feet above mean sea level (MSL) / 1,000 feet above ground level (AGL)
Airport Radio Communication	Common Traffic Advisory Frequency (CTAF) 122.8 MHz

Runway

RUNWAY 16/34

Runway 16/34 is 3,004 feet long and 75 feet wide, with 10-foot wide compacted gravel shoulders. The runway also has 80-foot wide by 60-foot long blast pads at both ends. In addition, the runway has paved overruns (beyond blast pads) at both ends: 97 feet (Runway 16) and 438 feet (Runway 34). The overall length of the paved surface, including the blast pad and overruns is 3,661 feet. However, only the 3,004 feet of the runway is available for takeoff and landing. The runway pavement is in excellent condition (rehabilitated with an asphalt overlay in 2011). The blast pads and overruns were constructed new in 2011 as part of the runway rehabilitation project with a pavement section comparable to the runway. **Table 2-3** summarizes existing runway facilities.

The runway has an effective gradient of 0.019 percent, with intermediate gradients as much as 0.4 percent. The high point on the runway (226.47 feet MSL) is located near the south end of the runway (154 feet north of the Runway 34 threshold). The runway is equipped with edge lighting and visual approach aids.

The runway has visual markings which are consistent with the current circling nonprecision instrument approach procedure that leads aircraft to the airport environment, rather than to a particular runway end. With circling procedures, pilots are required to maintain visual contact with the runway environment beyond the missed approach point until landing. The runway markings (white paint) include runway designation numbers, centerline stripe, and threshold bars at both ends indicating the end of usable runway and the beginning of the blast pads and paved overruns, which are marked with yellow chevrons. Yellow taxiway lead-in lines are painted on the runway at the mid-runway exit taxiway (A2). All runway markings are consistent with FAA standards for configuration, color, and approach type. The markings were observed to be in excellent condition (painted in 2011) during a recent site visit.

The runway is served by a full length parallel taxiway (Taxiway A) on its west side with three exit taxiways (Taxiways A1-A3). An east taxiway (Taxiway C) is located at the north end of the runway, providing access to a small aircraft parking apron.

TABLE 2-3: RUNWAY 16/34 DATA

Dimensions	3,004 x 75 feet (useable runway) Paved blast pad/overrun (Rwy 16): 160 x 80 feet Paved blast pad/overrun (Rwy 34): 496 x 80 feet
Bearing	N 14.3° (True)
Effective Gradient	0.019%
Surface/Condition	Asphalt/Excellent
Markings	Visual: Runway Landing Designation Numbers, Threshold End Bars, Centerline Stripe (white)
Lighting	Runway Edge, Threshold, Visual Guidance Indicators, Runway End Identifiers
Signage	Taxiway/Runway Guidance Signs (internally illuminated)
Wind Coverage	99.9 % at 15 mph (2002 ALP, City Records)

Runway Pavement Strength

The runway, taxiways, taxilanes and apron pavements are designed to accommodate a variety of general aviation aircraft. **Table 2-4** summarizes the published pavement strength for Runway 16/34. [4] It is noted that a runway pavement rehabilitation project was completed in 2011 which involved grinding approximately 1-inch of the asphalt surface and adding a 2-inch asphalt overlay. Pavement records indicate that the runway section consisted of 4-inches of asphalt over an 8-inch aggregate base prior to rehabilitation. The additional thickness of the asphalt section created during the rehabilitation would be expected to result in a nominal increase in pavement strength. The runway pavement strength appears to be adequate to accommodate a wide range of aircraft used in general aviation.

[4] FAA 5010-1 Airport Record Form; FAA Airport/Facility Directory (A/FD) Northwest U.S.

TABLE 2-4: RUNWAY 16/34 PAVEMENT STRENGTH

AIRCRAFT LANDING GEAR CONFIGURATION	PUBLISHED PAVEMENT WEIGHT BEARING CAPACITY (LBS.)
Single Wheel (S)	30,000
Dual Wheel (D)	43,000
Dual Tandem Wheel (DT)	71,000

Runway Wind Coverage

It is generally preferable for aircraft to land and takeoff directly into the wind, although varying wind conditions often require crosswind operations at airports. When wind conditions exceed the capabilities of a specific aircraft, use of a crosswind runway (when available) may occur. At airports with single runways, occasional periods of strong crosswinds often 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. This component is based on a direct crosswind (90 degrees to the direction of flight) of 10.5 knots (12 miles per hour) for small aircraft and 13 knots (15 miles per hour) for larger general aviation aircraft. Aircraft are able to tolerate increasingly higher wind speeds as the crosswind angle is reduced and moves closer to the direction of flight.

Wind coverage of 99 percent (estimated) for Runway 16/34 is noted on the 2002 airport layout plan drawing, citing City of Albany records. Based on the prevailing wind patterns in the area and the historic configuration of the original airfield, it appears that Runway 16/34 is aligned with the most common wind patterns and reflects the practical limits of the airport site.

Taxiways/Taxilanes

Albany Municipal Airport has an extensive taxiway system, including a full-length parallel taxiway on the west side of Runway 16/34 that provides access to the entire runway and adjacent landside facilities. A system of taxiways and taxilanes provide access to aircraft parking aprons and hangar development areas on the airport. **Table 2-5** summarizes existing taxiway facilities. **Figure 2-2**, presented earlier in the chapter, depicts the major taxiways on the airfield. The striping and markings on the major taxiways are fair to very good condition (portions repainted in 2011). The taxiways appear to be well maintained (vegetation control, crackfilling, etc.) and are generally in good condition.

WEST PARALLEL TAXIWAY (TAXIWAY A)

Taxiway A is the west parallel taxiway for Runway 16/34. Taxiway A has three exit taxiway connections to the runway and a runway centerline-to-centerline separation of 150 feet. Taxiway A is 30 feet wide with a centerline strip and connecting centerline stripes for each exit taxiway and adjacent apron and hangar taxilanes. Taxiway A is equipped with a variety of stake mounted blue and yellow edge reflectors. The airport name “ALBANY” is painted on Taxiway A, immediately north of Taxiway A2.

Taxiway A has an aircraft hold area located on the west side of the taxiway at the south end of the runway, adjacent to the Runway 34 threshold. The hold area is approximately 130 feet long and 50 feet deep. The rear edge of the holding area pavement is 65 feet from parallel taxiway centerline. The FAA ADG I standard for the parallel taxiway object free area (OFA) is 44.5 feet, measured from the adjacent taxiway centerline. The taxiway OFA is intended to provide an obstruction free path for taxiing aircraft (wingtip clearance), so it should be free of parked or holding aircraft, structures or other fixed obstructions. The first 30 feet of the holding area abutting the parallel taxiway is located within the OFA and the outer 20 feet is located beyond the outer edge of the taxiway OFA. As a result, most aircraft located in the holding area will penetrate the parallel taxiway OFA.

RUNWAY 16/34 EXITS (TAXIWAYS A1-A3, C)

Runway 16/34 has three 90-degree exit taxiways (Taxiways A1, A2, A3) connecting the runway and west parallel taxiway. The exits are located at the Runway 16 end (A1), mid-runway (A2), and at the Runway 34 end (A3). The runway also has a single 90-degree exit taxiway (Taxiway C) at the Runway 16 end that provides access to the east tiedown apron located adjacent to the Fair & Expo Center facilities. The number and location of the exit taxiways promotes efficient aircraft movement in the runway-taxiway system.

Taxiway A1 is 35 feet wide, Taxiways A2 and A3 are 30 feet wide and Taxiway C is 25 feet wide. The exit taxiways are equipped with stake-mounted edge reflectors and the exit locations on the runway are identified with blue lenses on the medium intensity runway edge lights. As noted earlier, yellow lead-in lines are located on the runway at Taxiway A2 to guide aircraft exiting the runway to the taxiway. All of the exit taxiways have aircraft hold lines (yellow) located 125 feet from runway centerline, which coincide with the outer edge of the runway object free area (OFA) and obstacle free zone (OFZ).

ACCESS TAXIWAYS AND TAXILANES

Albany Municipal Airport has several access taxiways and taxilanes serving landside facilities on the airfield.

<u>South Access Taxiway</u>

Access to the south tiedown apron is provided by a taxiway that extends south from the west parallel taxiway (Taxiway A) at Taxiway A3. The south taxiway is 30 feet wide and consists of two sections that are separated by a bridge over Cox Creek. Recent pavement evaluations indicate that taxiway section from the bridge to the south apron is in fair condition; the section north of the bridge is in very good condition. The taxiway has a yellow centerline strip that varies from fair to poor condition.

The south taxiway bridge spans approximately forty feet and is constructed of three flat-bed railroad cars. The structure is covered with pressure-treated 3x10 wood planks and a 4- to 6-inch layer of asphalt. The rail cars are supported and anchored into concrete pads at each end of the span. The structural integrity of the bridge was evaluated in the 2002 airport master plan and was found to be in generally good condition. That inspection identified minimal corrosion throughout the riveted-steel rail cars; the pressure-treated wood planks were in good condition. No immediate maintenance needs were identified. The assessment recommended that the steel rail cars be re-painted within five years and repeated periodically to maintain minimal corrosion protection and maximize useful life of the structure.

The load carrying capacity of the bridge is substantial. The structural analysis determined that each rail car has a load capacity of 70,000 pounds; however, the existing foundation limits the bridge capacity to approximately 50,000 pounds. A typical aircraft weight of 12,500 pounds or less is well below the capacity of the bridge span and foundation. Assuming that periodic maintenance is performed, the service life of the bridge should easily last another 10 years considering the overall condition of the bridge, and the light, intermittent use. The asphalt surface on the bridge was not rated in previous pavement evaluations, although it appears to be comparable to the adjacent taxiway sections.

South Hangar Taxilanes

The south hangar area is served by six east-west stub taxilanes that extend from Taxiway A. The taxilanes were constructed between 2000 and 2004. The area between each T-hangar is fully paved, consisting of a center taxilane varying from 20 to 25 feet wide and paved areas from the taxilane edge to the front of the adjacent hangars. The spacing between each hangar is approximately 79 feet, except for the southern-most and second hangar, which have approximately 72 feet between the buildings. The condition of the hangar taxilanes ranges from good to very good, consistent with age and use. The taxilanes appear to be well maintained with regular crackfilling and vegetation control. Taxilanes centerline stripes vary in condition from poor to good.

North Hangar Taxilanes

The north hangar area has two taxilanes that provide access to hangars. The north access taxilane connects the hangar area to the parallel taxiway and the north end of the main apron. The taxilane is 25 feet wide, with additional pavement located between the taxilane and adjacent hangars. The north access taxilane is in good condition. The six east-facing units in the north T-hangar is served by a 400 x 16-foot stub taxilane that extends from the north end of the main apron. The stub taxiway was recently resurfaced and was rated "excellent" in 2012.

Apron Taxilanes

The main apron has three direct taxilane connections to Taxiway A and one additional connection via the north hangar taxilane. The north apron taxilane has a defined width of 115 feet (between the pavement edge and nearest aircraft tiedown) located at the north end of the apron, providing access to aircraft tiedowns and adjacent hangars. The middle apron taxilane (25 feet wide) is aligned with Taxiway A2, the mid-runway exit taxiway, providing direct access to the FBO/terminal and aircraft tiedowns. The south apron taxilane (25 feet wide) connects the south end of the main apron and Taxiway A, providing direct access to the aircraft fueling area and tiedowns. The main apron taxilane connections are approximately 145 feet long. The main apron has two north-south taxilanes located between tiedown rows and the hangars located along the west edge of the apron.

The east tiedown apron has a taxilane that runs along its entire west side, providing access to 8 adjacent west-facing aircraft tiedowns. The apron taxilane is 25 feet wide and approximately 460 feet long, abutting the apron. The taxilane markings include a centerline stripe and a dashed line approximately 12.5 feet east of centerline to define the eastern edge of the taxilane. The apron taxilane is parallel to the runway with a centerline separation of 150 feet.

The south aircraft apron has a single taxilane, approximately 300 feet long that provides access to 6 aircraft tiedowns located on each side of the taxilane.

TABLE 2-5: TAXIWAY DATA (ALBANY MUNICIPAL AIRPORT)

TAXIWAY	DESCRIPTION	DIMENSIONS/CONFIGURATION
Taxiway A	West Parallel Taxiway	3,004 x 30’ with three exit taxiways; Aircraft hold area located adjacent to Runway 34 end. Asphalt surface w/ centerline stripe (yellow); Edge reflectors
Taxiways A1, A2, A3	90-degree Exit Taxiways for Runway 16/34 and Parallel Taxiway (A)	Length: 97.5’ (Length of section between runway edge and Taxiway A); Width: 30’ (A2, A3), 35’ (A1) Asphalt surface w/ centerline stripe; taxiway lead-in lines (Taxiway A2 only) on runway; aircraft hold lines at each runway connection (125’ from runway centerline); Edge reflectors Exit Locations (distance from runway ends 16/34): A1 - Rwy 16 threshold (0’/3,004’) A2 – (1,400’/1,604’) A3 – (3,004’/0’)
Taxiway C	90-degree Exit Taxiway (Rwy 16 end)	Length: 97.5’ (Length of section between runway edge and east apron taxilane); Width: 25’ Asphalt surface w/ centerline stripe; aircraft hold lines (125’ from runway centerline); Edge reflectors
South Access Taxiway	Extends from Parallel Taxiway to South Apron	900 x 30’ Asphalt surface w/ centerline stripe Edge reflectors
North Hangar Taxiway	Connects North Hangar area to Taxiway A and Main Apron	650 x 25’ Asphalt surface w/ centerline stripe

North T-Hangar Stub Taxilane	East side of open T-hangar	400 x 16' Asphalt surface
South Hangar Area Taxilanes	Taxilanes within south hangar area	285 to 325' long x 20 to 25' wide Asphalt surface w/ centerline stripes
Main Apron Taxilanes	Taxilanes providing access to aircraft tiedowns, fueling area and hangars	Access Taxilanes within the main apron. Asphalt surface w/ centerline stripe
East Apron Taxilane	Taxilane access to tiedowns	460 x 25' Asphalt surface w/ centerline stripe, edge stripe; Edge reflectors

Aircraft Aprons

Albany Municipal Airport has a main aircraft parking apron located on the west side of the runway that accommodates aircraft tiedowns, fueling and provides access to hangars and the general aviation terminal/fixed base operator (FBO) building. Additional tiedown aprons are located near the northeast corner of the airport and at the south end of the airport. The three apron areas have a total capacity of 64 small airplane tiedowns. **Table 2-6** summarizes the existing apron facilities at the airport. All aircraft aprons areas have direct access to the runway-parallel taxiway.

MAIN APRON

The main apron is located directly in front of the general aviation terminal/FBO space. The apron accommodates aircraft loading/unloading and parking for transient aircraft and locally based aircraft. The taxilane configuration on the main apron is described in the previous section. The apron accommodates the aircraft fueling area at the south end, and provides access to the general aviation terminal and several hangars located on the west edge of the apron. Vehicle access to the main apron and adjacent hangars is provided through a swing gate located immediately north of the terminal/FBO building.

The middle and outer sections of the main apron have two rows of west-facing tiedowns (32 positions) with adjacent north-south taxilanes. A double row of tiedowns (7 positions) is located near the north end of the terminal/FBO building and five tiedowns are located in front and immediately south of the building.

EAST TIEDOWN APRON

The east tiedown apron is located near the north end of the runway on its east side. Aircraft access is provided by Taxiway C. The apron is configured with one row of west facing small airplane tiedowns (8 spaces) served by a taxilane along the front of the apron that connects to Taxiway C. The apron provides convenient access to the adjacent Fair & Expo Center facilities, located along the east edge of the airport and nearby hotels and restaurants. A combination locked pedestrian gate is located adjacent to the apron which allows for exit and re-entry.

SOUTH TIEDOWN APRON

The south tiedown apron is located at the south end of the airport, with taxiway access provided from the south end of the parallel taxiway. The rectangular apron is configured with a center taxilane and tail-in tiedowns to either side (12 total positions). Vehicle access to the south apron is provided through the parking lots of an adjacent hotel and restaurant located on Price Road.

The apron was originally constructed off airport property and has recently been acquired by the City of Albany. Based on the 2012 pavement evaluation and a recent site visit, the south apron is in fair to poor condition with extensive surface cracking and pavement wear.

TABLE 2-6: AIRCRAFT APRONS (ALBANY MUNICIPAL AIRPORT)

Main Apron	Main Section: Approximately 900' long; width varies from 200 to 300' South Section: Approximately 150 to 300' long; width varies from 80 to 200' Total Overall Area: Approximately 26,275 square yards - Asphalt Concrete Current Use: Small airplane parking, hangar frontage, and aircraft fueling Tiedowns: 44 small airplanes in multiple rows
East Tiedown Apron	Approximately 462 x 72' (3,726 square yards) - Asphalt Concrete Current Use: Small airplane parking Tiedowns: 8 small airplanes in one row
South Tiedown Apron	Approximately 291 x 130' (4,200 square yards) - Asphalt Concrete Current Use: Small airplane parking Tiedowns: 12 small airplanes

Airport Lighting and Signage

The airfield lighting at Albany Municipal Airport accommodates day-night operations in visual and instrument conditions. Airfield lighting includes runway edge lighting, runway end identifier lighting (REIL), threshold lighting, visual approach slope indicators (VASI), a lighted windsock and segmented circle, lighted taxiway guidance signs, and the airport beacon. The illuminated wind cone, runway edge lights, threshold lights, runway/taxiway signage, and REILS have all been replaced within the last ten years and are in very good condition. Existing lighting systems are described in **Table 2-7**. The west parallel taxiway and east apron are equipped with a variety of stake-mounted reflective markers.

TABLE 2-7: TYPES OF AIRPORT LIGHTING USED AT ALBANY MUNICIPAL AIRPORT

CATEGORY	TYPE	CONDITION
Airport Lighting	Airport Rotating Beacon (white/green dual lens)	Good
Runway Lighting	Medium Intensity Runway Lighting (MIRL) (white lenses) Threshold Lighting (red/green lenses) Runway End Identifier Lights (REIL) (white strobes)	Very Good to Excellent

Visual Guidance Indicators	4-Light VASI (red/white lenses) • Rwy 16: (V4L) 4 degree glide path 2-Light VASI (red/white lenses) • Rwy 34: (V2L) 4 degree glide path	Good Good
Taxiway Lighting	None (edge reflectors – fair condition)	--
Airfield Signage	Runway and Taxiway Location Signs	Very Good
Other Lighting	Obstruction lights, lighted wind cone, flood lighting in hangar, fuel areas.	Good to Very Good

AIRPORT LIGHTING: The airport has a rotating beacon mounted on a tower support on the west side of the runway next to the large Quonset hangar. Rotating beacons are used to indicate the location of an airport to pilots at night or during reduced visibility. The beacon provides sequenced white and green flashing lights (representing a lighted land airport) that rotate 360 degrees to allow pilots to identify the airport from all directions from several miles.

One internally illuminated wind cone is located on the east side of the runway, approximately 800 feet (south) from the Runway 16 threshold. The wind cone is located in the middle of the segmented circle and was recently installed.

The rotating beacon, lighted wind cone, and the Runway 34 VASI operate on dusk-dawn automatic photocell switches. The Runway 16 VASI is pilot-activated using the common traffic advisory frequency (CTAF) 122.8 MHz. All airfield lighting reportedly functions normally.

RUNWAY LIGHTING: Runway 16/34 has medium intensity runway edge lighting (MIRL) and runway end identifier lights (REIL) at both ends.

- **MIRL:** The MIRL system includes white edge lights (with blue lights located near the exit taxiways) and runway threshold lights. The threshold lights consist of two sets of three fixtures near each corner of the runway ends. The fixtures have split lenses (green/red) indicating the beginning and end of the useable runway.
- **REIL:** Runway 16 and 34 are equipped with runway end identifier lights (REIL), which consist of two high-intensity sequenced strobe lights that mark the end of the runway to assist pilots in establishing visual contact with the runway environment during periods of darkness or reduced visibility. The REILs are City-owned.
- **Visual Guidance Indicators**: Runways 16 and 34 are equipped with visual approach slope indicators (VASI). The VASI projects light along a fixed glide path to a runway end, with red and white colored lights indicating the aircraft's vertical position (above, below, or on glide path) relative to the defined glide path. The VASI for Runway 16 is FAA-owned; the VASI for Runway 34 is City-owned.

- **Airfield Signage:** The runway-taxiway system has internally illuminated mandatory instruction signs (red background with white letters/numbers) coupled with taxiway designations (yellow background and black numbers/letters) at the aircraft holding positions at each of the taxiway connections with the runway [16-34, A2, etc.]. The signs are located to coincide with the painted aircraft hold lines on each taxiway that connect to the runway.

OTHER LIGHTING: Overhead lighting is available in the terminal area and main aircraft parking aprons, the aircraft fueling area, and in various hangar areas. Several hangars also have exterior wall-mounted flood lights. Red obstruction lights are mounted on the tops of several structures, overhead light poles, antennae, and other items on or near the airfield.

Agricultural Aircraft Facilities

Albany Municipal Airport does not accommodate any locally based aerial applicators. However, the airport is used on an occasional basis by an area aerial applicator based on a private airstrip north of Albany. Miscellaneous loading and storage equipment was observed near the south end of the main apron, where transient activity occurs. Airport management indicates that this area is not leased to the aerial applicator. There are no permanent facilities or spill containment features for agricultural activity on the main apron.

Airfield Pavement Condition

All airfield pavements at Albany Municipal Airport are constructed of asphaltic concrete (AC) over a crushed aggregate base/subbase. The original airfield pavements, including the runway and sections of the main apron were constructed in 1959 and have undergone several rehabilitations. **Table 2-8** summarizes the typical section composition for each airfield pavement area based on data contained in the Airport's Pavement Management Plan.

TABLE 2-8: SUMMARY OF AIRFIELD PAVEMENT SECTIONS (ALBANY MUNICIPAL)

Runway 16/34	Overlay 2" AC & 1" (typ.) grinding of surface course (2011); 2" AC (1986); 2" AC (1959); 8" Aggregate Base (1959)
Runway Blast Pads (both runway ends)	New Construction (2011) 60' long x 80' wide 2" AC; 6" Crushed Aggregate Base Crushed Subbase, Geotextile Fabric (north section)

Paved Overruns	New Construction (2011) South Overrun: 80' wide x 437' long; North Overrun: 80' wide x 97' long 2" AC; 6" Asphalt Pavement Grindings; Crushed Subbase; Geotextile Fabric (north section)
West Parallel Taxiway & Exit Taxiways (A1-A3)	2" AC w/ Fabric (1989); 1.5" AC (1959); 4.5" Aggregate Base (1959) Sections located at Taxiways A1, A2 and A3 rehabilitated in 2011: 2" AC; 1" (typ.) grinding of surface course
Main Apron	Rear Section: 2" AC w/ Fabric (1989); 1.5" AC (1959); 4.5" Aggregate Base (1959) Middle Section: 2" AC w/ Fabric (1989); 1.5" AC (1959); 4.5" Aggregate Base (1959) Outer Section: 3.5" AC (1983); 9" Aggregate Base (1983)
East Apron and Taxiway C	2" AC; 6" Crushed Aggregate Base; 6" Crushed Subbase (2000)
North Hangar Taxilane	2" AC; 6" Crushed Aggregate Base; 12" Crushed Subbase Geotextile Fabric
North T-Hangar Stub Taxilane	1.5" BST; Unknown Base (1966)
South Apron	1.5" AC; 4.5" Aggregate Base (1959)
South Access Taxiway	North Section: 2" AC w/ Fabric (1989); 1.5" AC; 4.5" Aggregate Base (1959) South Section: 1.5" AC; 4.5" Aggregate Base (1959)
South Hangar Taxilanes	2" AC; 6" Crushed Aggregate Base; 6" Crushed Subbase (typ.) 1986-2004

As part of the Oregon Aviation System Plan, the Pavement Evaluation/Maintenance Management Program was developed and applied to all Oregon general aviation airports. The evaluation takes into account historical pavement condition index (PCI) ratings, pavement features, and current conditions. Through the use of MicroPAVER computer software, existing conditions data can be entered, and projections of future pavement condition and specific needs can be estimated.

Table 2-9 summarizes PCI ratings at Albany Municipal Airport based on inspections conducted in 2012. For comparison, these ratings are compared previous to pavement ratings (2001-2008).

Based on the 2012 inspection the majority of airfield pavements were rated "good" or better. The runway and the three west exit taxiways were rehabilitated (asphalt overlay) in 2011 and are now in excellent condition. Small areas (100 to 170 feet long) of the parallel taxiway were also rehabilitated at each exit taxiway to provide a smooth transition between the taxiway sections. In 2012, the south T-hangar taxilanes were rated "very good" or better. The western-most section of main apron located directly in front of the FBO/hangar building was rated "very good," the center section of apron was rated "very good," and the outer section was rated "very good." Taxiway C and the east tiedown apron were rated "very good" in 2012. The west parallel taxiway, the north hangar taxiway, and the south taxiway extension (to the bridge) were rated "very good." The section of the south taxiway on the south side of the bridge was rated "fair" and the south apron was rated "fair" in 2012. The north T-hangar stub taxilane (east side of open hangar), was rated "excellent" in 2012.

The rate of pavement deterioration documented between the 2001 and 2012 PCI inspections is consistent with local conditions and aircraft use. The City conducts periodic vegetation control, crackfilling, sealcoating, and marking repainting of airfield pavements. A visual inspection of the airfield pavements conducted for the master plan did not identify any areas of pavement deterioration that significantly differed from recent PCI inspections. Sections of the main apron have previously been identified as a priority for rehabilitation. The master plan update will evaluate the existing main apron configuration and options for the north hangar stub taxilane, the south apron and south access taxiway.

TABLE 2-9: SUMMARY OF AIRFIELD PAVEMENT CONDITION RATINGS

PAVEMENT SECTION	2012 PCI	2008 PCI	2004 PCI	2001 PCI	CURRENT CONDITION
Runway	100	**75**	74	85	Excellent (overlay in 2011)
North Runway Blast Pad & Overrun	**NR**	**NR**	NR	NR	Excellent (constructed in 2011)
South Runway Blast Pad & Overrun	**NR**	**NR**	NR	NR	Excellent (constructed in 2011)
West Parallel Taxiway (Txy A)	84/89	**88**	94	96	Very Good (small sections at exit taxiway connections – Excellent)
North Exit Taxiway (Txy A1)	100	**88**	94	96	Excellent (overlay in 2011)
Center Exit Taxiway (Txy A2)	100	**76**	86	77	Excellent (overlay in 2011)
South Exit Taxiway (Txy A3)	100	**93**	80	81	Excellent (overlay in 2011)
East Exit Taxiway (Txy C)	85	**100**	100	100	Very Good (constructed in 2000)
North Hangar Taxiway	68	**100**	100	100	Fair (reconstructed in 2000)
North T-Hangar Stub Taxiway (east side of building)	96	**0**	0	0	Excellent (reconstructed in 2011)
South Hangar Taxiways (3 south)	71/93	**64-100**	90-99	59-100	Good to Very Good
South Hangar Taxiways (3 north)	88/100	**92-100**	100	96-100	Very Good. Northern most taxilane constructed in 2005.
West P. Taxiway Hold Area (south)	66/95	**80-100**	79-84	82-85	Good to Very Good
West P. Taxiway Hold Area (north)	100	**82**	75	76	Good to Very Good
Main Apron (rear section)	80	**86**	81	85	Very Good
Main Apron (center section)	74	**84**	88	81	Good
Main Apron (front section)	72	**68**	82	67	Fair
Main Apron Access Taxiway (south end)	100	**100**	--	--	Very Good (constructed in 2005)
Northeast Aircraft Tiedown Apron	85	**100**	100	100	Very Good (constructed in 2000)

South Access Taxiway (Rwy 34 end to bridge)	85	**88**	94	96	Very Good
South Access Taxiway (bridge to apron)	50	**35**	35	37	Fair
South Aircraft Parking Apron	44	**42**	64	47	Fair

1. The Pavement Condition Index (PCI) scale ranges from 0 to 100, with seven general condition categories ranging from "failed" to "excellent." For additional details, see *Oregon Aviation System Plan Pavement Evaluation/Maintenance Management Program* (2012) for Albany Municipal Airport.
2. NR- Not Rated. Pavement was not rated during inspection.

Landside Facilities

HANGARS AND AIRPORT BUILDINGS

Albany Municipal Airport accommodates a variety of aviation-related buildings including aircraft storage hangars, commercial and mixed-use hangars, and a general aviation terminal/fixed base operator (FBO building. All airport buildings and aviation facilities are located on the west side of the airport. The northern section of the west landside area accommodates 16 buildings, including eleven newer conventional hangars, two historic hangars, one 11-unit open front T-hangar, a city-owned maintenance building, and an electrical control building for airfield lighting. A combination office and hangar which serves as a general aviation terminal and space for a fixed base operator (FBO), is located near the south end of the main apron. Five 10/11-unit T-hangars are located in the southern section of the west landside area with a total of 52 units. **Table 2-10** summarizes existing airport hangars and other airport buildings. **Figure 2-2**, presented earlier in this chapter, depicts the existing buildings on the airport.

TABLE 2-10: BUILDINGS AT ALBANY MUNICIPAL AIRPORT

	BLDG. NO.	BUILDING	OWNER	EXISTING USE	HISTORIC STATUS
1.	205	Conventional Hangar	Nagel	Aircraft storage	No
2.	225	Conventional Hangar	Perlenfein	Aircraft storage	No
3.	245	Conventional Hangar	Perlenfein	Aircraft storage	No
4.	285	Conventional Hangar	Gates	Aircraft storage	No
5.	305	11 unit T-Hangar (North)	City	Aircraft storage	No
6.	315	Conventional Hangar	Kasper	Aircraft storage	No
7.	335	Conventional Hangar	Kleve	Aircraft storage	No
8.	343	Conventional Hangar	Kizer	Aircraft storage	No
9.	355	Conventional Hangar	Kasper	Aircraft storage	No

10.	375	Quonset Hangar	City	Aircraft storage	Yes
11.	403	Conventional Hangar	Kasper	Aircraft storage	No
12.	415	Conventional Hangar (Bird)	City	Aircraft storage	Yes
13.	--	Electrical Building	City	Electronics housing	No
14.	445	Conventional Hangar	R2M Properties LLC	Aircraft storage	No
15.	475	Maintenance Building	City	City Maintenance Shop	No
16.	485	Conventional Hangar	Miltenberger	Aircraft storage	No
17.	525, 533	GA Terminal/FBO Office* and Hangar	City	FBO operations; office, classroom, aircraft	No
18.	695	10-Unit T-Hangar (South)	Miltenberger	Aircraft storage	No
19.	715	11-Unit T-Hangar (South)	Tarantola	Aircraft storage	No
20.	725	11-Unit T-Hangar (South)	Tarantola	Aircraft storage	No
21.	745	10-Unit T-Hangar (South)	Terhaar	Aircraft storage	No
22.	765	10-Unit T-Hangar (South)	Miltenberger	Aircraft storage	No

Vehicle Access and Parking

VEHICLE ACCESS

The primary surface access to Albany Municipal Airport is provided via Knox Butte Road, which borders the north end of the airport. The entrance for the airport is Aviation Way, which forms a non-signalized intersection on Knox Butte Road near the northeast corner of the airport.

Aviation Way provides access to the west side of the airport, ending at the south T-hangar area, approximately 0.76 miles from Knox Butte Road. Aviation Way is a paved roadway, 20 feet wide with centerline and edge stripes. The public portion of the roadway extends approximately .56 miles to a controlled access gate located immediately south of the general aviation terminal/fixed base operator (FBO) building. The roadway continues another .2 miles to the south T-hangar area. In 2003, the main section of Aviation Way was repaved and the southern section (previously gravel) was realigned, widened and paved. A paved sidewalk was also added to provide pedestrian access from the FBO building to a controlled access pedestrian gate, co-located with the vehicle gate.

Vehicle access to the apron located at the south end of the airport is provided via adjacent hotel and restaurant parking lots and Price Road SE. The South Apron has no direct vehicle access from any other parts of the airport. The east tiedown apron does not have dedicated vehicle access, but can be accessed via the adjacent Fair and Expo Center compound. The east apron has pedestrian access provided through a combination lock gate located near the northeast corner of the airport, adjacent to the Comfort Inn hotel.

The City of Albany has limited traffic count data available for the intersection of Knox Butte Road and Century Drive from a 2004 traffic study. The study identified the equivalent of 8,500 Average Daily Trips (ADT). Current activity is believed to be in the range of 9,000 to 9,500 ADT at this intersection located approximately 420 feet (0.08 miles) west of the Knox Butte Road/Aviation Way intersection. 2010 ODOT traffic counts are available for three points on Highway 20 south of the airport, on both sides of I-5: 18,200 ADT 0.08 miles west of I-5, 14,000 ADT 0.07 miles east of I-5, and 22,300 ADT at Pacific Boulevard, 0.01 miles east of Airport Road (just west of I-5).

VEHICLE PARKING

The west landside area has a total of 42 paved vehicle parking spaces in three locations: the general aviation terminal/FBO building (24 standard spaces, 4 handicapped spaces), on the north side of the large Quonset hangar (7 spaces), and on the west end (7 spaces) of a private hangar (building 355) located north of the Quonset hangar. Additional unpaved areas for vehicle parking space are available adjacent to or between most individual hangars, although vehicles are also observed parking on the apron directly in front of hangars and other buildings in the west landside area. There are no improved vehicle parking areas in the south hangar area. Vehicles park inside hangars or in unpaved areas adjacent to hangars; parking in the paved areas between the hangars (taxilanes) is not permitted.

Airspace and Navigational Aids

Albany Municipal Airport operates under both visual flight rules (VFR) and instrument flight rules (IFR) conditions with a published nonprecision instrument approach.

AIRSPACE CLASSIFICATIONS

Airspace within the United States is classified by the FAA as “controlled” or “uncontrolled” with altitudes extending from the surface upward to 60,000 feet above mean sea level (MSL). Controlled airspace classifications include Class A, B, C, D, and E. Class G airspace is uncontrolled. Airports with instrument approaches have at least one category of controlled airspace.

Aircraft operating within controlled airspace are subject to varying levels of positive air traffic control that are unique to each airspace classification. Requirements to operate within controlled airspace vary, with the most stringent requirements associated with very large commercial airports in high traffic areas. Uncontrolled airspace is typically found in remote areas or is limited to a 700 or 1,200-foot AGL layer above the surface and below controlled airspace. **Figure 2-3** illustrates and describes the characteristics of the airspace classifications defined by the FAA.

LOCAL AREA AIRSPACE STRUCTURE

Figure 2-4 depicts nearby airports, notable obstructions, special airspace designations and instrument flight rules (IFR) routes in the vicinity of Albany Municipal Airport, as identified on the Seattle and Klamath Falls Sectional Charts and the IFR Enroute Low Altitude Chart (L-1/L-2).

Albany Municipal Airport is located in an area of Class E airspace that begins 700 feet above the ground surface. Class G airspace extends upward from the ground surface to the floor of the Class E airspace over the airport. The local Class E airspace consists of a 5-nautical mile radius surrounding the airport that merges with Class E airspace (also begins at 700' above ground surface) associated with Corvallis Municipal Airport, 13 nautical miles southwest. The southern boundary of Class E airspace associated with Salem Municipal Airport is located approximately 6 nautical miles north of Albany Municipal Airport; areas of Salem's Class E airspace beginning at ground surface and Class D airspace (when control tower is in operation) are located further north (7 to 12 miles).

Radio communication is not required for visual flight rules (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 air traffic control (ATC) clearance prior to operating in Class E airspace during instrument flight rules (IFR).

Areas of Class E airspace associated with enroute instrument airways extend in all directions beyond the Class E airspace associated with local area airports. This category of Class E airspace has a floor established at 700 feet MSL.

The nearest low altitude enroute instrument airway is Victor 23 (V23), which passes within 1 nautical mile east of the airport. The minimum enroute altitude (MEA) for the section of the airway passing nearest the airport is 3,000 feet MSL, connecting to the Eugene VORTAC[5] located 31.8 miles south. Victor 495 (V495) passes within 8 nautical miles west of the airport with an MEA of 4,000 feet MSL and a minimum obstruction clearance altitude (MOCA) of 3,400 feet MSL.

The local airport traffic pattern altitude is 1,000 feet above ground level (AGL) (1,226' MSL) with standard left traffic on Runway 16 and 34. The traffic patterns are located on the east and west sides of the runway, as depicted in **Figure 2-5**. Local airport operations and flight activity is not directly affected by the enroute airspace due to the minimum enroute altitudes that are well above the local airport traffic pattern altitude.

Salem Airport/McNary Field (16 nm N) has an area of Class D airspace that is in effect when the airport's air traffic control tower (ATCT) is in operation (0700-2100 local). The Class D airspace extends in a 4-mile radius from the airport from the surface to 2,700 feet MSL. Aircraft operation in Class D airspace requires two-way radio contact with the control tower. When the tower is not in operation, the airspace

[5] Very high frequency Omnidirectional Radio range (VOR) combined with UHF frequencies (Tactical Air Navigation – TACAN)

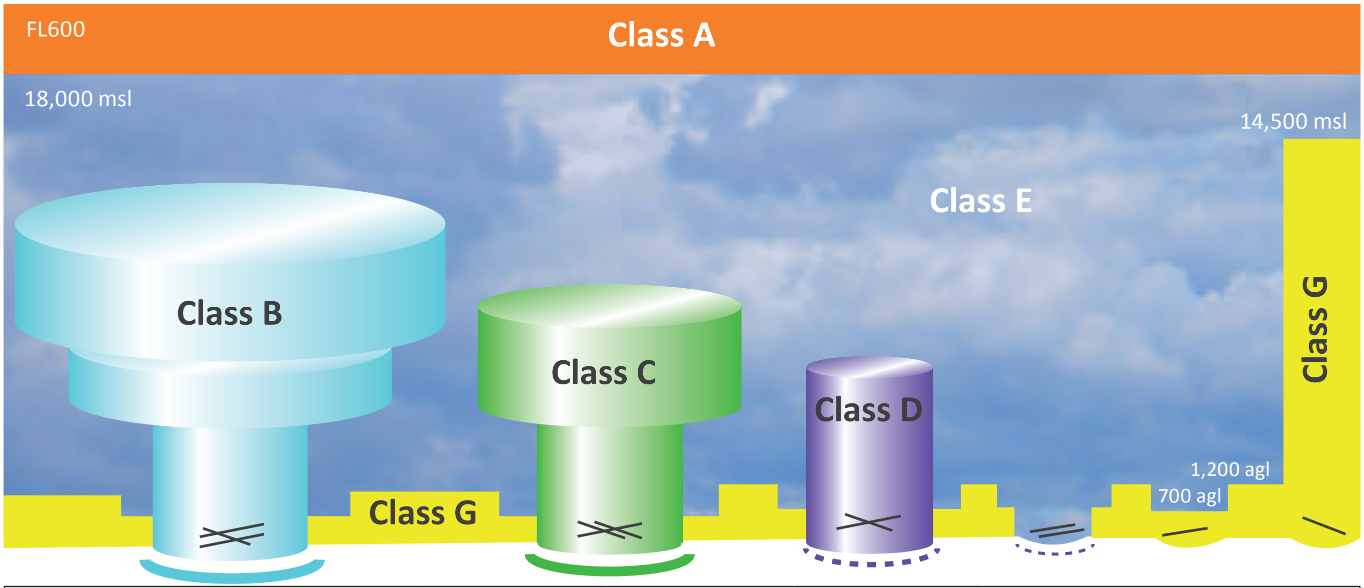
surrounding McNary Field reverts to Class E. McNary Field also has two rectangular NW-SE sections of Class E (extending upward from the surface).

SPECIAL USE AIRSPACE/NEARBY OBSTACLES

There are no areas of special use airspace (SUA) in the immediate vicinity of Albany Municipal Airport. The nearest Military Operations Area (MOA) is the Dolphin North MOA (NE corner: 29 miles southwest). MOAs are designated to segregate VFR and IFR traffic from military operations. When a MOA is active, IFR traffic may be cleared through the area when air traffic control can ensure IFR separation; otherwise traffic will be rerouted. Although VFR operations are not restricted in an MOA, pilots are advised to exercise extreme caution while flying within, near, or below an active MOA. Prior to entering an active MOA, pilots are encouraged to contact the controlling agency for traffic advisories due to the frequently changing status of these areas.

Pilots are requested to maintain a minimum altitude of at least 2,000 feet AGL over Municipal parks, wilderness areas, wildlife refuges and other sensitive areas. The nearest area of this type is the Ankeny Municipal Wildlife Refuge located approximately 8 miles north of Albany Municipal Airport.

Numerous towers, radio towers, and electrical transmission lines depicted on the aeronautical chart are located in the vicinity of Albany Municipal Airport (<1 mile to 9 miles). The above ground heights of the towers range between 220 and 329 feet; heights for the electrical transmission lines are not provided, although tower heights exceeding 200 feet are common. A designated parachute landing area is charted approximately 4 nautical miles northeast of Albany Municipal Airport, which should keep parachute activity clear of the traffic pattern for Runway 16.

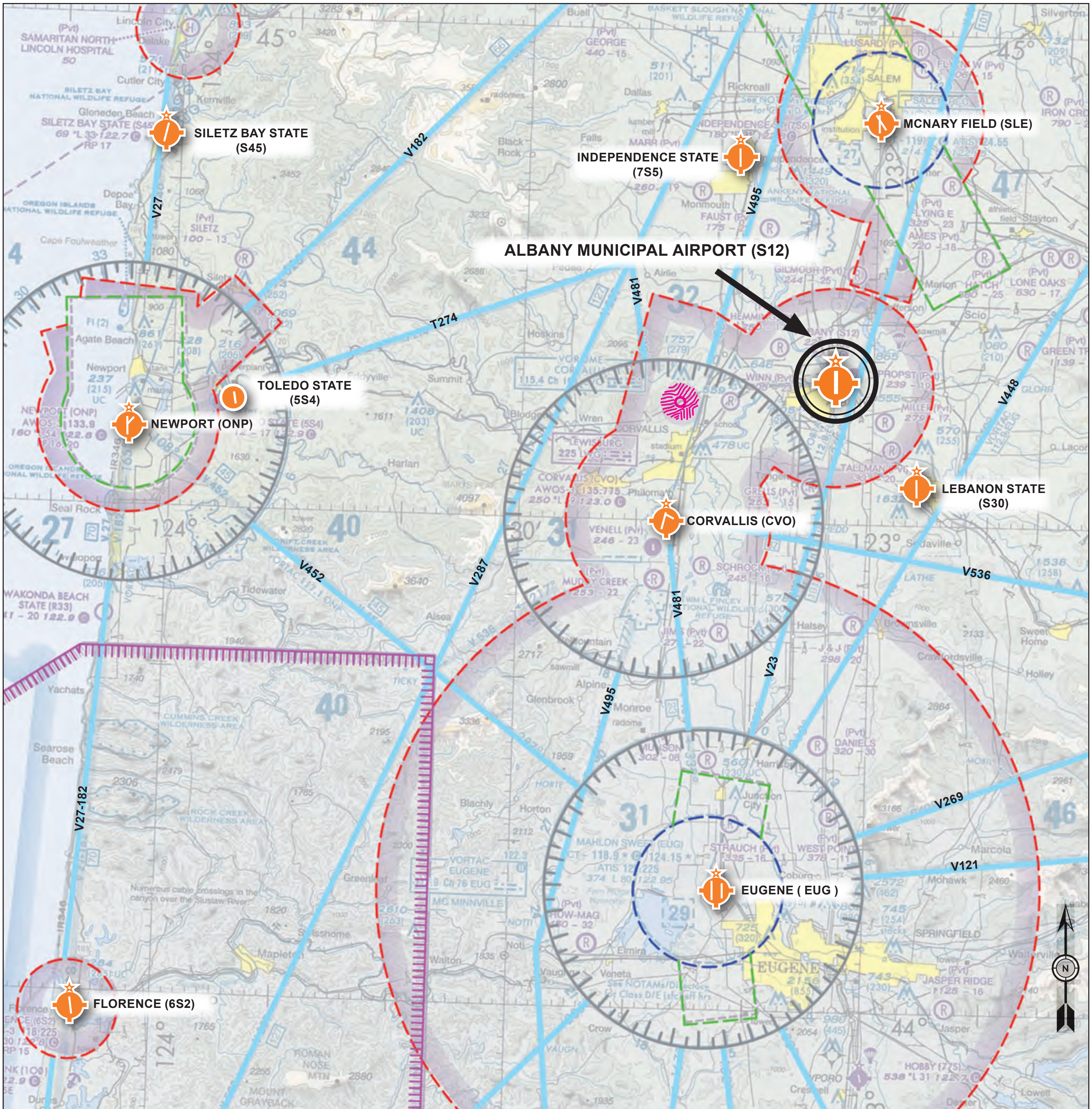


COMMUNICATION REQUIREMENTS AND WEATHER MINIMUMS	Class A	Class B	Class C	Class D	Class E	Class G
Airspace Class Defi itio	Generally airspace above 18,000 feet MSL up to and including FL 600.	Generally mul - layered airspace from the surface up to 10,000 feet MSL surrounding the na on's busiest airports	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 Qualifi a ons	Instrument Ra ng	Student*	Student*	Student*	Student*	Student*
Entry Requirements	IFR: ATC Clearance VFR: Opera ons Prohibited	ATC Clearance	IFR: ATC Clearance VFR: Two-Way Communica on w/ ATC	IFR: ATC Clearance VFR: Two-Way Communica on 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 opera ng within Class B, C or D airspace (or Class E airspace with an opera ng control tower), student, sport, and recrea onal pilots must meet the applicable FAR Part 61 training and endorsement requirements. Solo student, sport, and recrea onal pilot opera ons are prohibited at those airports listed in FAR Part 91, appendix D, sec on 4.

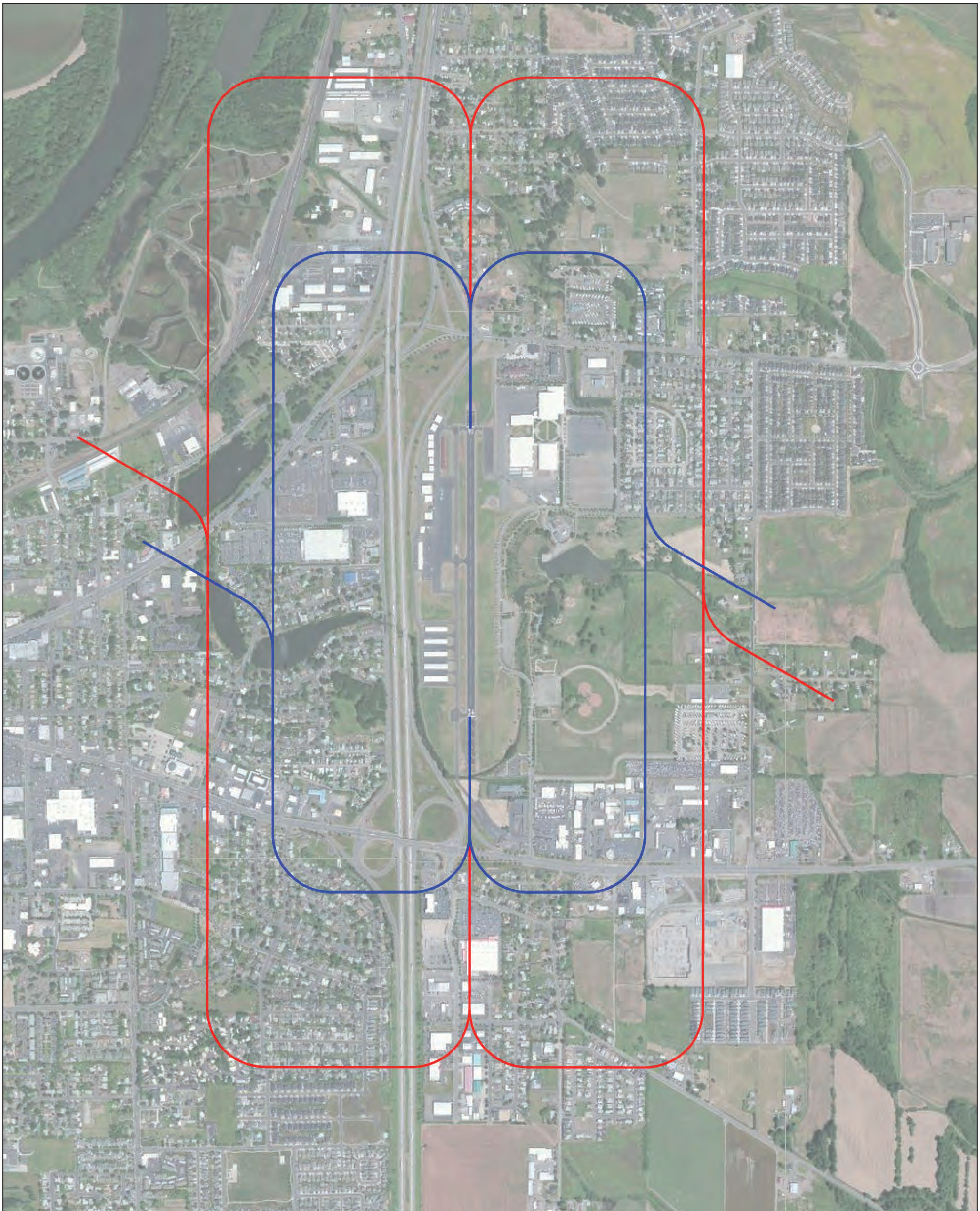
**Student pilot opera ons require at least 3 statute miles visibility during the day and 5 statute miles visibility at night.

***Class G VFR cloud clearance at 1,200 agl and below (day); clear of clouds.



LEGEND

	Airports with hard-surfaced runways 1,500 ft. to 8,069 ft.		Class D Airspace
	Non-Directional Radiobeacon (NDB)		Class E Airspace with floor 700 above surface
	Compass Rose (VOR/DME or VORTAC)		Military Operations Area (MOA)
	VOR or RNAV Airways		Prohibited, Restricted, Warning, and Alert Areas
	Class E Airspace (surface)		



Navigational Aids/Weather Data

There are no electronic navigational aids located on the airport. The instrument approach procedure for Albany Municipal Airport utilizes the Corvallis VOR/DME, located approximately 13 nautical miles southwest. A global positioning system (GPS) overlay approach was also developed for the airport, using the same procedure. **Table 2-11** summarizes existing navigational aids and related items.

In addition to the Corvallis VOR/DME, other ground based navigational aids in the area include the Eugene VORTAC[6] located 31.8 miles south, the Lewisburg non directional beacon (NDB), located 9.1 nautical miles west, and the instrument landing system (ILS) localizer at McNary Field (Salem) that provides additional navigation functions for enroute aircraft.

Albany Municipal Airport does not have on-site weather observation capabilities, such as an automated weather observation system (AWOS). The Corvallis altimeter setting and AWOS-3 (located 13 miles southwest) are used for instrument approaches at Albany.

TABLE 2-11: NAVIGATIONAL AIDS AND RELATED ITEMS

TYPE	FACILITIES
Electronic Navigational Aids	Corvallis (CVO) VOR/DME 13 nm SW) 115.4 MHz Salem Localizer and Glide Slope (I-SLE) 110.3 MHz Lewisburg Non-directional Beacon (NDB) (9.1 nm WSW) 206 LHz Eugene VORTAC (31.8 nm SSW) 112.9 MHz
Weather Observation	None on Field Nearest: AWOS-3 (Corvallis – 13 nm SW) (135.775 MHz)
Communication	Unicom/Common Traffic Advisory Frequency (CTAF)(122.8 MHz)

Instrument Procedures

Instrument approach and departure procedures are developed by the FAA using electronic navigational aids to guide aircraft through a series of prescribed maneuvers in and out of an airport's terminal airspace. The procedures are designed to enable continued airport operation during instrument meteorological conditions (IMC), but are also used during visual conditions, particularly in conjunction with an instrument flight plan. The capabilities of each instrument approach are defined by the technical performance of the procedure platform (ground based navigational aids or satellite navigational aids) and the presence of nearby obstructions, which may affect the cloud ceiling and visibility minimums for the approach, and the routing for both the approach and missed approach procedure segments. The aircraft

[6] Very high frequency Omnidirectional Radio range (VOR) combined with UHF frequencies (Tactical Air Navigation – TACAN)

approach speed and corresponding descent rate may also affect approach minimums for different types of aircraft.

Albany Municipal Airport currently has one published nonprecision instrument approach, a VOR/DME approach (also supports GPS-A overlay) that utilizes the Corvallis VOR/DME as the initial approach fix, the return point for missed approaches, and the one-minute holding pattern location. The GPS overlay (GPS- A) was created several years ago duplicating the VOR/DME procedure and approach minimums.

The nonprecision instrument approach procedure allows aircraft to descend to an altitude 714 feet above ground level (AGL) in the local airport environment, southwest of the runway. The inbound approach course is 32 degrees, which is offset approximately 52 degrees from the approach end of Runway 34 (340 degrees). Local pilots have indicated a need for an improved instrument approach procedure with a reduced approach descent altitude. The existing instrument approach capabilities and minimums for Albany Municipal Airport are summarized in **Table 2-12**. The current instrument approach procedure chart is included in **Appendix B**.

TABLE 2-12: INSTRUMENT PROCEDURES (ALBANY MUNICIPAL AIRPORT)

APPROACH	APPROACH CATEGORY A		APPROACH CATEGORY B		APPROACH CATEGORY C		APPROACH CATEGORY D	
	Ceiling	**Vis.**	**Ceiling**	**Vis.**	**Ceiling**	**Vis.**	**Ceiling**	**Vis.**
VOR/DME or GPS-A								
Straight-In	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Circling	714	1	714	1	N/A	N/A	N/A	N/A

Approach Categories are based on the approach speed of an aircraft in the landing configuration (typically 1.3 times the stall speed Vso).
Approach Categories:
***Category A**: 0-90 knots (Cessna 172, Beechcraft Bonanza, Piper Seneca)*
***Category B**: 91-120 knots (Beechcraft King Air, Cessna Citation)*
***Category C**: 121-140 knots (Learjet 45, Canadair Challenger, Boeing 737, MD80)*
***Category D**: 141-165 knots (Gulfstream 550)*
Ceiling: Lowest permitted height of clouds in feet above ground level (AGL)
Vis: Minimum visibility required in statute miles
Source: National Ocean Service Instrument Approach Plates

Airport Support Facilities/Services

AVIATION FUEL

100LL aviation gasoline (AVGAS) is available at the airport. Jet fuel is not available at the airport. A new 12,000-gallon aboveground double wall storage tank and dispensing facilities for 100LL AVGAS were installed near the south end of the main apron in 2000. 24-hour self-service (credit card) fueling is available. Infinite Air Center, LLC, began providing fixed base operator (FBO) services at the airport in early 2015 and offers a range of services including fueling, aircraft maintenance, flight instruction, and aircraft rental.

PUBLIC RESTROOMS

Public, ADA-accessible restrooms are located in the general aviation terminal/fixed base operator (FBO) building. Some individual hangars have private restroom facilities.

Fencing and Security

The airport has 8-foot chain link fencing, with a three-strand barbed wire top around its perimeter; several controlled access points (locked gates) are located adjacent to primary landside facilities.

A 15-foot wide automated sliding gate is located immediately north of the general aviation terminal/FBO building, providing access to hangars, vehicle access to hangars, aircraft parking, the aircraft fueling area and the city maintenance shop located in the west landside area. Two 20-foot wide swing gates (padlocked) are located in the west and north sections of the perimiter fence. Two pedestrian gates are also located in this section of fence; the gate located at the east tiedown apron has combination lock for easy access and re-entry and the pedestrian gate located near the north hangar area is padlocked.

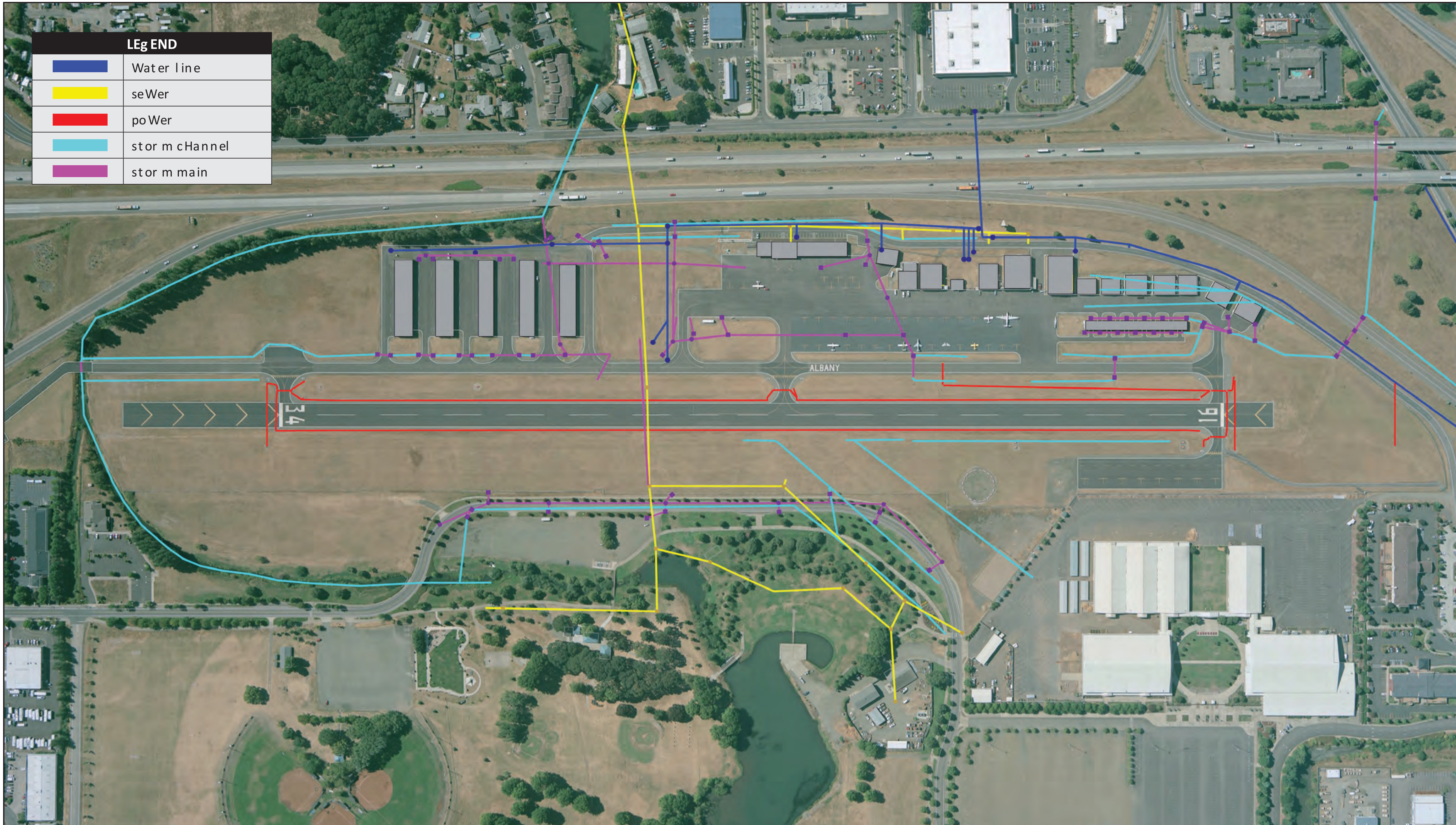
A 15-foot wide automated sliding vehicle gate and a 4-foot pedestrian gate are located just south of the general aviation terminal/FBO building providing controlled access to the south hangar area. The gates were installed in 2003 and reportedly function normally.

The general aviation terminal/FBO building has a double swing pedestrian gate located on the parking lot side of the building. The gate is equipped with a key pad combination lock.

Utilities

Utilities on the airport include city water and sewer; electrical (Pacific Power & Light); natural gas (Northwest Natural Gas); and telephone (U.S. West). Most utilities enter the airport along Aviation Way or have underground or overhead crossings on Interstate 5 (I-5) to serve the west landside area. Overhead power lines run along the west side of Aviation Way, with overhead connections to several airport buildings. The south hangar area has water and electrical service. **Figure 2-6** depicts the locations of the major utilities serving Albany Municipal Airport.

The airfield lighting systems are fed from a concrete encased underground conduit from the electrical building located adjacent to the main apron. A direct underground line also extends to the lighted wind cone and segmented circle located on the east side of the runway. The airport beacon is connected to the main electrical lines from an underground line.



albany municipal airport | airport master plan

existing utilities | fig. 2-6

Century West Engineering Corporation

The airport's storm sewer system has two outfalls located on the west side of the airport. The majority of surface drainage is collected from the runway, taxiway and apron and routed south where Cox Creek crosses I-5. A northern outfall crosses I-5 and is routed to Waverly Lake. The storm system uses a variety of pipe sizes ranging from 8 to 24-inches and open drainage basins around the airport. The areas along the runway, taxiways and apron appear to be sloped and provide effective drainage on the airport.

Overhead electrical lines located off airport property along Highway 20 cross under the Runway 34 approach. The electrical lines are equipped with several marker balls to help pilots identify their presence. Burying electrical lines near the approach surfaces for runways is recommended whenever feasible to eliminate the potential hazard.

Land Use Planning and Zoning

Albany Municipal Airport is located within the City of Albany city limits. Land use controls and zoning for the airport and in the immediate vicinity of the airport are administered by the City of Albany. Land uses on the airport include aircraft hangars and the airport fixed base operator (FBO). The airport is surrounded by industrial, residential, and commercial zoning and is bordered on the west, north and south by interstate highway right of way of travel lanes, exits, and interchanges. The Linn County Fairgrounds and Timber Linn Memorial Park are located immediately east of the airport.

Areas southeast, northwest and northeast of the airport are located outside the Albany city limits and urban growth boundary (UGB) area. These areas are under the jurisdiction of Linn or Benton County. Further south and west of the airport are lands located in Linn County. Zoning for the airport and its surrounding area is depicted in **Figure 2**-7.

COMPREHENSIVE PLAN LAND USE DESIGNATION

The City of Albany Comprehensive Plan land use designation for Albany Municipal Airport is **Public** and **Semi Public**, which is used to recognize and protect significant public facilities that provide transportation or other public service functions. A small parcel of private land (**General Commercial** land use designation) at the south end of the airport was donated to the City recently and has not yet been changed to be consistent with the existing airport comprehensive plan land use designation or zoning.

AIRPORT ZONING

The majority of Albany Municipal Airport is zoned **Light Industrial District (LI)**; a small area at the south end of the airport is zoned **Regional Commercial (RC)**. As noted above, this parcel was recently added to the airport through private donation and has not yet been rezoned. LI is one of several districts defined for commercial and industrial uses in Article 4 of the Albany Development Code. It is noted that airports and aviation related uses are not included among the list of outright permitted or conditional uses in the LI zone. Although "passenger terminals" is listed among permitted uses, the current definition does not include any references to aviation or airport-related uses.

The need to recognize the unique requirements of commercial and industrial land uses is described in **Article 4, Section 4.010: Overview**: *The zones created in this article are intended to provide land for commercial, office and industrial uses. The differences among the zones, in the permitted uses and development standards, reflect the existing and potential intensities of commercial and industrial development. The site development standards allow for flexibility of development while minimizing impacts on surrounding uses. The regulations in this article promote uses and development that will enhance the economic viability of specific commercial and industrial areas and the city as a whole.*

Article 4, Section 4.020(7) describes the purpose of the LI zone: *The LI district is intended primarily for a wide range of manufacturing, warehousing, processing, assembling, wholesaling, specialty contractors and related establishments. Uses will have limited impacts on surrounding properties. This district is particularly suited to areas having good access to highways and perhaps to rail. LI may serve as a buffer around the HI district and may be compatible with nearby residential zones or uses.*

AIRPORT OVERLAY ZONING

The City of Albany has an airport overlay zone **(Section 4.4)**, entitled "**Airport Approach**." Despite its title, the overlay zone is not limited to the runway approaches, but also includes three other FAR Part 77 airspace surfaces defined for Runway 16/34: transitional, horizontal and conical surfaces. The description from the Albany Development Code is summarized below (references to Figure 6-1 and 6-2 relate to graphics contained in the code):

4. 400 Purpose. The Airport Approach district is intended to protect the public from excessive noise and air traffic from possible hazards on landing or takeoff.

4. 410 Applicability. The regulations below apply to those areas indicated on Figures 6-1 and 6-2.

4. 420 Height Restrictions. No structure, mast, antenna, or wire shall be erected, altered, or maintained, and no tree shall be allowed to grow to a height in excess of the height limit established within each of the following described zones (which are also graphically represented in Figure 6-1):

(1) Visual Approach Area. Slopes 20 feet outward for each foot upward beginning at the ends of the primary surface (200 feet from the end of the pavement) and at the same elevation as the primary surface, and extending to a horizontal distance of 5,000 feet along the extended runway centerline.

(2) Transitional Areas. Slopes 7 feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation, which is 222 feet above mean sea level. In addition, there are height limits sloping 7 feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending to where they intersect the conical surface.

(3) Horizontal Area. One hundred fifty (150) feet above the airport elevation or at a height of 372 feet above mean sea level.

(4) Conical Area. Slopes 20 feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.

[Note: Albany Development Code Section 4.4 identifies the airport elevation as 222 feet MSL, which is obsolete based on recent survey. Several subsequent references to FAR Part 77 Surface elevations refer to the obsolete airport elevation and are also incorrect. The current airport elevation is 226.47 feet, rounded to 226. The language in the development code should be revised or modified to remove specific elevations, instead referring to elevations "as depicted on the current FAA City-approved Airport Layout Plan drawing set."]

4. 430 Other Interference Prohibited. Notwithstanding any other provisions of this ordinance, no use may be made of land or water within any zone established by this ordinance in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, takeoff, or maneuvering of aircraft intending to use the airport.

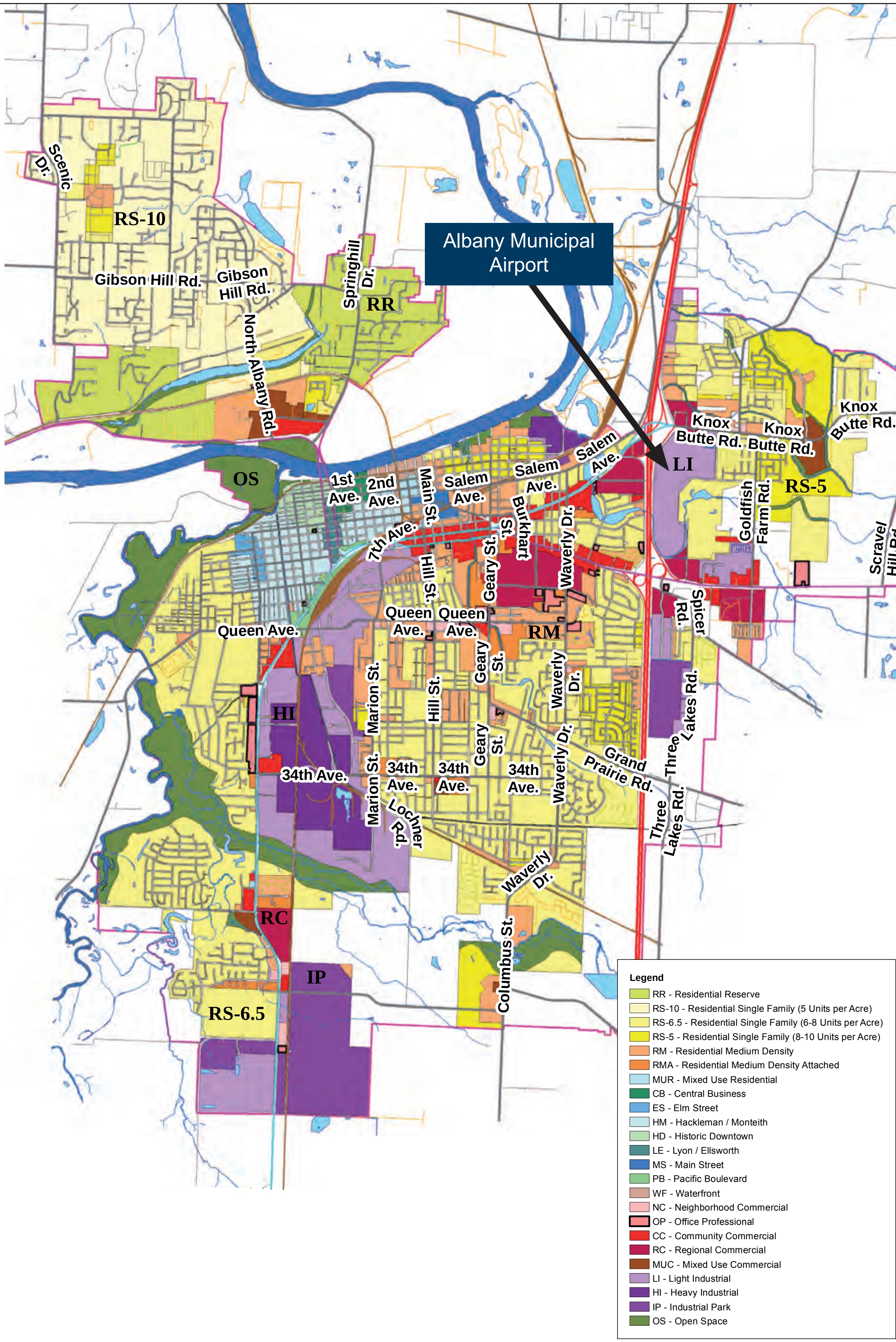
4. 440 Noise Construction Standards. Within the designated airport noise contours indicated in Figure 6-2, the following regulations shall apply:

> *(1) In the 55 to 60 Day-Night Sound Level (ldn) area, a declaration of anticipated noise levels shall be attached to any land use application and recording of such declaration may be required for approval on each parcel within such area.*
>
> *(2) Development of "noise sensitive property" (e.g. residentially zoned areas, group quarters used for sleeping, motels, hotels, schools, churches, hospitals, libraries) within the 55 to 60 ldn area and above shall be subject to the provisions of Site Plan Review outlined in Article 2 and may be required to include additional sound buffering features within the development as a condition of approval.*

[Note: the FAA previous noise metric designation "ldn" has been changed to "DNL"]

AIRPORT VICINITY ZONING

The zoning in the vicinity of the airport accommodates a variety of commercial, residential and industrial zoning. The adjacent Fair and Expo center is zoned Light Industrial. Areas of commercial zoning are located near the airport on both sides of Knox Butte Road and near the south end of the airport near Price Road. The areas south of Highway 20 on the east side of I-5 has large areas of commercial and industrial zoning.


Albany Municipal Airport
Scenic Dr.
RS-10
Gibson Hill Rd.
Gibson Hill Rd.
North Albany Rd.
Springhill Dr.
RR
OS
1st Ave.
2nd Ave.
Main St.
Salem Ave.
Salem Ave.
Salem Ave.
7th Ave.
Burkhart St.
Waverly Dr.
Knox Butte Rd.
Knox Butte Rd.
Knox Butte Rd.
LI
RS-5
Goldfish Farm Rd.
Scravel Hill Rd.
Hill St.
Geary St.
Queen Ave.
Queen Ave.
Queen Ave.
RM
Spicer Rd.
Geary St.
Waverly Dr.
Marion St.
Hill St.
HI
Three Lakes Rd.
34th Ave.
Marion St.
34th Ave.
34th Ave.
Geary St.
34th Ave.
Waverly Dr.
Grand Prairie Rd.
Locher Rd.
Three Lakes Rd.
Waverly Dr.
RC
Columbus St.
IP
RS-6.5
Legend
RR - Residential Reserve
RS-10 - Residential Single Family (5 Units per Acre)
RS-6.5 - Residential Single Family (6-8 Units per Acre)
RS-5 - Residential Single Family (8-10 Units per Acre)
RM - Residential Medium Density
RMA - Residential Medium Density Attached
MUR - Mixed Use Residential
CB - Central Business
ES - Elm Street
HM - Hackleman / Monteith
HD - Historic Downtown
LE - Lyon / Ellsworth
MS - Main Street
PB - Pacific Boulevard
WF - Waterfront
NC - Neighborhood Commercial
OP - Office Professional
CC - Community Commercial
RC - Regional Commercial
MUC - Mixed Use Commercial
LI - Light Industrial
HI - Heavy Industrial
IP - Industrial Park
OS - Open Space

Data Sources:

- City of Albany airport records
- **Albany Municipal Airport – Airport Master Plan** (Century West Engineering, May 2002)
- **Albany Municipal Airport – Airport Layout Plan** (Century West Engineering, February 2002)
- **Albany Municipal Airport –2012 Pavement Management Report** (Pavement Consultants Inc., February 2008)
- Airfield Design Drawings and Engineering Reports (various projects) (Precision Approach Engineering)
- **FAA Airport Master Record Form (5010-1)**
- **Airport/Facility Directory (AFD) –Northwest U.S.** (U.S. DOT, Federal Aviation Administration, Municipal Aeronautical Charting Office)
- **Seattle Sectional Aeronautical Chart and Terminal Area Chart; IFR Enroute Low Altitude (L-1/L-2) Chart** (U.S. DOT, Federal Aviation Administration, Municipal Aeronautical Charting Office)
- **Instrument Approach Procedure Charts (FAA NACO**)
- City of Albany Zoning and Land Use Plan Mapping
- Linn County Zoning and Land Use Plan Mapping
- Local land use planning documents, zoning ordinances and mapping

A glossary of aviation terminology and a list of acronyms have also been provided to describe technical items and aviation jargon commonly in use.

Chapter 3 – Aviation Activity Forecasts

This chapter provides updated forecasts of aviation activity for Albany Municipal Airport (S12) for the twenty-year master plan horizon (2012-2032). The overall goal is to prepare forecasts that accurately reflect current conditions, relevant historic trends, and provide reasonable projections of future activity, which can be translated into specific airport facility needs anticipated during the next twenty years and beyond.

Introduction

The forecasts presented in this chapter are consistent with Albany Municipal Airport's current and historic role as a community general aviation airport. Unless specifically noted, the forecasts of activity are unconstrained and assume that the City of Albany will be able to make the facility improvements necessary to accommodate anticipated demand. Through the evaluation of airport development alternatives later in the master plan, the City of Albany will consider if any unconstrained demand will not or cannot be reasonably met.

The FAA-defined airport master plan forecasting process for general aviation airports is designed to address elements critical to airport planning by focusing on two key activity segments: based aircraft and aircraft operations (takeoffs and landings). Detailed breakdowns of these are also provided including aircraft fleet mix, activity peaking, distribution of local and itinerant operations, and the determination of the critical aircraft, also referred to as the design aircraft.

The design 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 existing and future design aircraft are used to define the airport reference codes (ARC) to be used in airfield planning. FAA airport design standards are organized into several different ARC groupings, each reflecting the physical requirements of that aircraft type. The activity forecasts also provide consistency in evaluating future demand-based facility requirements such as runway and taxiway capacity, aircraft parking and hangar capacity, and other planning evaluations such as airport noise.

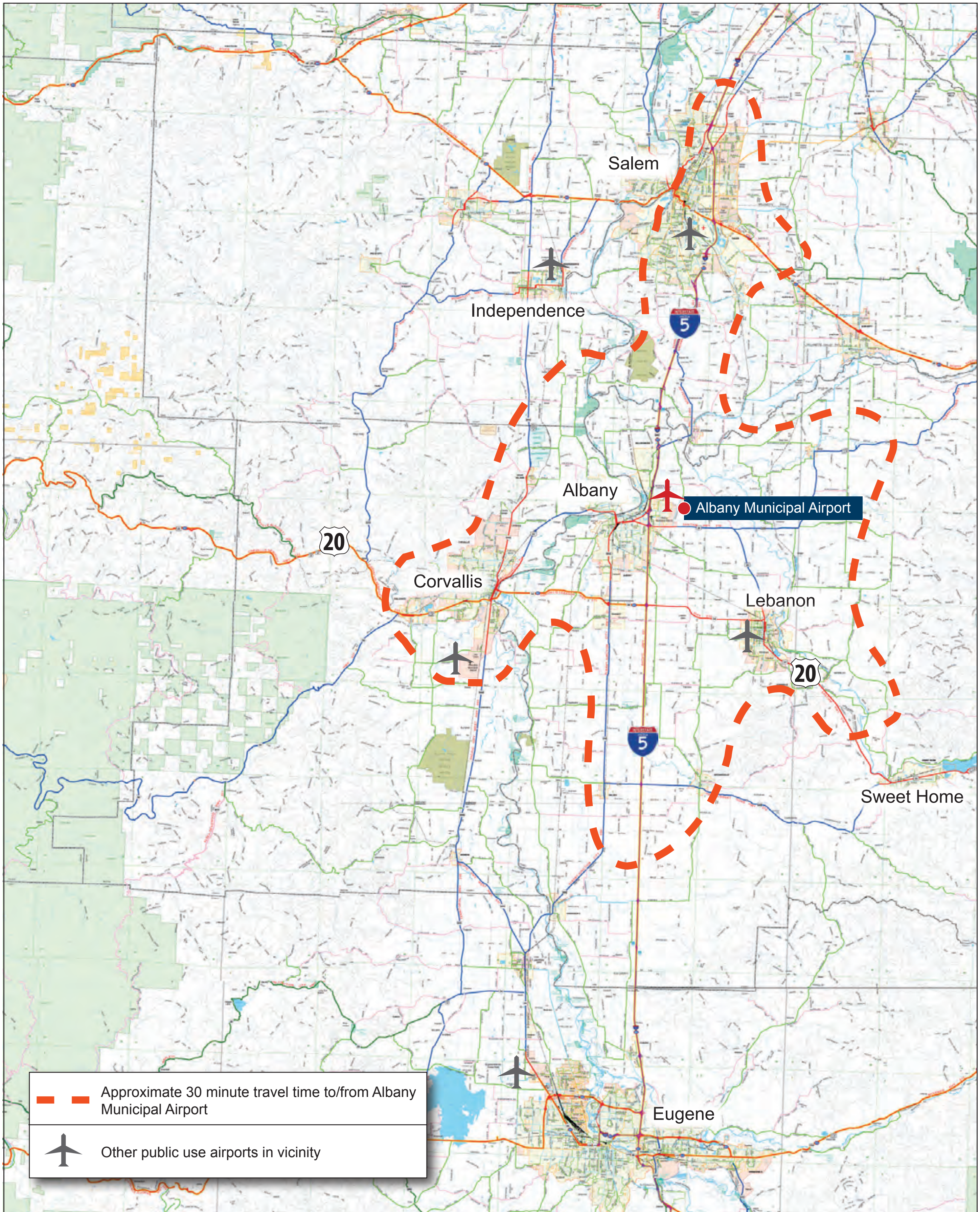
Airport Service Area

The airport service area refers to the geographic area surrounding an airport that generates most "local" activity. The population, economic characteristics and number of competing airports within an airport's service area are important factors in defining locally-generated demand for aviation facilities and services. With numerous airports nearby, service areas often overlap, creating competition between airports for items such as hangar space, fuel and aviation services. These items are sensitive to cost, convenience and the quality of facilities or services. Demand generated by transient users can also be influenced by competition from nearby airports and can usually be measured in terms of cost, convenience or capabilities.

A 30- or 60-minute surface travel time is used to approximate the boundaries of a service area for a typical general aviation airport. **Table 3-1** lists the public use airports within a 30 nautical mile air radius of Albany. It is noted that each of the public use airports listed provide competitive facilities and services, with master plans that provide for future facility expansion. Competing airports located beyond a 30-minute travel time typically have less impact on local airport activity due to the redundancy provided by closer facilities. In contrast, the service area for a commercial airport often extends beyond two hours due the relatively small number of airports with scheduled airline service. **Figure 3-1** illustrates the approximate boundary of a 30-minute drive from the local area, which encompasses large areas of Linn and Benton Counties and small portions of adjacent counties.

TABLE 3-1: PUBLIC USE AIRPORTS IN VICINITY OF ALBANY MUNICIPAL AIRPORT
(WITHIN 30 NAUTICAL MILES)

AIRPORT	LOCATION	RUNWAY DIMENSION (FEET)	SURFACE	LIGHTED RUNWAY?	FUEL AVAILABLE?
Corvallis Municipal	13 NM SW	5,900 x 150 (primary runway)	Asphalt	Yes	Yes
Lebanon State	8.5 NM SE	2,877 x 60	Asphalt	Yes	Yes
Salem Municipal – McNary Field	16.5 NM N	5,811 x 150 (primary runway)	Asphalt	Yes	Yes
Independence State	15 NM NW	3,142 x 60	Asphalt	Yes	Yes


Salem
Independence
Albany
Albany Municipal Airport
Corvallis
Lebanon
Sweet Home
Eugene
20
5
Approximate 30 minute travel time to/from Albany Municipal Airport
Other public use airports in vicinity

Socioeconomic Trends and Forecasts

AIRPORT SERVICE AREA ECONOMY

Historically, downturns in general aviation activity often occur during periods of weak economic conditions and growth typically coincides with favorable economic conditions. It is evident that recent economic recession and the slow recovery that followed, has constrained general aviation activity locally, statewide and throughout national airport system. However, as indicated in the FAA's national long term aviation forecasts, the overall strength of the U.S. economy is expected to sustain economic growth over the long-term, which will translate into modest to moderate growth in aviation activity.

In December 2012, Oregon's employment rate was 8.4 percent and the U.S. unemployment rate was 7.8 percent. Linn County has been particularly hard hit in the economic recession with significantly higher unemployment than statewide or national levels. In December 2012, the unemployment rate in Linn County was 10.9 percent, down only slightly from 11.3 percent in December 2011. Benton County has fared slightly better due in part to relatively stable government employment associated with Oregon State University. In December 2012, the unemployment rate in Benton County was 6.1 percent, down from 6.4 percent in December 2011. Nonfarm employment in both counties began a sharply decline at the onset during the recent economic recession in early 2008. Benton County's employment began to recover significantly by mid-2009 and has since fluctuated around pre-recession levels. In contrast, Linn County's sharp decline in employment leveled off in early 2009, and was slow to experience significant improvement.

The 2010-2020 Employment Projections by Industry and Occupation prepared by the Oregon Department of Employment project modest growth in employment for the local three-county region (Linn, Benton and Lincoln) over the next ten years. Total payroll is projected to increase from 97,648 in 2010 to 113,541 in 2020, an increase of 16.3 percent (average annual growth of 1.52 percent). The largest gains (by percentage) are expected in Professional and Business Services (+32%); Educational & Health Services (+27%); Construction (+27%); and Leisure & Hospitality (+19%). The largest net increase in jobs is in Educational & Health Services (+3,300). Government (federal, state, local), the largest employment segment in the region (26.2%) is projected to increase by 2,060 jobs by 2020, although its share of region employment is projected to decline to 24.4 percent.

POPULATION

In broad terms, the population within an airport's service area affects the type and scale of aviation facilities and services that can be supported. Although a large number of airport-specific factors can affect activities at an airport, changes in population often reflect other broader economic conditions which may also affect airport activity. Since it is difficult to identify specific connections between airport activity and individual economic indicators such as growth in personal income, unemployment rates, or business spending, population trends generally provide a broad measure of an area's economic health. Regions with flat or declining populations often have weak underlying economic conditions. In contrast, higher rates of population growth often characterize a growing economy that can stimulate individual and business use of general aviation.

HISTORIC POPULATION

As noted earlier, the airport service area for Albany Municipal Airport extends beyond Albany and includes large portions of Linn and Benton Counties. For these reasons, an examination of population trends for the two-county area provides an effective basis for evaluating the impacts of growth on activity at the airport.

Certified estimates of population for Oregon counties and incorporated cities are developed annually by the Portland State University (PSU) Population Research Center. The annual PSU estimates, coupled with the U.S. Census, conducted every ten years, provide an indication of local area population trends over an extended period.[1]

Population growth for the City of Albany, Linn County, and Benton County has been modest-to-moderate over the last twenty to thirty years, typically growing at a rate slightly lower than Oregon's statewide population. Albany's share of the combined Linn/Benton County population has nearly doubled in the last 50 years, up from about 13 percent in 1960 to 25 percent in 2012, reflecting consistently stronger growth than the overall county areas. This may be attributed to several factors such as a localized housing or employment opportunities, or growth through annexation (physical expansion of the incorporated city limits). This concentration of population growth generates substantial economic activity in the immediate proximity to the airport. Historic population data and average growth rates for Linn and Benton Counties, the City of Albany and Oregon are summarized in **Table 3-2**.

TABLE 3-2: HISTORIC POPULATION

YEAR	LINN COUNTY	BENTON COUNTY	LINN-BENTON COUNTIES COMBINED	CITY OF ALBANY *(INCORPORATED AREA ONLY)* [1]	CITY OF ALBANY % OF TWO-COUNTY POPULATION	OREGON
1960	58,867	39,165	98,032	12,926	13.0%	1,768,687
1970	71,914	53,776	125,690	18,181	14.5%	2,091,533
1980	89,495	68,211	157,706	26,511	16.8%	2,633,156
1990	91,227	70,811	162,200	29,540	18.2%	2,842,321
2000	103,069	78,153	181,222	41,145	22.7%	3,421,399
2010	116,840	85,735	202,575	50,325	24.8%	3,837,300
2012	**118,035**	**86,785**	**204,820**	**50,710**	**24.8%**	**3,883,735**

[1] Portland State University Population Research Center, July 1, 2010 estimate; 1990, 2000 U.S. Census.

Average Annual Rates (AAR) of Growth	Linn County	Benton County	Combined Linn-Benton	City of Albany		Oregon
1960-2012	1.35%	1.54%	1.43%	2.66%		1.52%
1980-1990	0.19%	0.38%	0.28%	3.84%		0.77%
1990-2000	1.23%	0.99%	1.12%	3.37%		1.87%
2000-2010	1.26%	0.93%	1.12%	2.03%		1.15%
2010-2012	0.51%	0.61%	0.55%	0.38%		0.60%

Source: U.S. Census data; Portland State University certified annual estimates.

1. City of Albany historic population includes growth through natural growth, in-migration, and annexation.

POPULATION FORECASTS

City of Albany Coordinated Population Forecast (Comprehensive Plan)

The City of Albany developed the County Coordinated Population Forecast with Linn and Benton Counties in 1999 to support city and county comprehensive planning. The coordinated forecast projects population growth for Albany at an average annual rate of 1.4 percent through 2025. However, due to faster than expected population growth between 1996 and 2005 (2.3 percent annually), City planning staff subsequently developed three scenarios with annual growth ranging from 1.9 to 2.2 percent through 2025. These supplemental projections have not replaced the adopted forecast, but are used for comparison in long term planning scenarios. The County Coordinated Population Forecast is summarized in **Table 3-3**.

Oregon Office of Economic Analysis (OEA)

Long-term population forecasts prepared by the Oregon Office of Economic Analysis (OEA) are periodically generated to support local and statewide planning. The most recent OEA long-term forecasts were prepared in 2000, which projected modest sustained growth for both Linn and Benton counties through 2040. The combined Linn-Benton county population is projected to grow at an average annual rate of 0.76 percent between 2000 and 2040. The OEA forecasts project Oregon's annual statewide growth to average 1.15 percent through 2040. The OEA forecasts are summarized in **Table 3-3**.

OEA recently completed a preliminary updated long-term forecast for the period 2010 to 2050. The updated forecast projects similar, but slightly more optimistic growth for both Linn and Benton counties, averaging 0.82 percent annually over the 40-year period.

A comparison of the OEA population forecasts with private sector forecasts prepared by Woods & Poole Economics, shows similar long term growth expectations for the Linn-Benton County area (0.70 percent average annual growth for 2010 to 2032). Anticipated growth within both the City of Albany and the two local counties are considered to be indicators of future economic strength that will affect activity at Albany Municipal Airport.

Tracking Long Term Population Forecasts

The PSU certified estimates of population noted earlier provide an indication of trending over the initial years for the existing long term population forecasts. The 2010 certified estimate for the City of Albany (50,325) exceeded all but the most optimistic scenario in the City's Coordinated Population Forecast for 2010.

The PSU certified estimate for Linn County was 6.1 percent higher than the OEA forecast for 2010, although the certified estimate for Benton County was only 0.1 percent higher than the 2010 forecast. The 2010 estimates for Linn and Benton County combined were 3.4 percent higher than the OEA forecast for 2010. In general, local and area wide population growth over the last decade exceeded very modest forecast expectations.

The 2010 PSU certified population estimates for Albany, Linn County, and Benton County summarized in **Table 3-3** generally exceed most forecasts of population for 2010, signaling stronger than expected population growth in the last decade.

TABLE 3-3: ALBANY AND LINN/BENTON COUNTY POPULATION FORECASTS

	2000	2010	*2010 PSU Cert. Estimates*	2015	2020	2025	2030	2040
City of Albany								
Coordinated Forecast (Adopted)[1] *(1.4% AAR 2000-2025)*	39,550	46,450	***50,325***	49,710	53,200	57,030	--	--
Alternative Scenario #1 *(1.5% AAR 2000-2025)*	40,852[2]	48,666	***50,325***	52,642	56,711	61,093	--	--
Alternative Scenario #2 *(1.9% AAR 2000-2025)*	40,852[2]	49,836	***50,325***	54,754	60,157	66,093	--	--
Alternative Scenario #3 *(2.2% AAR 2000-2025)*	40,852[2]	50,574	***50,325***	56,387	62,869	70,096	--	--
County Forecasts								
OEA 2000-2040 Linn County[3] *(0.87% AAR)*	103,350	110,123	***116,840***	115,156	120,465	126,140	132,133	146,260
OEA 2000-2040 Benton County[3] *(0.61% AAR)*	78,300	85,721	***85,735***	88,995	91,982	94,549	96,517	99,886

OEA 2000-2040 Combined Linn / Benton County[3] *(0.76% AAR)*	181,650	195,844	***202,575***	204,151	212,447	220,689	228,650	246,146

1. City of Albany Coordinated Population Forecast used in current comprehensive planning.
2. 2000 U.S. Census Data
3. Oregon Office of Economic Analysis (OEA) Long Term Population Forecasts (2000-2040).

National General Aviation Activity Trends

The first decade of the 21st Century was tumultuous for general aviation. The industry was battered by poor economic conditions and steadily rising fuel prices that slowed growth and negatively impacted elements such as aircraft manufacturing, on-demand air travel, aircraft ownership, and aircraft utilization levels. Ongoing concerns over the potential replacement and future availability of aviation gasoline (AVGAS) have also created uncertainty within general aviation. On a national level, most measures of general aviation activity declined sharply through the second half of the decade and have only recently started to show modest signs of improvement.

Data maintained by the FAA show significant system-wide declines of several key general aviation activity indicators between 2000 and 2011 (AVGAS consumption -36%; piston aircraft hours flown -36%; active piston aircraft -9%; active GA pilots -2%). The FAA's updated long term forecasts are significantly tempered to reflect current and recent historic conditions. Although the FAA maintains a favorable long-term outlook, many of the activity segments associated with piston engine aircraft and AVGAS consumption are not projected to return to "pre-recession" levels until the 2020 to 2030 timeframe.

These expectations reflect a variety of industry specific factors and broad-based measures and forecasts of economic health such as gross domestic product (GDP), consumer price index, oil prices and interest rates. The FAA acknowledges several risks to its forecast assumptions related to rising oil prices, public perceptions of business and corporate aviation, broad national and international governmental fiscal policy concerns, and environmental concerns. The FAA notes that improvement for business and corporate aviation is largely based upon the future prospects of economic growth and corporate profits.

The FAA indicates that the 2012 general aviation forecasts have been updated to rely heavily on discussions with industry experts conducted at a workshop co-hosted by FAA and the Transportation Research Board (TRB) in July 2011 along with the results of the 2010 General Aviation and Part 135 Activity Survey. The forecast assumptions have been updated by FAA analysts to reflect more recent data and developing trends, as well as further information from industry experts. Although some segments of general aviation are expected to grow at moderately high rates, most measures of the general aviation industry suggest modest, sustained growth in the range of 1 to 2 percent annually is expected over the next 20 years. The FAA's annual growth assumptions for individual general aviation activity segments are summarized in **Table 3-4.**

TABLE 3-4: FAA LONG RANGE FORECAST ASSUMPTIONS (U.S. GENERAL AVIATION)

ACTIVITY COMPONENT	FORECAST ANNUAL AVERAGE GROWTH RATE (2012-2032)
Components with Annual Growth Forecast < 0%	
Single Engine Piston Aircraft in U.S. Fleet	-0.2%
Multi-Engine Piston Aircraft in U.S. Fleet	-0.5%
Hours Flown - GA Fleet (Piston AC)	-0.1%
Student Pilots (Indicator of flight training activity)	-0.1%
Components with Annual Growth Forecast < 1%	
Private Pilots	0.1%
Commercial Pilots	0.4%
Airline Transport Pilots	0.6%
Instrument Rated Pilots	0.4%
Active Pilots (All Ratings, excluding Airline Transport)	0.3%
GA Operations at Towered Airports (all AC types)	0.3%
AVGAS (Gallons consumed - GA only)	0.2%
Active GA Fleet (# of Aircraft)	0.6%
Turboprop Aircraft in U.S. Fleet	0.9%
Components with Annual Growth Forecast 1%-2%	
Experimental Aircraft in U.S. Fleet	1.2%
Components with Annual Growth Forecast >2%	
Sport Pilots	6.0%
Turbine Helicopters in U.S. Fleet	3.0%
Piston Helicopters in U.S. Fleet	2.7%
Light Sport Aircraft in U.S. Fleet	2.1%
Turbojet Aircraft in U.S. Fleet	4.0%
Hours Flown - GA Fleet (Turbine AC)	4.0%
Hours Flown – Experimental AC	2.6%
Hours Flown – Light Sport AC	3.5%
Jet Fuel (Gallons consumed – GA only)	3.9%

Source: FAA Long Range Aerospace Forecasts (FY 2012-2032)

The FAA's long term forecasts predict that the U.S. active general aviation aircraft fleet will grow modestly at an average annual rate of 0.6 percent between 2012 and 2032. The active fleet is expected to increase from 222,520 aircraft in 2011 to 253,205 in 2032 (+30,685) which is an overall increase of approximately 14 percent. However, within that overall growth is a projected decline in active single engine piston aircraft (-2.3%) and multi-engine piston aircraft (-9.2%). These declines reflect attrition of an aging fleet which is not fully offset by new aircraft production. Encouraging areas within the general aviation fleet are found in experimental aircraft (+29%), sport aircraft (+53%), and business jet (+129%) growth through 2032. The very light jet (VLJ) [2] portion of the business jet segment is expected to overcome several early setbacks and depressed market demand to become a growing percentage of the business jet fleet.

Overview of Recent Local Events

Albany Municipal Airport was affected by the same conditions that affected airports across the country during the recent economic recession and sluggish recovery. As noted above, high unemployment continues to be a drag on the local economy. A review of events at the airport over the last ten to twelve years underscores the impact of the economic recession that effectively created a "pre-recession" period that included hangar construction and growth in aircraft activity followed by a recession and post-recession period that is marked with a significant decline in activity and no new hangar construction. The net effect varies by activity; the number hangars and based aircraft have increased since 2000, while the volume of aviation fuel delivered has been flat or has declined from pre-2001 levels. The latter is consistent with the national decline in AVGAS consumption that translates into reduced aircraft use. Between 2000 and 2012, based aircraft at Albany Municipal Airport increased from 65 to 80 (+23.1%) and three locally-based business jets were added to the fleet that consists primarily of single- and multi-engine piston aircraft. The airport also lost its full time fixed base operator (FBO) during this period. As a result, services are limited and fueling is self-service only. *[Note: Full service FBO services were reestablished at the airport in early 2015.]*

AIRPORT FUEL SALES

A review of aviation fuel delivery volumes at Albany Municipal Airport was conducted to help evaluate the impact of activity trends on airport operations. **Table 3-5** summarizes historic aviation gasoline (AVGAS) deliveries at the airport during the most recent three-year period (2010-2012) and data from four consecutive years (1995-1998) preceding the last master plan. Jet fuel is not available at the airport.

According to airport records, fuel volumes in each of the last three years have been less than any of the four years documented in the last master plan update (late 1990s). Overall, the three-year running average from the current period is 39.5 percent lower than the four-year average from the earlier period despite significant growth in the airport's based aircraft fleet. The ratio of gallons delivered per based aircraft

[2] Very Light Jets (VLJ) are small jet-powered aircraft (weighing less than 12,500 pounds) with airport-related performance characteristics (takeoff weight, approach speed, runway length requirements, physical dimensions, passenger load, etc.) comparable to a high-performance light twin-engine aircraft.

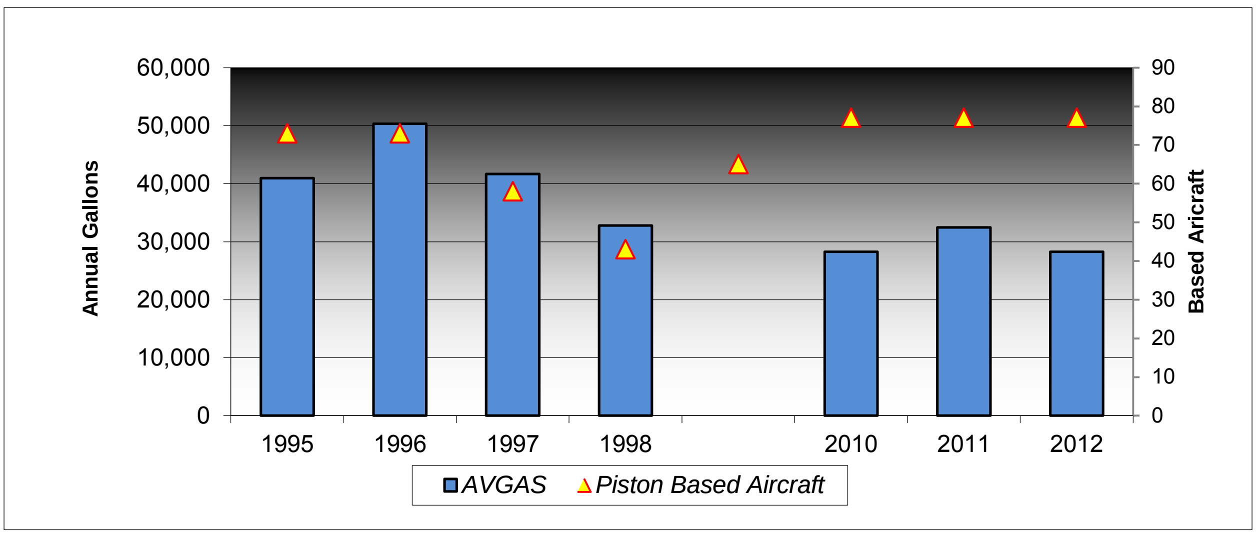
dropped by approximately 42 percent between the two periods. **Figure 3-2** depicts a significant change in fuel consumption patterns at the airport between these two periods.

TABLE 3-5: ALBANY MUNICIPAL AIRPORT - AVIATION FUEL ACTIVITY (ANNUAL GALLONS DELIVERED)

	2012	2011	2010		1998	1997	1996	1995
100LL Aviation Gasoline (AVGAS)	28,388	32,444	28,270		32,817	41,649	50,340	40,942
% Change From Previous Year	-12.5%	+14.8%	--		-21.2%	-17.3%	+23.0%	--
Piston Engine Based Aircraft (est.)	77	77	77		43	73	73	73
Average Gallons Per Based Aircraft	369	421	367		763	571	690	561

Source: Airport fuel records

FIGURE 3-2: ALBANY MUNICIPAL AIRPORT - AVIATION FUEL ACTIVITY (ANNUAL GALLONS DELIVERED)



Based on similar declines documented at the national level, it is likely that the recent economic recession and its residual effect are the primary causes for the current trend. Other potential factors could include the absence of a full service FBO and full service fueling, or changes in fuel types used.

The absence of full service fueling and the air traffic commonly associated with a thriving FBO can adversely impact an airport's fueling activity. Reliant Aviation, the airport's former FBO ended operations at Albany Municipal Airport early in the 2000s and a permanent replacement FBO has not been established. *[Note: Full service FBO services were reestablished at the airport in early 2015.]* The variation in fueling volumes noted above coincided with periods during and after FBO operations at the airport. A well-established FBO is a significant factor in an airport's ability to attract and serve based aircraft and to attract transient customers for maintenance, fueling and other related services.

The use of auto gas for small aircraft became popular in the late 1980s and early 1990s as 80/87 octane AVGAS was being phased out. More recently, the introduction of a variety of kit airplanes and light sport aircraft and potential use of auto gas as a replacement for 100LL AVGAS in many traditional piston engine aircraft has generated renewed interest. The regular use of auto gas could impact AVGAS delivery volumes at the airport due to self-fueling or the need to purchase fuel at a nearby airport.

As an input into forecasting aviation activity in this master plan, it is reasonable to assume that current fueling activity has contributed to a decline in aircraft utilization levels compared to previously documented activity at the airport. However, it appears that the airport has the underlying market strength to return to more typical historic activity levels as economic conditions improve.

HANGAR CONSTRUCTION

Eight new conventional hangars and one 10-unit T-hangar were constructed at the airport between 2002 and 2007. Four T-hangars (42 units) were constructed in 1999-2000. More than 75 percent of the airport's hangar space has been constructed since 1999, which coincided with a sustained increase in based aircraft.

Historic Aviation Activity

As noted in the previous airport master plan, based aircraft levels at Albany Municipal Airport experienced a significant decline over a 20-year period extending from the late 1970s to the late 1990s when the future operation of the airport was uncertain. Once a long-term commitment to continued airport operations was made by the City around 2000, the airport experienced a surge of new hangar construction and based aircraft numbers increased steadily. Based aircraft counts associated with the master plans conducted in 2000 and 2012 indicate an increase from 65 to 80 (23%) over the twelve year period, which reflects average annual growth of **1.7 percent**. Albany Municipal Airport has traditionally accommodated primarily single- and multi-engine aircraft, although the airport now also has three locally-based business jets.

For Albany Municipal Airport, aircraft operational data (takeoffs and landings, touch and go landings, etc.) are limited to estimates. As a non-towered airport, no record of activity is regularly maintained. However, a review of estimates contained in state aviation system plans, previous airport master plans, historic on-site activity counts, and FAA Terminal Area Forecast (TAF) data provides a general indication of activity at the airport over time. Based aircraft counts are updated periodically either as part of a master plan or by airport management for other purposes.

AIRPORT TRAFFIC COUNTS

Beginning in the 1980s, aircraft operations counts at non-towered airports were conducted on a semi-regular basis by the Oregon Department of Aviation (ODA) through its "RENS" automated activity counting program. The RENS program methodology relied on four brief sample periods over a 12-month period to account for seasonal variation in activity. Recorders were placed next to runways to capture distinct engine sounds for takeoffs that could be identified by aircraft type. The acoustical events were tallied and the sample data was statistically extrapolated to provide a 12-month estimate of activity. The program was phased out in 2003, but provided six annual operations estimates for Albany between 1995 and 2003. **Table 3-6** summarizes the RENS counts for Albany Municipal Airport during the period, which ranged from a low of 15,623 to a high of 33,803. The range of operations per based aircraft ratios was approximately 242 to 463. The most recent RENS count for Albany conducted in 2002-2003 (22,675 operations) yielded an operations-to-based aircraft ratio of 349 with 65 based aircraft. Allowing for some anomalies within the eight year period, a simple averaging provides a reasonable indication of historical activity.

Although data from this period does not reflect current conditions, it represents an established level of airport activity, sustained over an extended period. The range of based aircraft-operations ratios associated with the RENS counts is generally consistent with activity ratios currently defined by FAA for estimating activity at small to medium non-towered general aviation airports. Therefore, for long term forecasting purposes, future aircraft operations ratios could reasonably be expected to be within the range previously experienced. Where the activity falls within the range will depend on a variety of economic and airport-specific factors in the future.

TABLE 3-6: SUMMARY OF ODA RENS ACTIVITY COUNTS - ALBANY MUNICIPAL AIRPORT

YEAR	AIRCRAFT OPERATIONS[1]	BASED AIRCRAFT [2]	RATIO: OPERATIONS PER BASED AIRCRAFT
1995	21,407	73	293
1996	33,803	73	463
1998	17,704	65	272
1999	15,623	65	240
2001	23,581	65	363
2003	22,675	65	349
6-Year Mean	***22,466***	***67.7***	***330.2***

1. ODA "RENS" Airport Activity Counting Program
2. FAA Terminal Area Forecast, Master Plan or Airport Management Estimates

FAA TERMINAL AREA FORECAST (TAF) DATA

The Federal Aviation Administration (FAA) Terminal Area Forecast (TAF) is maintained for airports that are included in the National Plan of Integrated Airport System (NPIAS). **Table 3-7** summarizes recent historic based aircraft and aircraft operations estimates for the airport from the FAA Terminal Area Forecast (TAF). The TAF is periodically updated and adjusted as more specific airport activity data are available. When reviewing FAA TAF data, it is important to note that when there is no change from year to year it often indicates a lack of data, rather than no change in activity. Similarly, a large change in data in a single year may follow updated reporting that captures changes that occurred over several years. Small changes in year-to-year activity that extend through the forecast typically reflect assumed growth rates that are not frequently updated.

TABLE 3-7: FAA TAF DATA – ALBANY MUNICIPAL AIRPORT

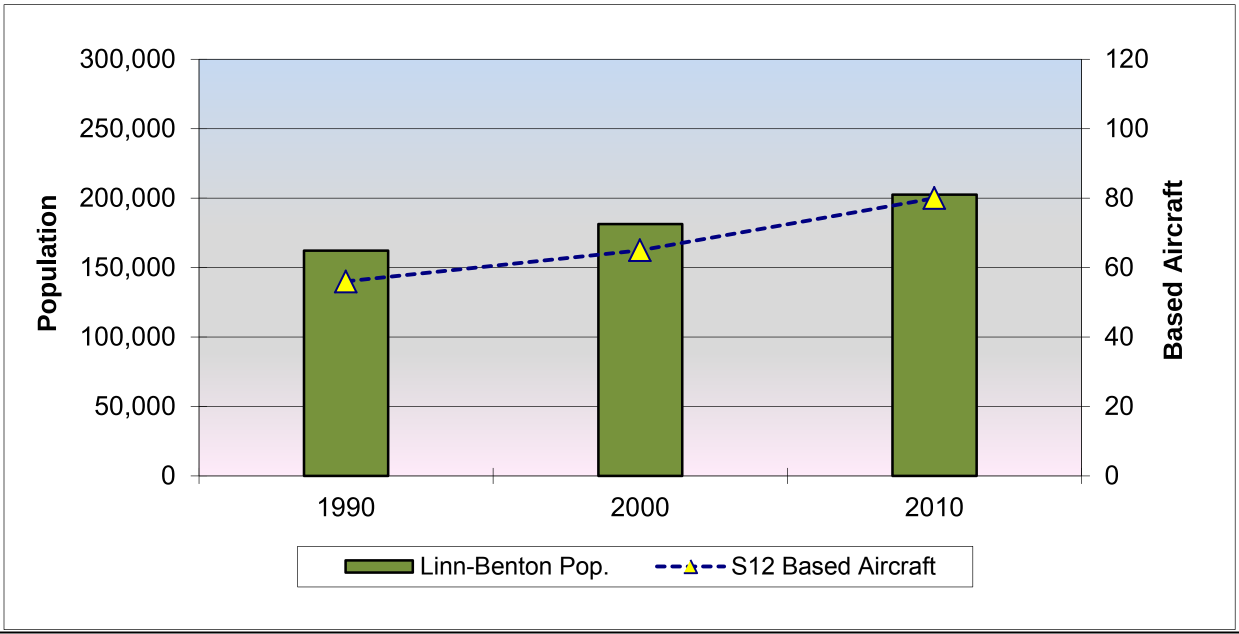
YEAR	AIRCRAFT OPERATIONS	BASED AIRCRAFT	RATIO: OPERATIONS PER BASED AIRCRAFT
2000	21,310	46	463
2001	21,601	47	460
2002	22,177	47	472
2003	22,754	48	474
2004	23,322	47	496
2005	23,899	72	332
2006	24,391	72	339
2007	24,893	72	346
2008[1]	25,404	73	348
2009[1]	25,926	74	350
2010[1]	26,459	75	353
2011[1]	27,003	76	355
2012[1]	27,560	79	349

1. FAA Terminal Area Projected (Forecast) Activity; previous years are presented as historical

The RENS operations estimates for 2001 and 2003 are very consistent with FAA TAF data for those years. However, significant variation in TAF based aircraft numbers suggests that the accompanying operations per based aircraft ratios are not consistently reliable indications. Since no RENS counts have been conducted at the airport during the last ten years, FAA TAF operations estimates have not been "adjusted" recently to reflect specific events such fuel sales trends or the recent economic recession. The TAF estimate for 2013 (28,127 operations) reflects a ratio of 352 operations per based aircraft, which is very similar to the activity ratios associated with RENS counts 10 years ago. However, the significant changes in fuel deliveries at the airport during this period suggests that activity levels have declined significantly and the current TAF operations estimates are not reliable indicators of activity.

A comparison of the 20-year historic growth of area population and based aircraft at Albany Municipal Airport depicted in **Figure 3-3** reflects a similar upward trend in recent years. The trend suggests that there is a general relationship between a growing population and increased airport activity. Since Between 1990 and 2012, the ratio of (Albany) based aircraft to combined Linn and Benton County population has steadily increased from 3.45 to 3.91 aircraft per 10,000 residents.

FIGURE 3-3: HISTORIC POPULATION & BASED AIRCRAFT - ALBANY MUNICIPAL AIRPORT



Source: US Census data, FAA TAF and airport based aircraft count

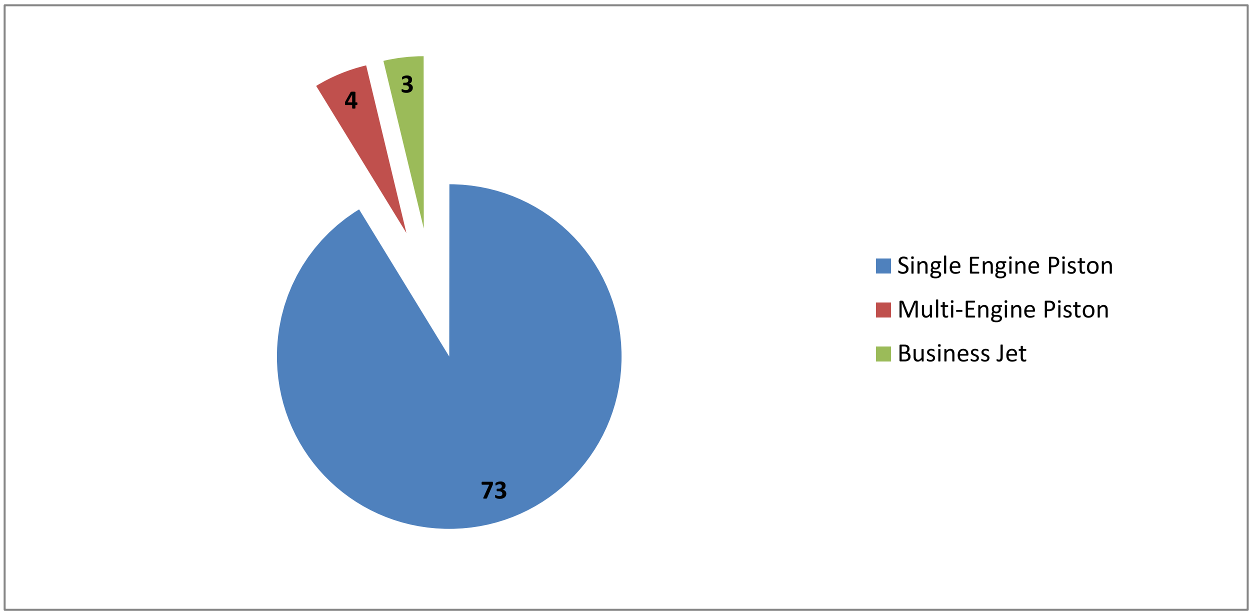
CURRENT ESTIMATES OF ACTIVITY

Based Aircraft

A count conducted by airport management in late 2012 identified 80 aircraft based at Albany Municipal Airport. The number of based aircraft increased by 15 (+23%) in the 12 years between 2000 (previous master plan forecast base year) and late 2012. As noted earlier, the increase in based aircraft coincided with a period of active hangar construction from 2000 to 2007, but appears to have slowed in recent years.

Figure 3-4 depicts the current distribution of based aircraft by type, which is predominantly single-engine piston (91%), followed by multi-engine piston (5%), and business jet (4%). The addition of business jets to the based aircraft fleet has occurred since the last master plan was completed. All of the current based aircraft at the airport weigh 12,500 pounds or less and all but one aircraft are included in Airplane Design Group I (ADG I). A 4-engine deHavilland Heron based at the airport is included in Airplane Design Group II (ADG II). A description of aircraft classifications is provided later in the chapter.

FIGURE 3-4: ALBANY MUNICIPAL AIPRORT - BASED AIRCRAFT SUMMARY (JAN. 2013)



Aircraft Operations

The FAA provides planning guidance for estimating activity at general aviation airports without control towers, including the use of activity ratios to project aircraft operations from the number of based aircraft at the airport. In the absence of actual aircraft operations counts, the ratios of activity are generally adequate for airport planning purposes. The FAA developed "typical" operations ratios for general aviation airports based on their observations at airports throughout the United States. The recommended ratios are 250 operations per based aircraft for small airports with low activity; 350 operations per based aircraft for airports with moderate local and itinerant activity; and 450 operations per based aircraft for high activity airports in urban areas. The ratios are intended to reflect operations from both locally-based and transient aircraft. However, the presence of unique activities such as a large flight school can increase traffic volumes due to significantly higher aircraft utilization levels (annual flight hours per aircraft, etc.). Conversely, the absence of aviation fuel or a fixed base operator (FBO) at an airport can contribute to lower activity levels.

As noted earlier in the chapter, a review of recent and historical fuel data for the airport identified what appears to be a significant decline in fuel consumption per based aircraft. Reduced fuel consumption could translate into reduced aircraft flight hours and therefore, reduced numbers of aircraft takeoffs and landings (operations). As noted earlier there may be a number of local factors affecting the data in addition to the negative effects of the recent economic recession.

Considering the airport's historic aircraft utilization levels, recent fuel data, similar national trends, and the FAA's current guidance on estimating aircraft activity at non-towered airports, it appears that the six-year average aircraft utilization level of 330 operations per based aircraft provides a benchmark for estimating future activity at the airport.

The FAA's suggested ratio of 250 operations per based aircraft for small non-towered general aviation airports is approximately 25 percent below Albany's previously documented utilization levels. However, based on current economic conditons and airport's recent fuel delivery trends, the ratio of 250 operations per based aircraft (80) appears to provide a reasonable basis for estimating current operations. The updated activity estimate for 2012 is 20,000 annual operations, which is an average of 49 takeoffs and landings every day (80 based aircraft x 250 average operations = 20,000). A detailed distribution of current traffic is provided in the preferred forecast of operations later in the chapter.

For forecasting purposes, the "typical" activity range defined by FAA for small to medium general aviation airports (ratio of 250 to 350 operations per based aircraft) provides a reasonable indication of activity that could increase as economic conditions improve.

Aviation Activity Forecasting

EXISTING FORECASTS

Several existing aviation activity forecasts are available for comparison with current activity, recent historic trends, and the updated forecast scenarios prepared for the master plan.

The existing forecasts have not been modified to reflect the recent events and therefore some may be obsolete (in actual numbers). However, the long-term growth rates reflected in the existing forecasts are typically within the range found at many general aviation airports and provide a useful basis of comparison.

The existing forecasts provide a useful gauge of future growth rates that are generally consistent with national and statewide expectations for defining general aviation activity. The existing forecasts and their respective average annual growth rates are summarized below and later in **Table 3-9**.

2000-2020 AIRPORT MASTER PLAN

The 2000-2020 Airport Master Plan forecasts projected based aircraft to increase from 65 to 82 between 2000 and 2020, which reflects an average annual growth rate of **1.16 percent**. Annual aircraft operations were projected to increase from 17,704 to 28,260 during the same period, reflecting an average annual growth rate of **2.37 percent**. The master plan forecast base year (2000) operations estimate was based on the 1998 ODA RENS activity count, the most available at the time.

The airport's 2012 based aircraft count (80) exceeds the 2015 forecast by 5 aircraft and is just 2 aircraft below the 2020 projection. However, the 2012 operations estimate of 20,000 is 12 percent below the forecast for 2010, and 21 percent below the 2015 projection. The operations forecasts appear to have been tracking reasonably well early in the forecast period when compared to 2001 and 2003 RENS activity counts. However, the effect of the recent economic recession appears to have pushed activity well below forecast levels.

FAA TERMINAL AREA FORECAST (TAF)

The FAA's 2008 TAF forecast update projects based aircraft at Albany Municipal Airport to increase from 72 to 94 (+31%) between 2007 and 2025, which represents average annual growth of **1.49 percent**. The 2013 TAF forecast for based aircraft (80) is exactly the same as the late 2012 based aircraft count, which indicates that the projection is tracking very well over the last several years.

Aircraft operations are projected to increase from 24,893 to 35,914 between 2007 and 2025, which represents average annual growth of **2.06 percent**. The 2013 operations projection (28,127) is approximately 40 percent above the 2012 operations estimate of 20,000 for the airport . While the forecast *growth rates* in the TAF are reasonable, the operations ratios and resulting operations levels are not consistent with current conditions and are not considered sufficiently accurate to define long-term aviation activity for the master plan.

The TAF operations forecasts reflect a range of based aircraft to operations ratios steadily increasing from 346 to 382 through 2025. Although the FAA has tempered growth expectations in its national and regional long term forecasts, the TAF forecasts for individual airports have not yet been adjusted downward to reflect documented declines in activity experienced over the last several years.

2007 OREGON AVIATION PLAN

The 2007 Oregon Aviation Plan (OAP) contains based aircraft forecasts for Oregon's public use airports for the 2005-2025 timeframe. The OAP forecasts used the 2005 FAA TAF based aircraft and annual operations estimates as the base for the forecast for Albany Municipal Airport. Based aircraft are projected to increase from 72 to 93 (+29%) between 2005 and 2025, which represents average annual growth of **1.27 percent**. The airport's 2012 based aircraft count (80) matches the interpolated forecast for 2013 that is drawn between the 2010 and 2015 OAP projections. The based aircraft forecast is tracking well against actual activity. Annual aircraft operations are projected to increase from 23,899 to 36,025 during the same period, reflecting an average annual growth rate of **2.07 percent**. As with the FAA TAF forecast described above, the OAP operations forecast do not reflect the recent decline in aircraft utilization experienced both locally and throughout the aviation system.

AIRPORT SERVICE AREA – MASTER PLAN FORECASTS

The long-term expectation for growth in general aviation activity at other public airports in the area is consistent with the region's historic and forecast population growth. A summary of recent airport master plan forecasts prepared for Corvallis, Salem and Lebanon is presented in **Table 3-8**. When viewed as a group, the aggregate forecast activity at these airports clearly demonstrates the region's economic strength and the depth of the local general aviation user base. These characteristics also apply to Albany Municipal Airport.

TABLE 3-8: NEARBY AIRPORTS - GENERAL AVIATION ACTIVITY FORECASTS

CURRENT AIRPORT MASTER PLAN FORECASTS (FAA APPROVED) PREPARED BETWEEN 2000-2012 [1]	BASE YEAR BASED AIRCRAFT	LONG-TERM (20 YEAR) FORECAST BASED AIRCRAFT	BASE YEAR GA OPERATIONS	LONG-TERM (20 YEAR) FORECAST GA OPERATIONS
Corvallis Municipal [2]	156	200	56,079	71,200
Salem Municipal [3]	216	270	65,107	79,094
Lebanon State[4]	57	69	14,250	17,940
Totals	**429**	**539**	**135,436**	**168,234**
Overall Change		*+26%*		*+24%*
Average Annual Growth Rate (%) (Aggregate Activity)		***1.15% (+/-)***		***1.10% (+/-)***
2007 OREGON AVIATION PLAN FORECASTS	**BASE YEAR (2005) BASED AIRCRAFT**	**LONG-TERM FORECAST (2025) BASED AIRCRAFT**	**BASE YEAR (2005) GA OPERATIONS**	**LONG-TERM (2025) GA OPERATIONS**
Corvallis Municipal [2]	144	185	99,142	149,895
Salem Municipal [3]	232	286	43,478	65,735
Lebanon State[4]	53	63	17,190	20,536
Totals	**429**	**534**	**159,810**	**236,166**
Overall Change		*+24.5%*		*+47.8%*
Average Annual Growth Rate (%) (2005-2025) (Aggregate Activity)		***1.10%***		***1.97%***

1. Airport Plans prepared between 2002 and 2010 – 20 year forecast timeframe (all forecasts approved by FAA)
2. Airport Plan Update (2012-2032 Forecast), Coffman Associates (2012)
3. Airport Master Plan Update (2009-2029 Forecast), Mead & Hunt (2011)
4. Airport Layout Plan Report (2004-2024 Forecast), Century West Engineering (2006)

Updated Forecasts

BASED AIRCRAFT

Several updated projections of based aircraft at Albany Municipal Airport have been prepared based on a review of recent socioeconomic data, existing aviation activity forecasts and current conditions. The updated forecasts are summarized in **Table 3-9**. Note that the previously prepared forecasts (OAP, TAF, etc.) summarized in **Table 3-9** are not adjusted to reflect the 2012 based aircraft count (80).

HISTORIC POPULATION RATIO (1.27% AND 1.61% ANNUAL GROWTH)

Available data indicate that the based aircraft fleet at Albany Municipal Airport has grown at a faster rate than the combined Linn and Benton County population over the last 20 years, although the airport has experienced periodic fluctuations in activity while population has followed a relatively steady upward trend. Since 2000, based aircraft at the airport have increased at an average annual rate of 1.7%. During the same period, annual population growth in Linn and Benton County averaged 1.03 percent. Reflecting this trend, the ratio of Albany's based aircraft to population (Linn County and Benton County) increased from approximately 3.45 based aircraft per 10,000 residents in 1990, to 3.91 per 10,000 residents in 2012.

This projection assumes that based aircraft at Albany Municipal Airport will continue to increase at a slightly faster pace than local population over the next twenty years. Following the historic trend line, the 2012 ratio of 3.91 based aircraft per 10,000 residents is increased to 4.47 per 10,000 by 2032.

The OEA 2000-2040 population forecast prepared for Linn & Benton County, described earlier in the chapter was used to develop the primary population-based projection of based aircraft. Based aircraft are projected to increase from 80 in 2012 to 103 in 2032, which represents an average annual growth rate of **1.27 percent.** A secondary population-based projection was developed using the recently updated, but not yet approved OEA 2010-2050 forecasts, which reflect more optimistic population growth assumptions for Oregon statewide than the previous OEA forecast. Assuming the same gradual progression in based aircraft to population ratios used in the primary forecast, based aircraft increase from 80 in 2012 to 110 in 2032, which represents an average annual growth rate of **1.61 percent.**

MAINTAIN CURRENT MARKET SHARE (OREGON) (1.12% ANNUAL GROWTH)

Albany Municipal Airport accounted for approximately 1.48 percent of Oregon's general aviation fleet in 2005 (Oregon Aviation Plan Forecast Update – 2007), up from 1.15 percent in 1989. Albany's 2012 total of 80 based aircraft represents approximately 1.49 percent of Oregon's based aircraft total. This trend is reflective of both local population growth and the airport's ability to attract new users over time, at a rate slightly higher than the statewide increase.

This projection assumes that the airport's current share of Oregon's general aviation aircraft fleet will be maintained at 1.49 percent over the next twenty years. The 2007 Oregon Aviation Plan (OAP) forecast projects the number of general aviation aircraft in Oregon will increase from 4,875 in 2005 to 6,225 in

2025. The OAP projection was extrapolated to 2032 (6,730) to match the master plan forecast horizon using the average annual growth forecast between 2015 and 2025. In this projection, based aircraft at Albany Municipal Airport increase from 80 in 2012 to 100 in 2032, which reflects an average annual growth rate of **1.12 percent.**

INCREASED MARKET SHARE (OREGON) (1.51% ANNUAL GROWTH)

This projection assumes that the historic trend of a growing market share for Albany Municipal Airport will continue over the next twenty years. However, the rate of future market share growth is projected to be consistent with the most recent ten-year period, which slowed, but remained positive overall. This projection assumes that Albany's share of Oregon's general aviation fleet will increase from 1.49 percent in 2012 to 1.6 percent by 2032. In this projection, based aircraft at Albany Municipal Airport are projected to increase from 80 in 2012 to 107 in 2032, which reflects an average annual growth rate of **1.51 percent.**

This projection is recommended as the preferred based aircraft forecast for use in the airport master plan. The projected growth is tempered somewhat compared to recent historic trends (1.7% average annual growth between 2000 and 2012). However, the projected rate of growth reflects the underlying economic strength associated with the local community and region, historic growth at the airport, and the potential of the airport to continue attracting new users. The projected annual growth rate is slightly higher than the aggregate forecast growth in based aircraft at the other airports in the local service area. However, it is important to note that each increment of growth (one aircraft) represents a larger net increase at an airport with a smaller user base. For example, one additional based aircraft at Albany represents a 1.25 percent increase over current levels (80 based aircraft) while the same increase at Corvallis (156 based aircraft) would represent a 0.6 percent increase. This illustrates the potential impact of new hangar construction or events that can attract multiple new aircraft over relatively short periods of time and skew average growth rates.

TABLE 3-9: SUMMARY OF BASED AIRCRAFT FORECASTS (ALBANY MUNICIPAL AIRPORT)

EXISTING FORECASTS	2010	2015	2020	2025	2030
2002-2022 Albany Airport Master Plan (1.16% AAR 2000-2020)	71	75	82	--	--
Oregon Aviation Plan (1.29% AAR 2005-2025)	79	83	88 [1]	93	--
FAA Terminal Area Forecast (1.49% AAR 2007-2025)	75	82	87	94	--
UPDATED BASED AIRCRAFT FORECASTS	**2012**	**2017**	**2022**	**2027**	**2032**
OEA Forecast Population Ratio (1.27% AAR 2012-2032)	80	84	91	97	103
OEA Updated Forecast Population Ratio (1.61% AAR 2012-2032)	80	87	94	102	110

Oregon Market Share - Maintain % (1.12% AAR 2012-2032)	80	85	90	95	100
Oregon Market Share - Increase % (1.51% AAR 2012-2032) ***(Preferred Projection)***	**80**	**87**	**93**	**100**	**108**

AIRCRAFT OPERATIONS

Updated aircraft operations projections have been developed for comparison with existing forecasts in order to identify a selected forecast for the master plan. The updated operations forecasts utilize the 2012 estimate (20,000) as the base for new projections. The forecasts were developed by applying the FAA's recommend range of operations-per-based aircraft for small and medium general aviation airports to each of the based aircraft projections presented earlier.

The projections assume that the ratio of operations per based aircraft will increase from 250 to 300 between 2012 and 2032. The range of operations ratios is consistent with the FAA's current guidance on estimating activity at small to medium size general aviation airports and is tempered to reflect the FAA's modest long term growth expectations for general aviation activity. The recommended projection is the "maintain market share" which assumes that activity at Albany Municipal Airport will grow at approximately the same pace as Oregon's forecast statewide general aviation operations. This projection assumes that the airport will effectively compete for local market share, add services such as an on-field fixed base operator (FBO), and continue needed facility upgrades and expansion in response to demand. The existing and updated aircraft operations forecasts are summarized in **Table 3-10**. It is recognized that the range of updated operations forecasts for the airport are lower than the existing forecasts, due in large part to the impact of economic conditions and the current long-term growth expecations nationally, which have been tempered significantly compared to "pre-recession" forecasts.

TABLE 3-10: SUMMARY OF AIRCRAFT OPERATIONS FORECASTS (ALBANY MUNICIPAL AIRPORT)

EXISTING FORECASTS	2010	2015	2020	2025	2030
2002-2022 Albany Airport Master Plan (2.37% AAR 2000-2020)	22,720	25,350	28,260	--	--
Oregon Aviation Plan (2.07% AAR 2005-2025)	27,647	30,197	32,984[1]	36,025	--
FAA Terminal Area Forecast (2.06% AAR 2007-2025)	26,459	29,296	32,436	35,914	--
UPDATED AIRCRAFT OPERATIONS FORECASTS	**2012**	**2017**	**2022**	**2027**	**2032**
OEA Forecast Population Ratio (2.20% AAR 2012-2032)	20,000	22,008	25,025	27,839	30,900
OEA Updated Forecast Population Ratio (2.54% AAR 2012-2032)	20,000	22,794	25,850	29,274	33,000

Oregon Market Share – Decline % (2.05% AAR 2012-2032)	20,000	22,270	24,750	27,265	30,000
Oregon Market Share – Maintain % (2.44% AAR 2012-2032) *(Preferred Projection)*	**20,000**	**22,794**	**25,575**	**28,700**	**32,400**

1. Interpolated based on 2015 and 2025 forecasts.

Local and Itinerant Operations

The current FAA 5010-1 Airport Record Form for Albany Municipal Airport estimates the air traffic distribution to be 43 percent local and 57 percent itinerant. The FAA TAF and the 2002-2022 master plan forecasts reflect similar traffic distributions for forecast operations.

Local operations are conducted in the vicinity of an airport and include flights that begin and end the airport. These include local area flight training, touch and go landings, flightseeing, and other flights that do not involve a landing at another airport. Itinerant operations include flights between airports, including cross country flights.

For forecasting purposes, a 40%/60% split between local and itinerant operations at Albany Municipal Airport appears to reflect the mix of air traffic accommodated at the airport. Local and itinerant data for each forecast year are summarized in **Table 3-17**.

Design Aircraft

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. The **design aircraft** is defined as the most demanding aircraft type operating at the airport with a minimum of 500 annual itinerant operations, as described by the Federal Aviation Administration (FAA):

*"**Substantial Use Threshold.** Federally funded projects require that critical design airplanes have at least 500 or more annual itinerant operations at the airport (landings and takeoffs are considered as separate operations) for an individual airplane or a family grouping of airplanes. Under unusual circumstances, adjustments may be made to the 500 total annual itinerant operations threshold after considering the circumstances of a particular airport. Two examples are airports with demonstrated seasonal traffic variations, or airports situated in isolated or remote areas that have special needs."*

The FAA groups 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.

The combination of airplane design group and aircraft approach speed for the design aircraft creates the Airport Reference Code (ARC), which is used to define applicable airfield design standards. Aircraft with a maximum gross takeoff weight greater than 12,500 pounds are classified as "large aircraft" by the FAA; aircraft 12,500 pounds and less are classified as "small aircraft."

A list of typical general aviation and business aviation aircraft and their respective design categories is presented in **Table 3-11. Figure 3-5** illustrates representative aircraft in various design groups.

TABLE 3-11: GENERAL AVIATION AIRCRAFT & DESIGN CATEGORIES

AIRCRAFT	AIRCRAFT APPROACH CATEGORY	AIRPLANE DESIGN GROUP	MAXIMUM GROSS TAKEOFF WEIGHT (LBS)
Grumman American Tiger	A	I	2,400
Cessna 182 (Skylane)	A	I	3,100
Cirrus Design SR22	A	I	3,400
Cessna Corvalis TT	A	I	3,600
Cessna 206 (Stationair)	A	I	3,614
Beechcraft Bonanza A36	A	I	3,650
Socata/Aerospatiale TBM 700	A	I	6,579
Beechcraft Baron 58 (Albany Design Aircraft)	**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 B200	B	I	11,800
Beechcraft 400A/Mitsubishi Diamond II	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 Bravo	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	B	II	28,660
Bombardier Learjet 55	C	I	21,500
Beechcraft Hawker 800XP	C	II	28,000

Gulfstream 200	C	II	34,450
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.

CURRENT AND FUTURE DESIGN AIRCRAFT

Based on existing and forecast activity levels, the appropriate design aircraft for Runway 16/34 is a light twin-engine aircraft such as a Beechcraft Baron, included in Aircraft Approach Category B and Airplane Design Group I (Airport Reference Code: B-I). The airport accommodates a wide range of local and transient ARC B-I and a limited amount of ARC A-II and B-II aircraft. It is also noted that three locally-based business jets are also included in ARC B-I. Although these aircraft are not expected to generate sufficient activity to meet the FAA's substantial use standard for use as the design aircraft, the potential does exist to significantly increase flight activity during the current planning period. However, since these aircraft share the same ARC as the recommended design aircraft, a change would not necessarily affect airport design standards. One locally based multi-engine aircraft is included in ARC B-II.

Based on current aircraft manufacturing trends, it appears that Albany Municipal Airport is well positioned to accommodate ADG I and II single engine turboprops and very light jets that have similar runway length requirements as a traditional multi-engine piston aircraft. A detailed discussion of design aircraft considerations is provided in the Facility Requirements chapter.

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 Cita on I

A-II, B-II

12,500 lbs. or less (small)

Super King Air 200
Cessna 441
DHC Twin O er
Cessna Caravan
King Air C90

B-II

Greater than 12,500 lbs.

Super King Air 300, 350
Beech 1900
Jetstream 31
Falcon 20, 50
Falcon 200, 900
Cita on II, Bravo XLS+
Cita on CJ3

A-III, B-III

Greater than 12,500 lbs.

DHC Dash 7
DHC Dash 8
Q-300, Q-400
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
Cita on X
Cita on Sovereign
Hawker 800 XP

C-III, D-III

Boeing Business Jet
B 727-200
B 737-300 Series
MD-80, DC-9
Fokker 70, 100
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

Operational Peaks

It is estimated that peak month activity at Albany Municipal Airport occurs during the summer (typically July or August) and accounts for approximately 15 percent of annual aircraft operations. This level of peaking is consistent with the mix of airport traffic and is expected to remain relatively unchanged during the planning period. Peak day operations are defined by the average day in the peak month (design day). Operational peaks for each of the forecast years are summarized in **Table 3-12**.

TABLE 3-12: PEAK OPERATIONS FORECAST

ACTIVITY	2012	2017	2022	2027	2032
Annual Operations	20,000	22,794	25,575	28,700	32,400
Peak Month Operations (15%)	3,000	3,419	3,836	4,305	4,860
Design Day (average day in peak month)	100	114	128	144	162
Design Hour Operations (assumed 15% of design day)	15	17	19	22	24

Instrument Flight Activity

Flight activity data for aircraft operating under instrument flight rules in the national airspace system is tracked by FlightAware, a company that developed live flight tracking services for commercial and general aviation. In calendar years 2011 and 2012, Albany Municipal Airport had nearly identical activity with 233 and 230 entries as either the origin or destination airport for a filed instrument flight plan (see **Table 3-13**). The aircraft types are predominantly single-engine piston, with additional activity generated by multi-engine piston, single- and multi-engine turboprop, business jets and helicopters. Based on current traffic estimates, instrument operations currently appear to account for about 1 percent of overall operations.

Local airport users indicate that the existing instrument approach minimums are marginally useful during typical instrument weather conditions. Interest in developing an improved instrument approach may be expected increase instrument flight activity at the airport in the future.

TABLE 3-13: INSTRUMENT OPERATIONS - ALBANY MUNICIPAL AIPRORT (2011/2012)

ARC	REPRESENTATIVE AIRCRAFT	2011	2012
A-I	Cessna 182/Beechcraft Baron 55	166	147
B-I	Beechcraft Baron 58/Beechcraft King Air 90/Cessna Citation ISP	42	70
A-II	Cessna Caravan/Pilatus PC12	4	4
B-II	Cessna Citation Bravo/Beechcraft King Air 200	7	9

--	Helicopter	13	0
--	Unknown	1	0
	Total Instrument Operations	**233**	**230**

Source: FlightAware

Aircraft Fleet Mix

BASED AIRCRAFT

The airport's current mix of based aircraft is predominantly single-engine piston (91 percent), followed by multi-engine piston (5 percent), and business jets (4 percent). The preferred forecast anticipates some minor shifting within the based aircraft fleet during the twenty year planning period, although the established user groups are not expected to change significantly. The projected changes in the based aircraft fleet mix at Albany Municipal Airport are generally consistent with broader trends identified by FAA regarding the composition of the general aviation fleet as a whole. The forecast based aircraft fleet mix is summarized in **Table 3-14**.

TABLE 3-14: FORECAST BASED AIRCRAFT FLEET MIX

ACTIVITY	2012	2017	2022	2027	2032
Single Engine Piston *(including Light Sport Aircraft)*	73 (91%)	79 (91%)	82 (88%)	86 (86%)	92 (85%)
Multi-Engine Piston	4 (5%)	4 (5%)	4 (5%)	5 (5%)	5 (5%)
Turboprop	0 (0%)	0 (0%)	1 (1%)	2 (2%)	3 (3%)
Business Jet/VLJ	3 (4%)	3 (3%)	3 (3%)	3 (3%)	3 (3%)
Other (Ultralights, etc.)	0 (0%)	0 (0%)	1 (1%)	2 (2%)	3 (3%)
Helicopter	0 (0%)	1 (1%)	2 (2%)	2 (2%)	2 (2%)
Total Based Aircraft (100%)	**80**	**87**	**93**	**100**	**108**

Note: Percentages may not sum due to independent rounding

AIRCRAFT OPERATIONS

The current aircraft operations fleet mix is estimated to closely follow the airport's based aircraft composition, with single-engine and multi-engine piston aircraft accounting for approximately 98 percent of total airport operations. The forecast aircraft operations fleet mix is summarized in **Table 3-15**.

TABLE 3-15: FORECAST AIRCRAFT OPERATIONS FLEET MIX

AIRCRAFT TYPE	2012	2017	2022	2027	2032
Single Engine Piston	19,200 (96%)	21,889 (96%)	24,600 (96%)	27,570 (96%)	31,070 (96%)
Multi Engine Piston	500 (2.5%)	550 (2.4%)	565 (2.2%)	600 (2.1%)	650 (2%)
Turboprop	50 (<.5%)	60 (<.5%)	80 (<.5%)	120 (.5%)	150 (<5.%)
Jet	200 (1%)	235 (1%)	250 (1%)	290 (1%)	330 (1%)
Helicopter	50 (<.5%)	60 (<.5%)	80 (<.5%)	120 (.5%)	200 (.6%)
Total Operations (100%)	**20,000**	**22,794**	**25,575**	**28,700**	**32,400**

Note: Percentages may not sum due to independent rounding

Forecast Summary

The recommended based aircraft forecast for Albany Municipal Airport is the **Increased Market Share** projection, which is based on a marginal increase in Albany's current share of Oregon's general aviation fleet over the next twenty years. The recommended forecast reflects an average annual growth rate of **1.51 percent**. The recommended forecast for aircraft operations applies a gradual increase in based aircraft to operations ratio of 250 to 300 over the 20-year planning period. The recommended aircraft operations forecast reflects an average annual growth rate of **2.44 percent**. The preferred forecasts are summarized in additional detail in **Table 3-16.**

As with any long term facility demand forecast, it is recommended that long term development reserves be protected to accommodate demand that may exceed current projections. For planning purposes, a reserve capable of accommodating a doubling of the 20-year preferred forecast demand should be adequate to accommodate unforeseen facility needs during the current planning period. However, should demand significantly deviate from the airport's recent historical trend, updated forecasts should be prepared to ensure that adequate facility planning is maintained.

TABLE 3-16: FORECAST SUMMARY

ACTIVITY	2012	2017	2022	2027	2032
Itinerant Operations					
General aviation	11,970	13,626	15,245	17,070	19,240
Air Taxi	30	50	100	150	200
Military	0	0	0	0	0
Total Itinerant Operations	12,000	13,676	15,345	17,220	19,440
Local Operations (all GA)	8,000	9,118	10,230	11,480	12,960
Total Local & Itinerant Operations	**20,000**	**22,794**	**25,575**	**28,700**	**32,400**
Based Aircraft	**80**	**87**	**93**	**100**	**108**
Operations Per Based Aircraft	**250**	**262**	**275**	**287**	**300**
Design Aircraft Operations					
ARC B-I (Multi-Engine Piston)	500	550	565	600	650
Other ARC B-I/B-II (Jet)	200	235	250	290	330
Other ARC B-I/B-II (Turboprop)	50	60	80	120	150
Total MEP/Jet/Turboprop	**750**	**845**	**895**	**1,010**	**1,130**

Chapter 3 – Avia on Ac vity Forecasts

Chapter 3 – Aviation Activity Forecasts

This chapter provides updated forecasts of aviation activity for Albany Municipal Airport (S12) for the twenty-year master plan horizon (2012-2032). The overall goal is to prepare forecasts that accurately reflect current conditions, relevant historic trends, and provide reasonable projections of future activity, which can be translated into specific airport facility needs anticipated during the next twenty years and beyond.

Introduction

The forecasts presented in this chapter are consistent with Albany Municipal Airport's current and historic role as a community general aviation airport. Unless specifically noted, the forecasts of activity are unconstrained and assume that the City of Albany will be able to make the facility improvements necessary to accommodate anticipated demand. Through the evaluation of airport development alternatives later in the master plan, the City of Albany will consider if any unconstrained demand will not or cannot be reasonably met.

The FAA-defined airport master plan forecasting process for general aviation airports is designed to address elements critical to airport planning by focusing on two key activity segments: based aircraft and aircraft operations (takeoffs and landings). Detailed breakdowns of these are also provided including aircraft fleet mix, activity peaking, distribution of local and itinerant operations, and the determination of the critical aircraft, also referred to as the design aircraft.

The design 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 existing and future design aircraft are used to define the airport reference codes (ARC) to be used in airfield planning. FAA airport design standards are organized into several different ARC groupings, each reflecting the physical requirements of that aircraft type. The activity forecasts also provide consistency in evaluating future demand-based facility requirements such as runway and taxiway capacity, aircraft parking and hangar capacity, and other planning evaluations such as airport noise.

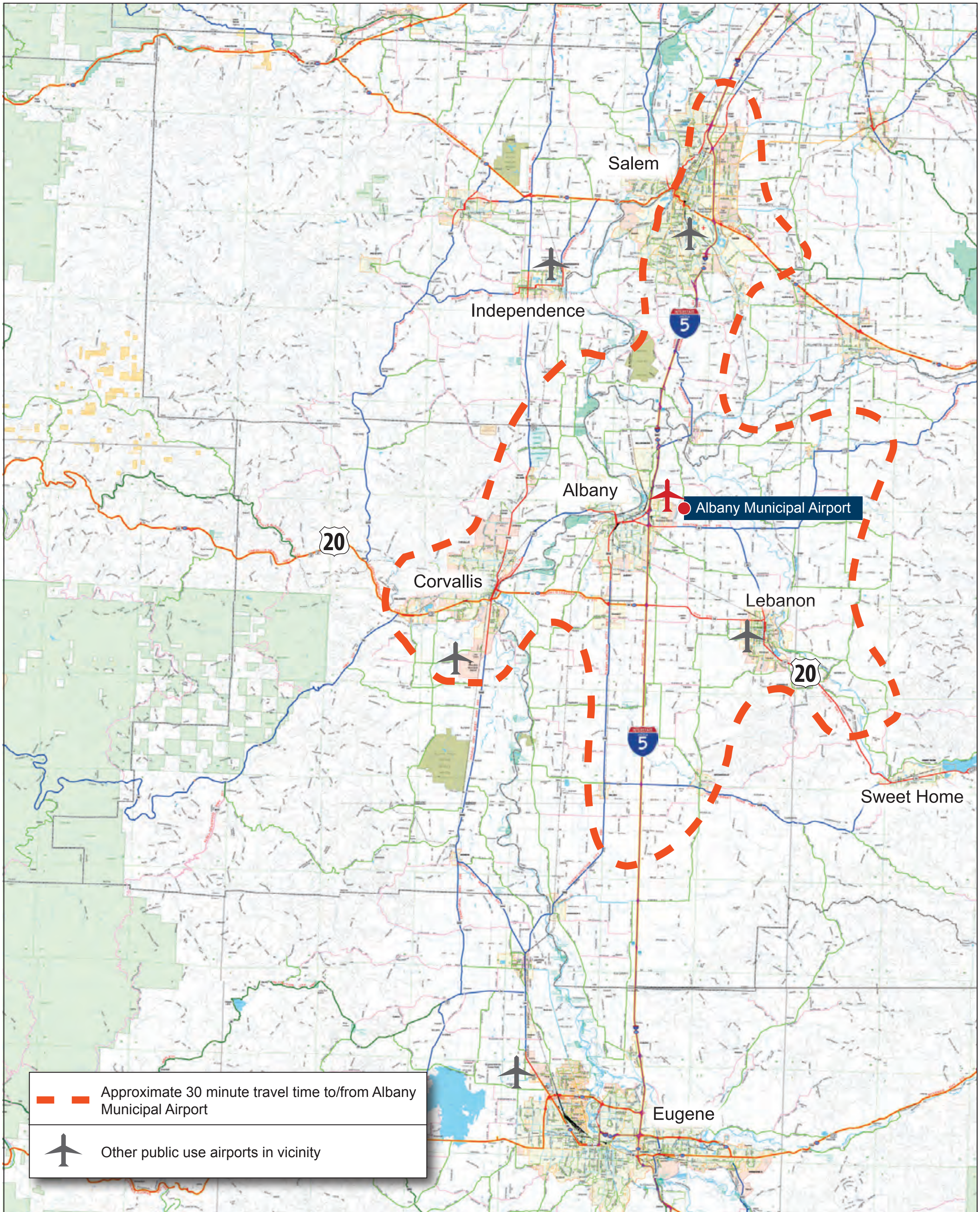
Airport Service Area

The airport service area refers to the geographic area surrounding an airport that generates most "local" activity. The population, economic characteristics and number of competing airports within an airport's service area are important factors in defining locally-generated demand for aviation facilities and services. With numerous airports nearby, service areas often overlap, creating competition between airports for items such as hangar space, fuel and aviation services. These items are sensitive to cost, convenience and the quality of facilities or services. Demand generated by transient users can also be influenced by competition from nearby airports and can usually be measured in terms of cost, convenience or capabilities.

A 30- or 60-minute surface travel time is used to approximate the boundaries of a service area for a typical general aviation airport. **Table 3-1** lists the public use airports within a 30 nautical mile air radius of Albany. It is noted that each of the public use airports listed provide competitive facilities and services, with master plans that provide for future facility expansion. Competing airports located beyond a 30-minute travel time typically have less impact on local airport activity due to the redundancy provided by closer facilities. In contrast, the service area for a commercial airport often extends beyond two hours due the relatively small number of airports with scheduled airline service. **Figure 3-1** illustrates the approximate boundary of a 30-minute drive from the local area, which encompasses large areas of Linn and Benton Counties and small portions of adjacent counties.

TABLE 3-1: PUBLIC USE AIRPORTS IN VICINITY OF ALBANY MUNICIPAL AIRPORT
(WITHIN 30 NAUTICAL MILES)

AIRPORT	LOCATION	RUNWAY DIMENSION (FEET)	SURFACE	LIGHTED RUNWAY?	FUEL AVAILABLE?
Corvallis Municipal	13 NM SW	5,900 x 150 (primary runway)	Asphalt	Yes	Yes
Lebanon State	8.5 NM SE	2,877 x 60	Asphalt	Yes	Yes
Salem Municipal – McNary Field	16.5 NM N	5,811 x 150 (primary runway)	Asphalt	Yes	Yes
Independence State	15 NM NW	3,142 x 60	Asphalt	Yes	Yes



Salem
Independence
Albany
Albany Municipal Airport
Corvallis
Lebanon
Sweet Home
Eugene
20
5
Approximate 30 minute travel time to/from Albany Municipal Airport
Other public use airports in vicinity

Socioeconomic Trends and Forecasts

AIRPORT SERVICE AREA ECONOMY

Historically, downturns in general aviation activity often occur during periods of weak economic conditions and growth typically coincides with favorable economic conditions. It is evident that recent economic recession and the slow recovery that followed, has constrained general aviation activity locally, statewide and throughout national airport system. However, as indicated in the FAA's national long term aviation forecasts, the overall strength of the U.S. economy is expected to sustain economic growth over the long-term, which will translate into modest to moderate growth in aviation activity.

In December 2012, Oregon's employment rate was 8.4 percent and the U.S. unemployment rate was 7.8 percent. Linn County has been particularly hard hit in the economic recession with significantly higher unemployment than statewide or national levels. In December 2012, the unemployment rate in Linn County was 10.9 percent, down only slightly from 11.3 percent in December 2011. Benton County has fared slightly better due in part to relatively stable government employment associated with Oregon State University. In December 2012, the unemployment rate in Benton County was 6.1 percent, down from 6.4 percent in December 2011. Nonfarm employment in both counties began a sharply decline at the onset during the recent economic recession in early 2008. Benton County's employment began to recover significantly by mid-2009 and has since fluctuated around pre-recession levels. In contrast, Linn County's sharp decline in employment leveled off in early 2009, and was slow to experience significant improvement.

The 2010-2020 Employment Projections by Industry and Occupation prepared by the Oregon Department of Employment project modest growth in employment for the local three-county region (Linn, Benton and Lincoln) over the next ten years. Total payroll is projected to increase from 97,648 in 2010 to 113,541 in 2020, an increase of 16.3 percent (average annual growth of 1.52 percent). The largest gains (by percentage) are expected in Professional and Business Services (+32%); Educational & Health Services (+27%); Construction (+27%); and Leisure & Hospitality (+19%). The largest net increase in jobs is in Educational & Health Services (+3,300). Government (federal, state, local), the largest employment segment in the region (26.2%) is projected to increase by 2,060 jobs by 2020, although its share of region employment is projected to decline to 24.4 percent.

POPULATION

In broad terms, the population within an airport's service area affects the type and scale of aviation facilities and services that can be supported. Although a large number of airport-specific factors can affect activities at an airport, changes in population often reflect other broader economic conditions which may also affect airport activity. Since it is difficult to identify specific connections between airport activity and individual economic indicators such as growth in personal income, unemployment rates, or business spending, population trends generally provide a broad measure of an area's economic health. Regions with flat or declining populations often have weak underlying economic conditions. In contrast, higher rates of population growth often characterize a growing economy that can stimulate individual and business use of general aviation.

HISTORIC POPULATION

As noted earlier, the airport service area for Albany Municipal Airport extends beyond Albany and includes large portions of Linn and Benton Counties. For these reasons, an examination of population trends for the two-county area provides an effective basis for evaluating the impacts of growth on activity at the airport.

Certified estimates of population for Oregon counties and incorporated cities are developed annually by the Portland State University (PSU) Population Research Center. The annual PSU estimates, coupled with the U.S. Census, conducted every ten years, provide an indication of local area population trends over an extended period.[1]

Population growth for the City of Albany, Linn County, and Benton County has been modest-to-moderate over the last twenty to thirty years, typically growing at a rate slightly lower than Oregon's statewide population. Albany's share of the combined Linn/Benton County population has nearly doubled in the last 50 years, up from about 13 percent in 1960 to 25 percent in 2012, reflecting consistently stronger growth than the overall county areas. This may be attributed to several factors such as a localized housing or employment opportunities, or growth through annexation (physical expansion of the incorporated city limits). This concentration of population growth generates substantial economic activity in the immediate proximity to the airport. Historic population data and average growth rates for Linn and Benton Counties, the City of Albany and Oregon are summarized in **Table 3-2**.

TABLE 3-2: HISTORIC POPULATION

YEAR	LINN COUNTY	BENTON COUNTY	LINN-BENTON COUNTIES COMBINED	CITY OF ALBANY *(INCORPORATED AREA ONLY)* [1]	CITY OF ALBANY % OF TWO-COUNTY POPULATION	OREGON
1960	58,867	39,165	98,032	12,926	13.0%	1,768,687
1970	71,914	53,776	125,690	18,181	14.5%	2,091,533
1980	89,495	68,211	157,706	26,511	16.8%	2,633,156
1990	91,227	70,811	162,200	29,540	18.2%	2,842,321
2000	103,069	78,153	181,222	41,145	22.7%	3,421,399
2010	116,840	85,735	202,575	50,325	24.8%	3,837,300
2012	**118,035**	**86,785**	**204,820**	**50,710**	**24.8%**	**3,883,735**

[1] Portland State University Population Research Center, July 1, 2010 estimate; 1990, 2000 U.S. Census.

Average Annual Rates (AAR) of Growth	Linn County	Benton County	Combined Linn-Benton	City of Albany		Oregon
1960-2012	1.35%	1.54%	1.43%	2.66%		1.52%
1980-1990	0.19%	0.38%	0.28%	3.84%		0.77%
1990-2000	1.23%	0.99%	1.12%	3.37%		1.87%
2000-2010	1.26%	0.93%	1.12%	2.03%		1.15%
2010-2012	0.51%	0.61%	0.55%	0.38%		0.60%

Source: U.S. Census data; Portland State University certified annual estimates.
1. City of Albany historic population includes growth through natural growth, in-migration, and annexation.

POPULATION FORECASTS

City of Albany Coordinated Population Forecast (Comprehensive Plan)

The City of Albany developed the County Coordinated Population Forecast with Linn and Benton Counties in 1999 to support city and county comprehensive planning. The coordinated forecast projects population growth for Albany at an average annual rate of 1.4 percent through 2025. However, due to faster than expected population growth between 1996 and 2005 (2.3 percent annually), City planning staff subsequently developed three scenarios with annual growth ranging from 1.9 to 2.2 percent through 2025. These supplemental projections have not replaced the adopted forecast, but are used for comparison in long term planning scenarios. The County Coordinated Population Forecast is summarized in **Table 3-3**.

Oregon Office of Economic Analysis (OEA)

Long-term population forecasts prepared by the Oregon Office of Economic Analysis (OEA) are periodically generated to support local and statewide planning. The most recent OEA long-term forecasts were prepared in 2000, which projected modest sustained growth for both Linn and Benton counties through 2040. The combined Linn-Benton county population is projected to grow at an average annual rate of 0.76 percent between 2000 and 2040. The OEA forecasts project Oregon's annual statewide growth to average 1.15 percent through 2040. The OEA forecasts are summarized in **Table 3-3**.

OEA recently completed a preliminary updated long-term forecast for the period 2010 to 2050. The updated forecast projects similar, but slightly more optimistic growth for both Linn and Benton counties, averaging 0.82 percent annually over the 40-year period.

A comparison of the OEA population forecasts with private sector forecasts prepared by Woods & Poole Economics, shows similar long term growth expectations for the Linn-Benton County area (0.70 percent average annual growth for 2010 to 2032). Anticipated growth within both the City of Albany and the two local counties are considered to be indicators of future economic strength that will affect activity at Albany Municipal Airport.

Tracking Long Term Population Forecasts

The PSU certified estimates of population noted earlier provide an indication of trending over the initial years for the existing long term population forecasts. The 2010 certified estimate for the City of Albany (50,325) exceeded all but the most optimistic scenario in the City's Coordinated Population Forecast for 2010.

The PSU certified estimate for Linn County was 6.1 percent higher than the OEA forecast for 2010, although the certified estimate for Benton County was only 0.1 percent higher than the 2010 forecast. The 2010 estimates for Linn and Benton County combined were 3.4 percent higher than the OEA forecast for 2010. In general, local and area wide population growth over the last decade exceeded very modest forecast expectations.

The 2010 PSU certified population estimates for Albany, Linn County, and Benton County summarized in **Table 3-3** generally exceed most forecasts of population for 2010, signaling stronger than expected population growth in the last decade.

TABLE 3-3: ALBANY AND LINN/BENTON COUNTY POPULATION FORECASTS

	2000	2010	*2010 PSU Cert. Estimates*	2015	2020	2025	2030	2040
City of Albany								
Coordinated Forecast (Adopted)[1] *(1.4% AAR 2000-2025)*	39,550	46,450	***50,325***	49,710	53,200	57,030	--	--
Alternative Scenario #1 *(1.5% AAR 2000-2025)*	40,852[2]	48,666	***50,325***	52,642	56,711	61,093	--	--
Alternative Scenario #2 *(1.9% AAR 2000-2025)*	40,852[2]	49,836	***50,325***	54,754	60,157	66,093	--	--
Alternative Scenario #3 *(2.2% AAR 2000-2025)*	40,852[2]	50,574	***50,325***	56,387	62,869	70,096	--	--
County Forecasts								
OEA 2000-2040 Linn County[3] *(0.87% AAR)*	103,350	110,123	***116,840***	115,156	120,465	126,140	132,133	146,260
OEA 2000-2040 Benton County[3] *(0.61% AAR)*	78,300	85,721	***85,735***	88,995	91,982	94,549	96,517	99,886

OEA 2000-2040 Combined Linn / Benton County[3] *(0.76% AAR)*	181,650	195,844	***202,575***	204,151	212,447	220,689	228,650	246,146

1. City of Albany Coordinated Population Forecast used in current comprehensive planning.
2. 2000 U.S. Census Data
3. Oregon Office of Economic Analysis (OEA) Long Term Population Forecasts (2000-2040).

National General Aviation Activity Trends

The first decade of the 21st Century was tumultuous for general aviation. The industry was battered by poor economic conditions and steadily rising fuel prices that slowed growth and negatively impacted elements such as aircraft manufacturing, on-demand air travel, aircraft ownership, and aircraft utilization levels. Ongoing concerns over the potential replacement and future availability of aviation gasoline (AVGAS) have also created uncertainty within general aviation. On a national level, most measures of general aviation activity declined sharply through the second half of the decade and have only recently started to show modest signs of improvement.

Data maintained by the FAA show significant system-wide declines of several key general aviation activity indicators between 2000 and 2011 (AVGAS consumption -36%; piston aircraft hours flown -36%; active piston aircraft -9%; active GA pilots -2%). The FAA's updated long term forecasts are significantly tempered to reflect current and recent historic conditions. Although the FAA maintains a favorable long-term outlook, many of the activity segments associated with piston engine aircraft and AVGAS consumption are not projected to return to "pre-recession" levels until the 2020 to 2030 timeframe.

These expectations reflect a variety of industry specific factors and broad-based measures and forecasts of economic health such as gross domestic product (GDP), consumer price index, oil prices and interest rates. The FAA acknowledges several risks to its forecast assumptions related to rising oil prices, public perceptions of business and corporate aviation, broad national and international governmental fiscal policy concerns, and environmental concerns. The FAA notes that improvement for business and corporate aviation is largely based upon the future prospects of economic growth and corporate profits.

The FAA indicates that the 2012 general aviation forecasts have been updated to rely heavily on discussions with industry experts conducted at a workshop co-hosted by FAA and the Transportation Research Board (TRB) in July 2011 along with the results of the 2010 General Aviation and Part 135 Activity Survey. The forecast assumptions have been updated by FAA analysts to reflect more recent data and developing trends, as well as further information from industry experts. Although some segments of general aviation are expected to grow at moderately high rates, most measures of the general aviation industry suggest modest, sustained growth in the range of 1 to 2 percent annually is expected over the next 20 years. The FAA's annual growth assumptions for individual general aviation activity segments are summarized in **Table 3-4.**

TABLE 3-4: FAA LONG RANGE FORECAST ASSUMPTIONS (U.S. GENERAL AVIATION)

ACTIVITY COMPONENT	FORECAST ANNUAL AVERAGE GROWTH RATE (2012-2032)
Components with Annual Growth Forecast < 0%	
Single Engine Piston Aircraft in U.S. Fleet	-0.2%
Multi-Engine Piston Aircraft in U.S. Fleet	-0.5%
Hours Flown - GA Fleet (Piston AC)	-0.1%
Student Pilots (Indicator of flight training activity)	-0.1%
Components with Annual Growth Forecast < 1%	
Private Pilots	0.1%
Commercial Pilots	0.4%
Airline Transport Pilots	0.6%
Instrument Rated Pilots	0.4%
Active Pilots (All Ratings, excluding Airline Transport)	0.3%
GA Operations at Towered Airports (all AC types)	0.3%
AVGAS (Gallons consumed - GA only)	0.2%
Active GA Fleet (# of Aircraft)	0.6%
Turboprop Aircraft in U.S. Fleet	0.9%
Components with Annual Growth Forecast 1%-2%	
Experimental Aircraft in U.S. Fleet	1.2%
Components with Annual Growth Forecast >2%	
Sport Pilots	6.0%
Turbine Helicopters in U.S. Fleet	3.0%
Piston Helicopters in U.S. Fleet	2.7%
Light Sport Aircraft in U.S. Fleet	2.1%
Turbojet Aircraft in U.S. Fleet	4.0%
Hours Flown - GA Fleet (Turbine AC)	4.0%
Hours Flown – Experimental AC	2.6%
Hours Flown – Light Sport AC	3.5%
Jet Fuel (Gallons consumed – GA only)	3.9%

Source: FAA Long Range Aerospace Forecasts (FY 2012-2032)

The FAA's long term forecasts predict that the U.S. active general aviation aircraft fleet will grow modestly at an average annual rate of 0.6 percent between 2012 and 2032. The active fleet is expected to increase from 222,520 aircraft in 2011 to 253,205 in 2032 (+30,685) which is an overall increase of approximately 14 percent. However, within that overall growth is a projected decline in active single engine piston aircraft (-2.3%) and multi-engine piston aircraft (-9.2%). These declines reflect attrition of an aging fleet which is not fully offset by new aircraft production. Encouraging areas within the general aviation fleet are found in experimental aircraft (+29%), sport aircraft (+53%), and business jet (+129%) growth through 2032. The very light jet (VLJ) [2] portion of the business jet segment is expected to overcome several early setbacks and depressed market demand to become a growing percentage of the business jet fleet.

Overview of Recent Local Events

Albany Municipal Airport was affected by the same conditions that affected airports across the country during the recent economic recession and sluggish recovery. As noted above, high unemployment continues to be a drag on the local economy. A review of events at the airport over the last ten to twelve years underscores the impact of the economic recession that effectively created a "pre-recession" period that included hangar construction and growth in aircraft activity followed by a recession and post-recession period that is marked with a significant decline in activity and no new hangar construction. The net effect varies by activity; the number hangars and based aircraft have increased since 2000, while the volume of aviation fuel delivered has been flat or has declined from pre-2001 levels. The latter is consistent with the national decline in AVGAS consumption that translates into reduced aircraft use. Between 2000 and 2012, based aircraft at Albany Municipal Airport increased from 65 to 80 (+23.1%) and three locally-based business jets were added to the fleet that consists primarily of single- and multi-engine piston aircraft. The airport also lost its full time fixed base operator (FBO) during this period. As a result, services are limited and fueling is self-service only. *[Note: Full service FBO services were reestablished at the airport in early 2015.]*

AIRPORT FUEL SALES

A review of aviation fuel delivery volumes at Albany Municipal Airport was conducted to help evaluate the impact of activity trends on airport operations. **Table 3-5** summarizes historic aviation gasoline (AVGAS) deliveries at the airport during the most recent three-year period (2010-2012) and data from four consecutive years (1995-1998) preceding the last master plan. Jet fuel is not available at the airport.

According to airport records, fuel volumes in each of the last three years have been less than any of the four years documented in the last master plan update (late 1990s). Overall, the three-year running average from the current period is 39.5 percent lower than the four-year average from the earlier period despite significant growth in the airport's based aircraft fleet. The ratio of gallons delivered per based aircraft

[2] Very Light Jets (VLJ) are small jet-powered aircraft (weighing less than 12,500 pounds) with airport-related performance characteristics (takeoff weight, approach speed, runway length requirements, physical dimensions, passenger load, etc.) comparable to a high-performance light twin-engine aircraft.

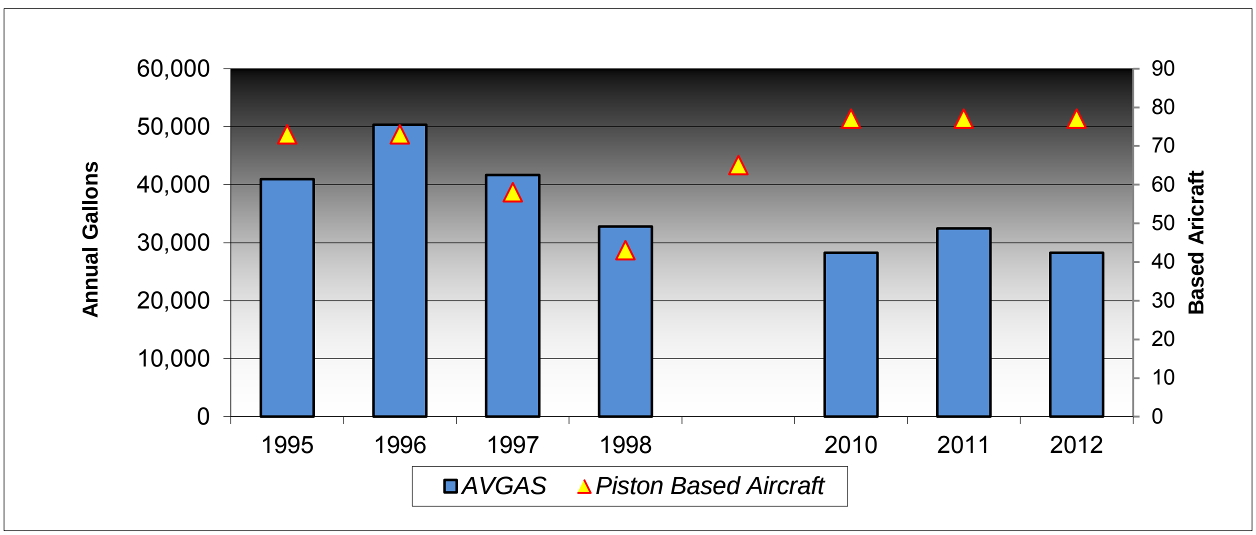
dropped by approximately 42 percent between the two periods. **Figure 3-2** depicts a significant change in fuel consumption patterns at the airport between these two periods.

TABLE 3-5: ALBANY MUNICIPAL AIRPORT - AVIATION FUEL ACTIVITY (ANNUAL GALLONS DELIVERED)

	2012	2011	2010		1998	1997	1996	1995
100LL Aviation Gasoline (AVGAS)	28,388	32,444	28,270		32,817	41,649	50,340	40,942
% Change From Previous Year	-12.5%	+14.8%	--		-21.2%	-17.3%	+23.0%	--
Piston Engine Based Aircraft (est.)	77	77	77		43	73	73	73
Average Gallons Per Based Aircraft	369	421	367		763	571	690	561

Source: Airport fuel records

FIGURE 3-2: ALBANY MUNICIPAL AIRPORT - AVIATION FUEL ACTIVITY (ANNUAL GALLONS DELIVERED)



Based on similar declines documented at the national level, it is likely that the recent economic recession and its residual effect are the primary causes for the current trend. Other potential factors could include the absence of a full service FBO and full service fueling, or changes in fuel types used.

The absence of full service fueling and the air traffic commonly associated with a thriving FBO can adversely impact an airport's fueling activity. Reliant Aviation, the airport's former FBO ended operations at Albany Municipal Airport early in the 2000s and a permanent replacement FBO has not been established. *[Note: Full service FBO services were reestablished at the airport in early 2015.]* The variation in fueling volumes noted above coincided with periods during and after FBO operations at the airport. A well-established FBO is a significant factor in an airport's ability to attract and serve based aircraft and to attract transient customers for maintenance, fueling and other related services.

The use of auto gas for small aircraft became popular in the late 1980s and early 1990s as 80/87 octane AVGAS was being phased out. More recently, the introduction of a variety of kit airplanes and light sport aircraft and potential use of auto gas as a replacement for 100LL AVGAS in many traditional piston engine aircraft has generated renewed interest. The regular use of auto gas could impact AVGAS delivery volumes at the airport due to self-fueling or the need to purchase fuel at a nearby airport.

As an input into forecasting aviation activity in this master plan, it is reasonable to assume that current fueling activity has contributed to a decline in aircraft utilization levels compared to previously documented activity at the airport. However, it appears that the airport has the underlying market strength to return to more typical historic activity levels as economic conditions improve.

HANGAR CONSTRUCTION

Eight new conventional hangars and one 10-unit T-hangar were constructed at the airport between 2002 and 2007. Four T-hangars (42 units) were constructed in 1999-2000. More than 75 percent of the airport's hangar space has been constructed since 1999, which coincided with a sustained increase in based aircraft.

Historic Aviation Activity

As noted in the previous airport master plan, based aircraft levels at Albany Municipal Airport experienced a significant decline over a 20-year period extending from the late 1970s to the late 1990s when the future operation of the airport was uncertain. Once a long-term commitment to continued airport operations was made by the City around 2000, the airport experienced a surge of new hangar construction and based aircraft numbers increased steadily. Based aircraft counts associated with the master plans conducted in 2000 and 2012 indicate an increase from 65 to 80 (23%) over the twelve year period, which reflects average annual growth of **1.7 percent**. Albany Municipal Airport has traditionally accommodated primarily single- and multi-engine aircraft, although the airport now also has three locally-based business jets.

For Albany Municipal Airport, aircraft operational data (takeoffs and landings, touch and go landings, etc.) are limited to estimates. As a non-towered airport, no record of activity is regularly maintained. However, a review of estimates contained in state aviation system plans, previous airport master plans, historic on-site activity counts, and FAA Terminal Area Forecast (TAF) data provides a general indication of activity at the airport over time. Based aircraft counts are updated periodically either as part of a master plan or by airport management for other purposes.

AIRPORT TRAFFIC COUNTS

Beginning in the 1980s, aircraft operations counts at non-towered airports were conducted on a semi-regular basis by the Oregon Department of Aviation (ODA) through its "RENS" automated activity counting program. The RENS program methodology relied on four brief sample periods over a 12-month period to account for seasonal variation in activity. Recorders were placed next to runways to capture distinct engine sounds for takeoffs that could be identified by aircraft type. The acoustical events were tallied and the sample data was statistically extrapolated to provide a 12-month estimate of activity. The program was phased out in 2003, but provided six annual operations estimates for Albany between 1995 and 2003. **Table 3-6** summarizes the RENS counts for Albany Municipal Airport during the period, which ranged from a low of 15,623 to a high of 33,803. The range of operations per based aircraft ratios was approximately 242 to 463. The most recent RENS count for Albany conducted in 2002-2003 (22,675 operations) yielded an operations-to-based aircraft ratio of 349 with 65 based aircraft. Allowing for some anomalies within the eight year period, a simple averaging provides a reasonable indication of historical activity.

Although data from this period does not reflect current conditions, it represents an established level of airport activity, sustained over an extended period. The range of based aircraft-operations ratios associated with the RENS counts is generally consistent with activity ratios currently defined by FAA for estimating activity at small to medium non-towered general aviation airports. Therefore, for long term forecasting purposes, future aircraft operations ratios could reasonably be expected to be within the range previously experienced. Where the activity falls within the range will depend on a variety of economic and airport-specific factors in the future.

TABLE 3-6: SUMMARY OF ODA RENS ACTIVITY COUNTS - ALBANY MUNICIPAL AIRPORT

YEAR	AIRCRAFT OPERATIONS[1]	BASED AIRCRAFT [2]	RATIO: OPERATIONS PER BASED AIRCRAFT
1995	21,407	73	293
1996	33,803	73	463
1998	17,704	65	272
1999	15,623	65	240
2001	23,581	65	363
2003	22,675	65	349
6-Year Mean	***22,466***	***67.7***	***330.2***

1. ODA "RENS" Airport Activity Counting Program
2. FAA Terminal Area Forecast, Master Plan or Airport Management Estimates

FAA TERMINAL AREA FORECAST (TAF) DATA

The Federal Aviation Administration (FAA) Terminal Area Forecast (TAF) is maintained for airports that are included in the National Plan of Integrated Airport System (NPIAS). **Table 3-7** summarizes recent historic based aircraft and aircraft operations estimates for the airport from the FAA Terminal Area Forecast (TAF). The TAF is periodically updated and adjusted as more specific airport activity data are available. When reviewing FAA TAF data, it is important to note that when there is no change from year to year it often indicates a lack of data, rather than no change in activity. Similarly, a large change in data in a single year may follow updated reporting that captures changes that occurred over several years. Small changes in year-to-year activity that extend through the forecast typically reflect assumed growth rates that are not frequently updated.

TABLE 3-7: FAA TAF DATA – ALBANY MUNICIPAL AIRPORT

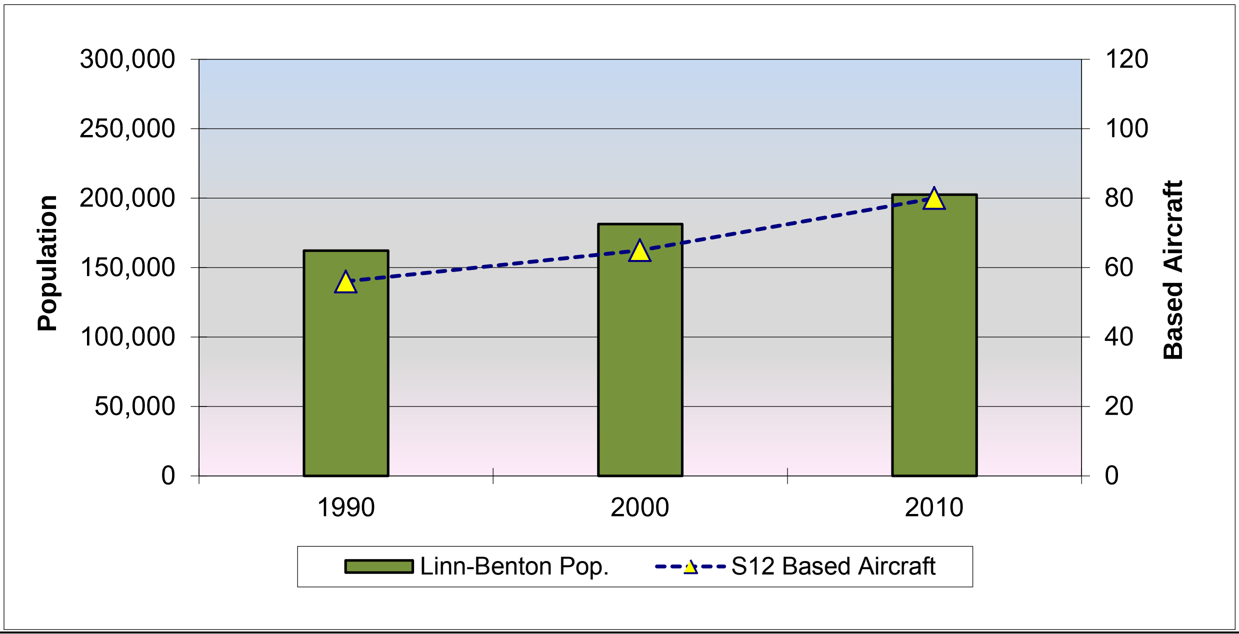
YEAR	AIRCRAFT OPERATIONS	BASED AIRCRAFT	RATIO: OPERATIONS PER BASED AIRCRAFT
2000	21,310	46	463
2001	21,601	47	460
2002	22,177	47	472
2003	22,754	48	474
2004	23,322	47	496
2005	23,899	72	332
2006	24,391	72	339
2007	24,893	72	346
2008[1]	25,404	73	348
2009[1]	25,926	74	350
2010[1]	26,459	75	353
2011[1]	27,003	76	355
2012[1]	27,560	79	349

1. FAA Terminal Area Projected (Forecast) Activity; previous years are presented as historical

The RENS operations estimates for 2001 and 2003 are very consistent with FAA TAF data for those years. However, significant variation in TAF based aircraft numbers suggests that the accompanying operations per based aircraft ratios are not consistently reliable indications. Since no RENS counts have been conducted at the airport during the last ten years, FAA TAF operations estimates have not been "adjusted" recently to reflect specific events such fuel sales trends or the recent economic recession. The TAF estimate for 2013 (28,127 operations) reflects a ratio of 352 operations per based aircraft, which is very similar to the activity ratios associated with RENS counts 10 years ago. However, the significant changes in fuel deliveries at the airport during this period suggests that activity levels have declined significantly and the current TAF operations estimates are not reliable indicators of activity.

A comparison of the 20-year historic growth of area population and based aircraft at Albany Municipal Airport depicted in **Figure 3-3** reflects a similar upward trend in recent years. The trend suggests that there is a general relationship between a growing population and increased airport activity. Since Between 1990 and 2012, the ratio of (Albany) based aircraft to combined Linn and Benton County population has steadily increased from 3.45 to 3.91 aircraft per 10,000 residents.

FIGURE 3-3: HISTORIC POPULATION & BASED AIRCRAFT - ALBANY MUNICIPAL AIRPORT



Source: US Census data, FAA TAF and airport based aircraft count

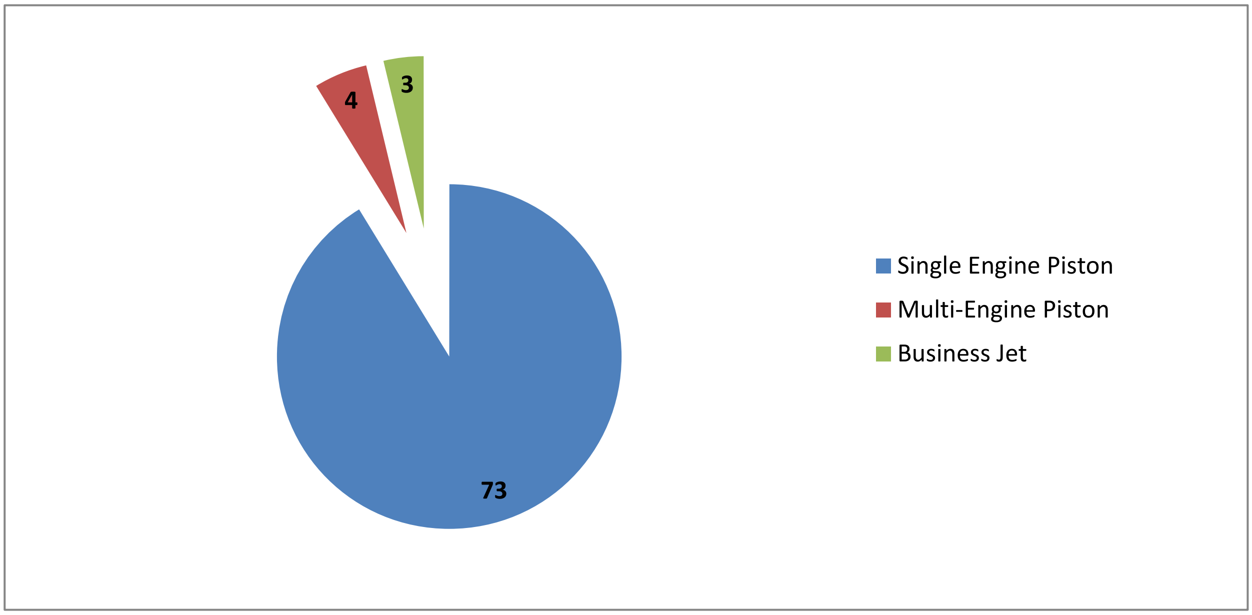
CURRENT ESTIMATES OF ACTIVITY

Based Aircraft

A count conducted by airport management in late 2012 identified 80 aircraft based at Albany Municipal Airport. The number of based aircraft increased by 15 (+23%) in the 12 years between 2000 (previous master plan forecast base year) and late 2012. As noted earlier, the increase in based aircraft coincided with a period of active hangar construction from 2000 to 2007, but appears to have slowed in recent years.

Figure 3-4 depicts the current distribution of based aircraft by type, which is predominantly single-engine piston (91%), followed by multi-engine piston (5%), and business jet (4%). The addition of business jets to the based aircraft fleet has occurred since the last master plan was completed. All of the current based aircraft at the airport weigh 12,500 pounds or less and all but one aircraft are included in Airplane Design Group I (ADG I). A 4-engine deHavilland Heron based at the airport is included in Airplane Design Group II (ADG II). A description of aircraft classifications is provided later in the chapter.

FIGURE 3-4: ALBANY MUNICIPAL AIPRORT - BASED AIRCRAFT SUMMARY (JAN. 2013)



Aircraft Operations

The FAA provides planning guidance for estimating activity at general aviation airports without control towers, including the use of activity ratios to project aircraft operations from the number of based aircraft at the airport. In the absence of actual aircraft operations counts, the ratios of activity are generally adequate for airport planning purposes. The FAA developed "typical" operations ratios for general aviation airports based on their observations at airports throughout the United States. The recommended ratios are 250 operations per based aircraft for small airports with low activity; 350 operations per based aircraft for airports with moderate local and itinerant activity; and 450 operations per based aircraft for high activity airports in urban areas. The ratios are intended to reflect operations from both locally-based and transient aircraft. However, the presence of unique activities such as a large flight school can increase traffic volumes due to significantly higher aircraft utilization levels (annual flight hours per aircraft, etc.). Conversely, the absence of aviation fuel or a fixed base operator (FBO) at an airport can contribute to lower activity levels.

As noted earlier in the chapter, a review of recent and historical fuel data for the airport identified what appears to be a significant decline in fuel consumption per based aircraft. Reduced fuel consumption could translate into reduced aircraft flight hours and therefore, reduced numbers of aircraft takeoffs and landings (operations). As noted earlier there may be a number of local factors affecting the data in addition to the negative effects of the recent economic recession.

Considering the airport's historic aircraft utilization levels, recent fuel data, similar national trends, and the FAA's current guidance on estimating aircraft activity at non-towered airports, it appears that the six-year average aircraft utilization level of 330 operations per based aircraft provides a benchmark for estimating future activity at the airport.

The FAA's suggested ratio of 250 operations per based aircraft for small non-towered general aviation airports is approximately 25 percent below Albany's previously documented utilization levels. However, based on current economic conditons and airport's recent fuel delivery trends, the ratio of 250 operations per based aircraft (80) appears to provide a reasonable basis for estimating current operations. The updated activity estimate for 2012 is 20,000 annual operations, which is an average of 49 takeoffs and landings every day (80 based aircraft x 250 average operations = 20,000). A detailed distribution of current traffic is provided in the preferred forecast of operations later in the chapter.

For forecasting purposes, the "typical" activity range defined by FAA for small to medium general aviation airports (ratio of 250 to 350 operations per based aircraft) provides a reasonable indication of activity that could increase as economic conditions improve.

Aviation Activity Forecasting

EXISTING FORECASTS

Several existing aviation activity forecasts are available for comparison with current activity, recent historic trends, and the updated forecast scenarios prepared for the master plan.

The existing forecasts have not been modified to reflect the recent events and therefore some may be obsolete (in actual numbers). However, the long-term growth rates reflected in the existing forecasts are typically within the range found at many general aviation airports and provide a useful basis of comparison.

The existing forecasts provide a useful gauge of future growth rates that are generally consistent with national and statewide expectations for defining general aviation activity. The existing forecasts and their respective average annual growth rates are summarized below and later in **Table 3-9**.

2000-2020 AIRPORT MASTER PLAN

The 2000-2020 Airport Master Plan forecasts projected based aircraft to increase from 65 to 82 between 2000 and 2020, which reflects an average annual growth rate of **1.16 percent**. Annual aircraft operations were projected to increase from 17,704 to 28,260 during the same period, reflecting an average annual growth rate of **2.37 percent**. The master plan forecast base year (2000) operations estimate was based on the 1998 ODA RENS activity count, the most available at the time.

The airport's 2012 based aircraft count (80) exceeds the 2015 forecast by 5 aircraft and is just 2 aircraft below the 2020 projection. However, the 2012 operations estimate of 20,000 is 12 percent below the forecast for 2010, and 21 percent below the 2015 projection. The operations forecasts appear to have been tracking reasonably well early in the forecast period when compared to 2001 and 2003 RENS activity counts. However, the effect of the recent economic recession appears to have pushed activity well below forecast levels.

FAA TERMINAL AREA FORECAST (TAF)

The FAA's 2008 TAF forecast update projects based aircraft at Albany Municipal Airport to increase from 72 to 94 (+31%) between 2007 and 2025, which represents average annual growth of **1.49 percent**. The 2013 TAF forecast for based aircraft (80) is exactly the same as the late 2012 based aircraft count, which indicates that the projection is tracking very well over the last several years.

Aircraft operations are projected to increase from 24,893 to 35,914 between 2007 and 2025, which represents average annual growth of **2.06 percent**. The 2013 operations projection (28,127) is approximately 40 percent above the 2012 operations estimate of 20,000 for the airport . While the forecast *growth rates* in the TAF are reasonable, the operations ratios and resulting operations levels are not consistent with current conditions and are not considered sufficiently accurate to define long-term aviation activity for the master plan.

The TAF operations forecasts reflect a range of based aircraft to operations ratios steadily increasing from 346 to 382 through 2025. Although the FAA has tempered growth expectations in its national and regional long term forecasts, the TAF forecasts for individual airports have not yet been adjusted downward to reflect documented declines in activity experienced over the last several years.

2007 OREGON AVIATION PLAN

The 2007 Oregon Aviation Plan (OAP) contains based aircraft forecasts for Oregon's public use airports for the 2005-2025 timeframe. The OAP forecasts used the 2005 FAA TAF based aircraft and annual operations estimates as the base for the forecast for Albany Municipal Airport. Based aircraft are projected to increase from 72 to 93 (+29%) between 2005 and 2025, which represents average annual growth of **1.27 percent**. The airport's 2012 based aircraft count (80) matches the interpolated forecast for 2013 that is drawn between the 2010 and 2015 OAP projections. The based aircraft forecast is tracking well against actual activity. Annual aircraft operations are projected to increase from 23,899 to 36,025 during the same period, reflecting an average annual growth rate of **2.07 percent**. As with the FAA TAF forecast described above, the OAP operations forecast do not reflect the recent decline in aircraft utilization experienced both locally and throughout the aviation system.

AIRPORT SERVICE AREA – MASTER PLAN FORECASTS

The long-term expectation for growth in general aviation activity at other public airports in the area is consistent with the region's historic and forecast population growth. A summary of recent airport master plan forecasts prepared for Corvallis, Salem and Lebanon is presented in **Table 3-8**. When viewed as a group, the aggregate forecast activity at these airports clearly demonstrates the region's economic strength and the depth of the local general aviation user base. These characteristics also apply to Albany Municipal Airport.

TABLE 3-8: NEARBY AIRPORTS - GENERAL AVIATION ACTIVITY FORECASTS

CURRENT AIRPORT MASTER PLAN FORECASTS (FAA APPROVED) PREPARED BETWEEN 2000-2012 [1]	BASE YEAR BASED AIRCRAFT	LONG-TERM (20 YEAR) FORECAST BASED AIRCRAFT	BASE YEAR GA OPERATIONS	LONG-TERM (20 YEAR) FORECAST GA OPERATIONS
Corvallis Municipal [2]	156	200	56,079	71,200
Salem Municipal [3]	216	270	65,107	79,094
Lebanon State[4]	57	69	14,250	17,940
Totals	**429**	**539**	**135,436**	**168,234**
Overall Change		*+26%*		*+24%*
Average Annual Growth Rate (%) (Aggregate Activity)		***1.15% (+/-)***		***1.10% (+/-)***
2007 OREGON AVIATION PLAN FORECASTS	**BASE YEAR (2005) BASED AIRCRAFT**	**LONG-TERM FORECAST (2025) BASED AIRCRAFT**	**BASE YEAR (2005) GA OPERATIONS**	**LONG-TERM (2025) GA OPERATIONS**
Corvallis Municipal [2]	144	185	99,142	149,895
Salem Municipal [3]	232	286	43,478	65,735
Lebanon State[4]	53	63	17,190	20,536
Totals	**429**	**534**	**159,810**	**236,166**
Overall Change		*+24.5%*		*+47.8%*
Average Annual Growth Rate (%) (2005-2025) (Aggregate Activity)		***1.10%***		***1.97%***

1. Airport Plans prepared between 2002 and 2010 – 20 year forecast timeframe (all forecasts approved by FAA)
2. Airport Plan Update (2012-2032 Forecast), Coffman Associates (2012)
3. Airport Master Plan Update (2009-2029 Forecast), Mead & Hunt (2011)
4. Airport Layout Plan Report (2004-2024 Forecast), Century West Engineering (2006)

Updated Forecasts

BASED AIRCRAFT

Several updated projections of based aircraft at Albany Municipal Airport have been prepared based on a review of recent socioeconomic data, existing aviation activity forecasts and current conditions. The updated forecasts are summarized in **Table 3-9**. Note that the previously prepared forecasts (OAP, TAF, etc.) summarized in **Table 3-9** are not adjusted to reflect the 2012 based aircraft count (80).

HISTORIC POPULATION RATIO (1.27% AND 1.61% ANNUAL GROWTH)

Available data indicate that the based aircraft fleet at Albany Municipal Airport has grown at a faster rate than the combined Linn and Benton County population over the last 20 years, although the airport has experienced periodic fluctuations in activity while population has followed a relatively steady upward trend. Since 2000, based aircraft at the airport have increased at an average annual rate of 1.7%. During the same period, annual population growth in Linn and Benton County averaged 1.03 percent. Reflecting this trend, the ratio of Albany's based aircraft to population (Linn County and Benton County) increased from approximately 3.45 based aircraft per 10,000 residents in 1990, to 3.91 per 10,000 residents in 2012.

This projection assumes that based aircraft at Albany Municipal Airport will continue to increase at a slightly faster pace than local population over the next twenty years. Following the historic trend line, the 2012 ratio of 3.91 based aircraft per 10,000 residents is increased to 4.47 per 10,000 by 2032.

The OEA 2000-2040 population forecast prepared for Linn & Benton County, described earlier in the chapter was used to develop the primary population-based projection of based aircraft. Based aircraft are projected to increase from 80 in 2012 to 103 in 2032, which represents an average annual growth rate of **1.27 percent.** A secondary population-based projection was developed using the recently updated, but not yet approved OEA 2010-2050 forecasts, which reflect more optimistic population growth assumptions for Oregon statewide than the previous OEA forecast. Assuming the same gradual progression in based aircraft to population ratios used in the primary forecast, based aircraft increase from 80 in 2012 to 110 in 2032, which represents an average annual growth rate of **1.61 percent.**

MAINTAIN CURRENT MARKET SHARE (OREGON) (1.12% ANNUAL GROWTH)

Albany Municipal Airport accounted for approximately 1.48 percent of Oregon's general aviation fleet in 2005 (Oregon Aviation Plan Forecast Update – 2007), up from 1.15 percent in 1989. Albany's 2012 total of 80 based aircraft represents approximately 1.49 percent of Oregon's based aircraft total. This trend is reflective of both local population growth and the airport's ability to attract new users over time, at a rate slightly higher than the statewide increase.

This projection assumes that the airport's current share of Oregon's general aviation aircraft fleet will be maintained at 1.49 percent over the next twenty years. The 2007 Oregon Aviation Plan (OAP) forecast projects the number of general aviation aircraft in Oregon will increase from 4,875 in 2005 to 6,225 in

2025. The OAP projection was extrapolated to 2032 (6,730) to match the master plan forecast horizon using the average annual growth forecast between 2015 and 2025. In this projection, based aircraft at Albany Municipal Airport increase from 80 in 2012 to 100 in 2032, which reflects an average annual growth rate of **1.12 percent.**

INCREASED MARKET SHARE (OREGON) (1.51% ANNUAL GROWTH)

This projection assumes that the historic trend of a growing market share for Albany Municipal Airport will continue over the next twenty years. However, the rate of future market share growth is projected to be consistent with the most recent ten-year period, which slowed, but remained positive overall. This projection assumes that Albany's share of Oregon's general aviation fleet will increase from 1.49 percent in 2012 to 1.6 percent by 2032. In this projection, based aircraft at Albany Municipal Airport are projected to increase from 80 in 2012 to 107 in 2032, which reflects an average annual growth rate of **1.51 percent.**

This projection is recommended as the preferred based aircraft forecast for use in the airport master plan. The projected growth is tempered somewhat compared to recent historic trends (1.7% average annual growth between 2000 and 2012). However, the projected rate of growth reflects the underlying economic strength associated with the local community and region, historic growth at the airport, and the potential of the airport to continue attracting new users. The projected annual growth rate is slightly higher than the aggregate forecast growth in based aircraft at the other airports in the local service area. However, it is important to note that each increment of growth (one aircraft) represents a larger net increase at an airport with a smaller user base. For example, one additional based aircraft at Albany represents a 1.25 percent increase over current levels (80 based aircraft) while the same increase at Corvallis (156 based aircraft) would represent a 0.6 percent increase. This illustrates the potential impact of new hangar construction or events that can attract multiple new aircraft over relatively short periods of time and skew average growth rates.

TABLE 3-9: SUMMARY OF BASED AIRCRAFT FORECASTS (ALBANY MUNICIPAL AIRPORT)

EXISTING FORECASTS	2010	2015	2020	2025	2030
2002-2022 Albany Airport Master Plan (1.16% AAR 2000-2020)	71	75	82	--	--
Oregon Aviation Plan (1.29% AAR 2005-2025)	79	83	88 [1]	93	--
FAA Terminal Area Forecast (1.49% AAR 2007-2025)	75	82	87	94	--
UPDATED BASED AIRCRAFT FORECASTS	**2012**	**2017**	**2022**	**2027**	**2032**
OEA Forecast Population Ratio (1.27% AAR 2012-2032)	80	84	91	97	103
OEA Updated Forecast Population Ratio (1.61% AAR 2012-2032)	80	87	94	102	110

Oregon Market Share - Maintain % (1.12% AAR 2012-2032)	80	85	90	95	100
Oregon Market Share - Increase % (1.51% AAR 2012-2032) ***(Preferred Projection)***	**80**	**87**	**93**	**100**	**108**

AIRCRAFT OPERATIONS

Updated aircraft operations projections have been developed for comparison with existing forecasts in order to identify a selected forecast for the master plan. The updated operations forecasts utilize the 2012 estimate (20,000) as the base for new projections. The forecasts were developed by applying the FAA's recommend range of operations-per-based aircraft for small and medium general aviation airports to each of the based aircraft projections presented earlier.

The projections assume that the ratio of operations per based aircraft will increase from 250 to 300 between 2012 and 2032. The range of operations ratios is consistent with the FAA's current guidance on estimating activity at small to medium size general aviation airports and is tempered to reflect the FAA's modest long term growth expectations for general aviation activity. The recommended projection is the "maintain market share" which assumes that activity at Albany Municipal Airport will grow at approximately the same pace as Oregon's forecast statewide general aviation operations. This projection assumes that the airport will effectively compete for local market share, add services such as an on-field fixed base operator (FBO), and continue needed facility upgrades and expansion in response to demand. The existing and updated aircraft operations forecasts are summarized in **Table 3-10**. It is recognized that the range of updated operations forecasts for the airport are lower than the existing forecasts, due in large part to the impact of economic conditions and the current long-term growth expecations nationally, which have been tempered significantly compared to "pre-recession" forecasts.

TABLE 3-10: SUMMARY OF AIRCRAFT OPERATIONS FORECASTS (ALBANY MUNICIPAL AIRPORT)

EXISTING FORECASTS	2010	2015	2020	2025	2030
2002-2022 Albany Airport Master Plan (2.37% AAR 2000-2020)	22,720	25,350	28,260	--	--
Oregon Aviation Plan (2.07% AAR 2005-2025)	27,647	30,197	32,984[1]	36,025	--
FAA Terminal Area Forecast (2.06% AAR 2007-2025)	26,459	29,296	32,436	35,914	--
UPDATED AIRCRAFT OPERATIONS FORECASTS	**2012**	**2017**	**2022**	**2027**	**2032**
OEA Forecast Population Ratio (2.20% AAR 2012-2032)	20,000	22,008	25,025	27,839	30,900
OEA Updated Forecast Population Ratio (2.54% AAR 2012-2032)	20,000	22,794	25,850	29,274	33,000

Oregon Market Share – Decline % (2.05% AAR 2012-2032)	20,000	22,270	24,750	27,265	30,000
Oregon Market Share – Maintain % (2.44% AAR 2012-2032) ***(Preferred Projection)***	**20,000**	**22,794**	**25,575**	**28,700**	**32,400**

1. Interpolated based on 2015 and 2025 forecasts.

Local and Itinerant Operations

The current FAA 5010-1 Airport Record Form for Albany Municipal Airport estimates the air traffic distribution to be 43 percent local and 57 percent itinerant. The FAA TAF and the 2002-2022 master plan forecasts reflect similar traffic distributions for forecast operations.

Local operations are conducted in the vicinity of an airport and include flights that begin and end the airport. These include local area flight training, touch and go landings, flightseeing, and other flights that do not involve a landing at another airport. Itinerant operations include flights between airports, including cross country flights.

For forecasting purposes, a 40%/60% split between local and itinerant operations at Albany Municipal Airport appears to reflect the mix of air traffic accommodated at the airport. Local and itinerant data for each forecast year are summarized in **Table 3-17**.

Design Aircraft

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. The **design aircraft** is defined as the most demanding aircraft type operating at the airport with a minimum of 500 annual itinerant operations, as described by the Federal Aviation Administration (FAA):

"Substantial Use Threshold. *Federally funded projects require that critical design airplanes have at least 500 or more annual itinerant operations at the airport (landings and takeoffs are considered as separate operations) for an individual airplane or a family grouping of airplanes. Under unusual circumstances, adjustments may be made to the 500 total annual itinerant operations threshold after considering the circumstances of a particular airport. Two examples are airports with demonstrated seasonal traffic variations, or airports situated in isolated or remote areas that have special needs."*

The FAA groups 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.

The combination of airplane design group and aircraft approach speed for the design aircraft creates the Airport Reference Code (ARC), which is used to define applicable airfield design standards. Aircraft with a maximum gross takeoff weight greater than 12,500 pounds are classified as "large aircraft" by the FAA; aircraft 12,500 pounds and less are classified as "small aircraft."

A list of typical general aviation and business aviation aircraft and their respective design categories is presented in **Table 3-11. Figure 3-5** illustrates representative aircraft in various design groups.

TABLE 3-11: GENERAL AVIATION AIRCRAFT & DESIGN CATEGORIES

AIRCRAFT	AIRCRAFT APPROACH CATEGORY	AIRPLANE DESIGN GROUP	MAXIMUM GROSS TAKEOFF WEIGHT (LBS)
Grumman American Tiger	A	I	2,400
Cessna 182 (Skylane)	A	I	3,100
Cirrus Design SR22	A	I	3,400
Cessna Corvalis TT	A	I	3,600
Cessna 206 (Stationair)	A	I	3,614
Beechcraft Bonanza A36	A	I	3,650
Socata/Aerospatiale TBM 700	A	I	6,579
Beechcraft Baron 58 (Albany Design Aircraft)	**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 B200	B	I	11,800
Beechcraft 400A/Mitsubishi Diamond II	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 Bravo	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	B	II	28,660
Bombardier Learjet 55	C	I	21,500
Beechcraft Hawker 800XP	C	II	28,000

Gulfstream 200	C	II	34,450
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.

CURRENT AND FUTURE DESIGN AIRCRAFT

Based on existing and forecast activity levels, the appropriate design aircraft for Runway 16/34 is a light twin-engine aircraft such as a Beechcraft Baron, included in Aircraft Approach Category B and Airplane Design Group I (Airport Reference Code: B-I). The airport accommodates a wide range of local and transient ARC B-I and a limited amount of ARC A-II and B-II aircraft. It is also noted that three locally-based business jets are also included in ARC B-I. Although these aircraft are not expected to generate sufficient activity to meet the FAA's substantial use standard for use as the design aircraft, the potential does exist to significantly increase flight activity during the current planning period. However, since these aircraft share the same ARC as the recommended design aircraft, a change would not necessarily affect airport design standards. One locally based multi-engine aircraft is included in ARC B-II.

Based on current aircraft manufacturing trends, it appears that Albany Municipal Airport is well positioned to accommodate ADG I and II single engine turboprops and very light jets that have similar runway length requirements as a traditional multi-engine piston aircraft. A detailed discussion of design aircraft considerations is provided in the Facility Requirements chapter.

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 Cita on I

A-II, B-II

12,500 lbs. or less (small)

Super King Air 200
Cessna 441
DHC Twin O er
Cessna Caravan
King Air C90

B-II

Greater than 12,500 lbs.

Super King Air 300, 350
Beech 1900
Jetstream 31
Falcon 20, 50
Falcon 200, 900
Cita on II, Bravo XLS+
Cita on CJ3

A-III, B-III

Greater than 12,500 lbs.

DHC Dash 7
DHC Dash 8
Q-300, Q-400
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
Cita on X
Cita on Sovereign
Hawker 800 XP

C-III, D-III

Boeing Business Jet
B 727-200
B 737-300 Series
MD-80, DC-9
Fokker 70, 100
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

Operational Peaks

It is estimated that peak month activity at Albany Municipal Airport occurs during the summer (typically July or August) and accounts for approximately 15 percent of annual aircraft operations. This level of peaking is consistent with the mix of airport traffic and is expected to remain relatively unchanged during the planning period. Peak day operations are defined by the average day in the peak month (design day). Operational peaks for each of the forecast years are summarized in **Table 3-12**.

TABLE 3-12: PEAK OPERATIONS FORECAST

ACTIVITY	2012	2017	2022	2027	2032
Annual Operations	20,000	22,794	25,575	28,700	32,400
Peak Month Operations (15%)	3,000	3,419	3,836	4,305	4,860
Design Day (average day in peak month)	100	114	128	144	162
Design Hour Operations (assumed 15% of design day)	15	17	19	22	24

Instrument Flight Activity

Flight activity data for aircraft operating under instrument flight rules in the national airspace system is tracked by FlightAware, a company that developed live flight tracking services for commercial and general aviation. In calendar years 2011 and 2012, Albany Municipal Airport had nearly identical activity with 233 and 230 entries as either the origin or destination airport for a filed instrument flight plan (see **Table 3-13**). The aircraft types are predominantly single-engine piston, with additional activity generated by multi-engine piston, single- and multi-engine turboprop, business jets and helicopters. Based on current traffic estimates, instrument operations currently appear to account for about 1 percent of overall operations.

Local airport users indicate that the existing instrument approach minimums are marginally useful during typical instrument weather conditions. Interest in developing an improved instrument approach may be expected increase instrument flight activity at the airport in the future.

TABLE 3-13: INSTRUMENT OPERATIONS - ALBANY MUNICIPAL AIPRORT (2011/2012)

ARC	REPRESENTATIVE AIRCRAFT	2011	2012
A-I	Cessna 182/Beechcraft Baron 55	166	147
B-I	Beechcraft Baron 58/Beechcraft King Air 90/Cessna Citation ISP	42	70
A-II	Cessna Caravan/Pilatus PC12	4	4
B-II	Cessna Citation Bravo/Beechcraft King Air 200	7	9

--	Helicopter	13	0
--	Unknown	1	0
	Total Instrument Operations	**233**	**230**

Source: FlightAware

Aircraft Fleet Mix

BASED AIRCRAFT

The airport's current mix of based aircraft is predominantly single-engine piston (91 percent), followed by multi-engine piston (5 percent), and business jets (4 percent). The preferred forecast anticipates some minor shifting within the based aircraft fleet during the twenty year planning period, although the established user groups are not expected to change significantly. The projected changes in the based aircraft fleet mix at Albany Municipal Airport are generally consistent with broader trends identified by FAA regarding the composition of the general aviation fleet as a whole. The forecast based aircraft fleet mix is summarized in **Table 3-14**.

TABLE 3-14: FORECAST BASED AIRCRAFT FLEET MIX

ACTIVITY	2012	2017	2022	2027	2032
Single Engine Piston *(including Light Sport Aircraft)*	73 (91%)	79 (91%)	82 (88%)	86 (86%)	92 (85%)
Multi-Engine Piston	4 (5%)	4 (5%)	4 (5%)	5 (5%)	5 (5%)
Turboprop	0 (0%)	0 (0%)	1 (1%)	2 (2%)	3 (3%)
Business Jet/VLJ	3 (4%)	3 (3%)	3 (3%)	3 (3%)	3 (3%)
Other (Ultralights, etc.)	0 (0%)	0 (0%)	1 (1%)	2 (2%)	3 (3%)
Helicopter	0 (0%)	1 (1%)	2 (2%)	2 (2%)	2 (2%)
Total Based Aircraft (100%)	**80**	**87**	**93**	**100**	**108**

Note: Percentages may not sum due to independent rounding

AIRCRAFT OPERATIONS

The current aircraft operations fleet mix is estimated to closely follow the airport's based aircraft composition, with single-engine and multi-engine piston aircraft accounting for approximately 98 percent of total airport operations. The forecast aircraft operations fleet mix is summarized in **Table 3-15**.

TABLE 3-15: FORECAST AIRCRAFT OPERATIONS FLEET MIX

AIRCRAFT TYPE	2012	2017	2022	2027	2032
Single Engine Piston	19,200 (96%)	21,889 (96%)	24,600 (96%)	27,570 (96%)	31,070 (96%)
Multi Engine Piston	500 (2.5%)	550 (2.4%)	565 (2.2%)	600 (2.1%)	650 (2%)
Turboprop	50 (<.5%)	60 (<.5%)	80 (<.5%)	120 (.5%)	150 (<5.%)
Jet	200 (1%)	235 (1%)	250 (1%)	290 (1%)	330 (1%)
Helicopter	50 (<.5%)	60 (<.5%)	80 (<.5%)	120 (.5%)	200 (.6%)
Total Operations (100%)	**20,000**	**22,794**	**25,575**	**28,700**	**32,400**

Note: Percentages may not sum due to independent rounding

Forecast Summary

The recommended based aircraft forecast for Albany Municipal Airport is the **Increased Market Share** projection, which is based on a marginal increase in Albany's current share of Oregon's general aviation fleet over the next twenty years. The recommended forecast reflects an average annual growth rate of **1.51 percent**. The recommended forecast for aircraft operations applies a gradual increase in based aircraft to operations ratio of 250 to 300 over the 20-year planning period. The recommended aircraft operations forecast reflects an average annual growth rate of **2.44 percent**. The preferred forecasts are summarized in additional detail in **Table 3-16.**

As with any long term facility demand forecast, it is recommended that long term development reserves be protected to accommodate demand that may exceed current projections. For planning purposes, a reserve capable of accommodating a doubling of the 20-year preferred forecast demand should be adequate to accommodate unforeseen facility needs during the current planning period. However, should demand significantly deviate from the airport's recent historical trend, updated forecasts should be prepared to ensure that adequate facility planning is maintained.

TABLE 3-16: FORECAST SUMMARY

ACTIVITY	2012	2017	2022	2027	2032
Itinerant Operations					
General aviation	11,970	13,626	15,245	17,070	19,240
Air Taxi	30	50	100	150	200
Military	0	0	0	0	0
Total Itinerant Operations	12,000	13,676	15,345	17,220	19,440
Local Operations (all GA)	8,000	9,118	10,230	11,480	12,960
Total Local & Itinerant Operations	**20,000**	**22,794**	**25,575**	**28,700**	**32,400**
Based Aircraft	**80**	**87**	**93**	**100**	**108**
Operations Per Based Aircraft	**250**	**262**	**275**	**287**	**300**
Design Aircraft Operations					
ARC B-I (Multi-Engine Piston)	500	550	565	600	650
Other ARC B-I/B-II (Jet)	200	235	250	290	330
Other ARC B-I/B-II (Turboprop)	50	60	80	120	150
Total MEP/Jet/Turboprop	**750**	**845**	**895**	**1,010**	**1,130**

Chapter 4 – Airport Facility Requirements

Chapter 4 – Airport Facility Requirements

The airport facility requirements analysis uses the results of the inventory and forecasts contained in Chapters Two and Three, as well as established planning criteria to determine the future facility needs for Albany Municipal Airport for the current twenty year planning period.

Introduction

The evaluation of airport facility requirements can be divided into two broad primary categories: airside and landside. **Airside** facilities include runways, taxiways, navigational aids and lighting systems. **Landside** facilities include hangars, fixed base operator (FBO) facilities, aircraft parking apron, aircraft fueling, surface access and automobile parking, utilities, and other related items. All airfield items are evaluated based on established standards from the Federal Aviation Administration (FAA).

The facility requirements evaluation is used to identify the adequacy or inadequacy of existing airport facilities and identify what new facilities may be needed during the planning period based on forecast demand. Potential options and preliminary costs for providing these facilities will be evaluated in the Airport Development Alternatives (Chapter Five), to determine the most cost effective and efficient means for meeting projected facility needs.

Organization of Materials

This chapter evaluates facility requirements from two perspectives: (1) conformance of existing facilities with Federal Aviation Administration (FAA) airport design and airspace planning standards; and (2) new demand based facility needs that reflect the updated aviation activity forecasts presented in Chapter Three.

The evaluation of current and future conformance with FAA airport design standards and airspace planning criteria will be reflected on the updated FAA approved Airport Layout Plan. The evaluation of demand driven items will reflect in gross numbers, new facility needs such as runway length requirements, hangar spaces and aircraft parking positions based on forecast demand and the needs of the design aircraft. Items such as lighting and navigational aids are evaluated based on the type of airport activity, airport classification and capabilities.

The updated inventory of existing facilities presented in Chapter Two, is used to evaluate conformance with FAA standards. **Figures 4-1, 4-2, 4-3, and 4-4** illustrate the location of the non-conforming items identified for the airport design standards described in this chapter. **Figure 4-1** depicts the runway-taxiway system. **Figure 4-2** depicts the west terminal apron area. **Figure 4-3** depicts the south hangar area. **Figure 4-4** depicts the north hangar area.

The most common nonstandard items identified in this evaluation are aircraft (wingtip) obstruction clearances for taxilanes located in hangar areas and on the main apron. Although the clearances vary, most aircraft movements occur without incident. However, as facilities are updated or replaced (aircraft parking or hangars), new facilities should be designed to conform with appropriate design standards. It is also observed that vehicles are routinely parked adjacent to taxilanes, within object free areas (OFA), which is not consistent with FAA wingtip clearance standards for taxiing aircraft. Restricting vehicle parking adjacent to defined taxilanes should be considered to address this non-conforming item. The runway and west parallel taxiway meet all applicable FAA design standards. However, as noted in the Inventory chapter the parallel taxiway has an aircraft hold area located at the south end of the runway that is partially located within the taxiway object free area.

Detailed definitions of the standards and their application at the airport are provided throughout the chapter. The reader is encouraged to consult the **Glossary of Aviation Terms** provided previously to clarify technical information.

albany municipal airport | airport master plan

airfield conformance | **fig. 4-1**

albany municipal airport | airport master plan

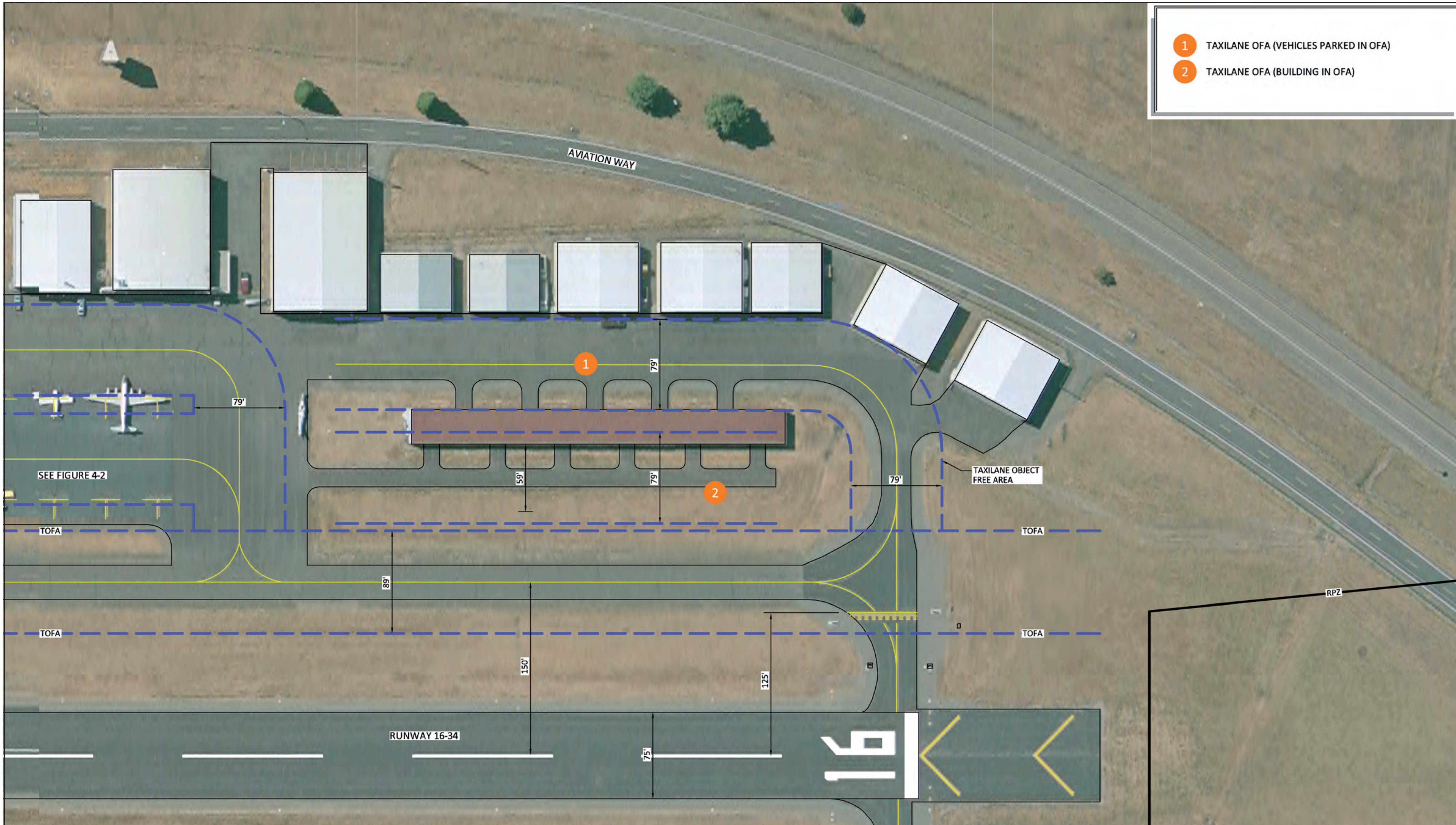
main apron conformance | fig. 4-2

CENTURY WEST ENGINEERING CORPORATION

albany municipal airport | airport master plan

south hangar area conformance | fig. 4-3

Century West Engineering Corporation



ALBANY MUNICIPAL AIRPORT | AIRPORT MASTER PLAN

NORTH HANGAR AREA CONFORMANCE | FIG. 4-4

CENTURY WEST ENGINEERING CORPORATION

2000-2020 Airport Master Plan Update Overview

The 2000-2020 Albany Municipal Airport Master Plan Update provided recommendations for airport facility improvements for the twenty year planning period that extended to 2020.

The projects summarized in **Table 4-1** were included in the twenty year capital improvement program (CIP) for the master plan. The projects were reviewed to identify those which have been completed (noted in the table). The previously recommended improvements which have not been implemented will be revalidated, modified or eliminated based on the updated assessment of facility needs, current FAA guidelines and the elements of the Airport Master Plan preferred development alternative.

TABLE 4-1: SUMMARY OF 2000-2020 AIRPORT MASTER PLAN UPDATE RECOMMENDED PROJECTS AND CURRENT STATUS

COMPLETED? YES/NO	PROJECTS
	Short Term (2001-2005)
Yes	Slurry Seal – Main Apron
No	Rehab FBO Building - Phase I (classrooms)
Yes	Automated Security Gate (south)
Yes	Airport Access Road Resurface/Reconstruct
Yes*	Perimeter Fencing (south hangar area) *(*additional fencing extended from west terminal area to NE corner of airport and in the SW and SE sections of the airport.)*
No	Rehab Quad Hangar (minor renovation)
Yes	Demo FBO South Bays
Yes	Rehab Large Hangar (partial; work done by tenant)
Yes	Runway End Identifier Lights (Rwy 16 & 34)
No	Rehab FBO Building - Phase II (remaining interior space)
No	Acquire Property – Runway 16 RPZ *(NE corner of RPZ, north of Knox Butte Road)*
Yes*	Airport Access Road – South Extension *(*road extended to southern-most hangar; additional section to proposed FBO apron not constructed)*
No	Slurry Seal North Hangar Apron and Taxilanes
No	Slurry Seal South Hangar Taxiway
Yes	Main Apron Connecting Taxiway (south of fuel area)
No	Demo/Relocate Small Hangar (north of Quad hangar)
	Long Term (2006-2020)
Yes	Construct South Stub Taxiways (1) w/storm drainage
No	Rehab FBO Building - Phase III (north hangar bays)
Yes	Extend Water to South Hangars
No	Automated Vehicle Gate (north)
Yes*	Extend Water to North Hangars *(*limited hangar connections from water line located on west side of frontage road)*

No*	Runway/Taxiway/Apron Slurry Seal *(*runway was rehabilitated in 2011)*
No	Main Apron South Expansion
No	Main Apron Southeast Expansion (Fuel Area)
No	Automated Weather Observation System (AWOS/ASOS)
No	PAPI (replace existing VASI)
Yes	Apron Flood Lighting
No	East Aircraft Tiedown Apron (Phase II)
No	Relocate Segmented Circle
No	Resurface Main Apron
No	Resurface West Parallel Taxiway and South Access Taxiway

Source: 2000-2020 Airport Master Plan Update (Table 6-3)

In addition to the master plan recommended items noted above, several other projects have been completed since 2002 including runway rehabilitation, blast pad/overrun paving, runway lighting replacement, fencing upgrades, replacement of the lighted wind cone, and private hangar construction. The south aircraft apron, located within the runway protection zone (RPZ) for Runway 34 was acquired by the City.

Design Aircraft

As indicated in Chapter Three (Aviation Activity Forecasts), the current and future design aircraft identified for Albany Municipal Airport is a light twin-engine (piston) aircraft, included in **Aircraft Approach Category B** and **Airplane Design Group I.** This aircraft weighs less than 12,500 pounds, which places it in the "small" airplane category **(Airport Reference Code: B-I, small)**.

The design aircraft represents the most demanding aircraft using the airport on a regular basis (minimum of 500 annual operations) and determines the appropriate airport design standards for the current twenty year planning period. As noted in the forecast chapter, the airport currently accommodates three locally-based business jets, all of which weigh less than 12,500 pounds and are included in ARC B-I. These aircraft are among the most demanding aircraft in terms of runway length, included in the "B-I small" category. The continued use of standards consistent with "small aircraft" and "utility" runways, as defined in FAR Part 77, is appropriate for Runway 16/34.

As noted earlier, Albany Municipal Airport occasionally accommodates Airplane Design Group II activity although current and forecast levels are considerably lower than the 500 annual operations required by FAA when defining a design aircraft. Typical aircraft in this category include single-engine or multi-engine turboprops, some business jets, and the 4-engine piston aircraft (deHavilland Heron) based at the airport. The types of ADG II aircraft that can operate at the airport is determined primarily by available runway length.

Airport Design Standards

Federal Aviation Administration (FAA) **Advisory Circular (AC) 150/5300-13A, Airport Design**, serves as the primary reference in planning airfield facilities. **Federal Air Regulation (FAR) Part 77.25, Objects Affecting Navigable Airspace**, defines airport imaginary surfaces which are established to protect the airspace immediately surrounding a runway. The airspace and ground areas surrounding a runway should be free of obstructions (i.e., structures, parked aircraft, trees, etc.) to the greatest extent possible to provide a safe operating environment for aircraft. **FAA Order 8260.3B - United States Standard for Terminal Instrument Procedures (TERPS)** defines protected airspace surfaces associated with instrument approaches and departures.

Table 4-2 summarizes existing facility dimensions and standards based on small airplanes included in Airplane Design Group I (ADG I) and Aircraft Approach Category B. **Figures 4-1, 4-2, 4-3, and 4-4 presented earlier in the chapter illustrate nonstandard runway or taxiway conditions noted in the sections below. Figure 4-1** also depicts the footprint of the runway safety area, object free area, obstacle free zone, and runway protection zones that are associated with the current runway based on 1-mile approach visibility minimums and ARC B-I, small.

TABLE 4-2: AIRPORT DESIGN STANDARDS SUMMARY (DIMENSIONS IN FEET)

FAA STANDARD	RUNWAY 16/34 *EXISTING CONDITIONS*[1]	CONFORMS TO FAA STANDARD (YES/NO)	AIRPLANE DESIGN GROUP I *A&B Aircraft (Small Aircraft)* *Approach Visibility ≥ 1- mile*
Runway Length	3,004	No	3,040/3,610 [6]
Runway Width	75	Yes	60
Runway Shoulder Width	10	Yes	10
Blast Pad Width	80	Yes	80
Blast Pad Length	60	Yes	60
Runway Safety Area (RSA)			
• Width	120	Yes	120
• Length Beyond Departure End	240	Yes	240
• Length Prior to Landing Threshold	240	Yes	240
Runway Obstacle Free Zone (ROFZ)			
• Width	250	Yes	250
• Length Beyond Runway End	200	Yes	200
• Length Prior to Landing Threshold	200	Yes	200

Runway Object Free Area (ROFA) • Width • Length Beyond Runway End • Length Prior to Landing Threshold	 250 240 240	 Yes Yes Yes	 250 240 240
Approach/Departure Runway Protection Zone (RPZ) • Length • Inner Width • Outer Width	 1,000 250 450	 Yes Yes Yes	 1,000 250 450
Runway Centerline to: • Parallel Taxiway/Taxilane Centerline • Aircraft Parking Line • Building Restriction Line	 150 (west & east) 200 (west & east) [2] 250 (west & east) [3]	 Yes Yes Yes	 150 195.5/320.5[7] 250/375[8]
Taxiway Width	30	Yes	25
Taxiway Shoulder Width	10	Yes	10
Taxiway Safety Area Width	49 [9]	No	49
Taxiway Object Free Area Width	<89 [4]	No	89
Taxiway Centerline to Fixed/Movable Object	<44.5 [4]	No	44.5
Taxilane Object Free Area Width	<79 [5]	No	79
Taxilane Centerline to Fixed/Movable Object	<39.5 [5]	No	39.5

Table 4-2 Notes:

1. Existing airfield dimensions effective March 2013.
2. Nearest aircraft parking is located approximately 200 feet west and east of runway centerline.
3. The nearest structures (hangars) on the west side of the runway (south hangar area) are approximately 250 feet from runway centerline. The open-front T-hangar located in the North Hangar area is approximately 270 feet from runway centerline.
4. Parallel Taxiway OFA clearance limited at south aircraft holding area (adjacent to Rwy 34 threshold).
5. Main apron clearances from taxilane centerlines to aircraft fueling position, aircraft tiedowns, and hangars vary (less than ADG I standard).
6. Per FAA Runway Length Model: Runway lengths required to accommodate 95 and 100 percent of the small airplane fleet (12,500 pounds or less) at Albany Municipal Airport. 81.6 degrees F, 1-foot change in runway centerline elevation.
7. 194.5 feet is required to clear the taxiway object free area for the existing 150-foot runway-parallel taxiway separation. Existing APL, as depicted on the 2002 ALP is 200 feet, which will accommodate an aircraft tail height of approximately 10.7 feet (@ APL) without penetrating the 7:1 transitional surface that extends from the existing visual (250 feet wide) primary surface/future option nonprecision instrument primary surface (500 feet wide) requires 325 feet for APL to obtain the same tail height clearance.
8. Distance required to accommodate 17.8-foot structure (typical small/medium hangar roof heights) without penetrating the 7:1 transitional surface that extends from the existing visual (250 feet wide) primary surface/future option nonprecision instrument primary surface (500 feet wide) and to remain clear of the object free area established for Taxiway A. Setbacks for larger hangars are greater and would depend on roof elevation and clearance of transitional surface slope.
9. All taxiways on the airport appear to meet the TSA dimensional standard, with the exception of the bridge on the south access taxiway (approximately 30 feet wide).

Airport Planning & Design Standards Note:

The following FAA standards are recommended for use in evaluating Runway 16/34 and its taxiway system:

Runway 16/34 (Existing/Future) *– Airport Reference Code (ARC) B-I, Small Aircraft Exclusively. Runway design standards for aircraft approach category A & B runways with not lower than* ***1-statute mile*** *approach visibility minimums. Runway Protection Zones based on the approach visibility standard "visual and not lower than 1-mile" for Aircraft Approach Categories A and B.*

FAR Part 77 airspace planning criteria based on "utility runways" with future approach capabilities (visual or non-precision instrument) discussed later in the chapter.

All references to the "standards" are based on these assumptions, unless otherwise noted. (Per FAA Advisory Circular 150/5300-13a and FAR Part 77.25)

INSTRUMENT APPROACH NOTE:

As noted in the Inventory chapter, the existing instrument approach for Albany Municipal Airport is a nonprecision approach with a visual final approach segment. The approach is classified as a "circling" or "circle to land" procedure since it requires pilots to establish visual contact with the airport environment at or before a fixed "missed approach point" and land on any runway end while maintaining visual contact. According to local pilots, the descent minimums (714 feet AGL) for the current procedure are marginally effective and there is interest in developing a procedure with better minimums. The potential exists to develop a straight-in nonprecision approach to a particular runway end that may provide improved minimums. It may also be possible to develop a new "circling" procedure with improved approach minimums. In both cases however, the degree of improvement is dependent on the number, elevation and location of nearby obstructions within the protected TERPS[1] airspace for both the approach and missed approach paths. Preliminary coordination with the FAA Flight Procedures Office indicates that improved instrument approaches are feasible (See **Appendix C**). However, development of a new approach will require an updated obstruction survey and a formal process for procedure development, flight check, and publishing.

A straight-in approach requires larger protected airspace surfaces than visual approaches. For utility runways, a 500-foot wide primary surface is required, compared to the existing 250-foot wide visual primary surface. An increase in primary surface width shifts the beginning of the 7:1 transitional surface, which can affect obstruction clearance over of aprons (parked aircraft, fueling facilities etc.) and buildings. The approach surface slope for nonprecision instrument approaches on utility runways is 20:1, the same as required for visual approaches. Please see the FAR Part 77 Airspace section later in the chapter for a description of the primary and transitional surfaces.

The dimensions of most runway-related design standards (runway protection zone, runway safety area, etc.) would not be affected by the approach type since the runway would still be designed for small aircraft

[1] TERPS: Terminal Instrument Procedures, as defined in FAA Order 8260.3B

and the approach visibility minimums would not be reduced below 1-mile. However, the aircraft parking line (APL) and building restriction lines (BRL) on both sides of Runway 16/34 would be affected. These items are addressed in the appropriate sections of the chapter.

Runway Safety Area (RSA)

The FAA defines runway safety area (RSA) as *"A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway."* Runway safety areas are most commonly used by aircraft that inadvertently leave (or miss) the runway environment during landing or takeoff.

By FAA design standard, the runway safety area *"shall be:*

(1) cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;

(2) drained by grading or storm sewers to prevent water accumulation;

(3) capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and

(4) free of objects, except for objects that need to be located in the runway safety area because of their function. Objects higher than 3 inches above grade should be constructed on low impact resistant supports (frangible mounted structures) of the lowest practical height with the frangible point no higher than 3 inches. Other objects such as manholes, should be constructed at grade. In no case should their height exceed 3 inches."

The recommended transverse grade for the RSA located along the sides of a runway ranges between 1½ and 5 percent from runway shoulder edges. The recommended longitudinal grade for the first 200 feet of RSA beyond the runway end is 0 to 3 percent. The remainder of the RSA must remain below the runway approach surface slope. The maximum negative grade is 5 percent. Limits on longitudinal grade changes are plus or minus 2 percent per 100 feet within the RSA.

The RSA for Runway 16/34 (120 feet wide, extending 240 feet beyond each runway end) appears to meet FAA dimensional and surface condition standards. The RSA appears be free of physical obstructions, except items permitted by FAA that are installed on frangible (break away) supports (runway lights, information/directional signs, runway end identifier lights and precision approach path indicators). Portions of the RSA at both ends of the runway have paved runway overruns. The ends of the RSA are measured from the end of useable runway (threshold bars) at each runway end. Future use of the paved overruns as useable runway may require extending the RSA to meet FAA standards, depending on the runway configuration.

Runway pavement edges should be periodically inspected to ensure that grass, dirt or gravel build ups do not exceed 3 inches. The RSA should be regularly cleared of brush or other debris and periodically graded and/or compacted to maintain FAA standards, as needed. Any future runway extensions will require corresponding RSA improvements based on the applicable design standard.

Runway Object Free Area (ROFA)

Runway object free areas (ROFA) are two dimensional surfaces intended to be clear of ground objects that protrude above the runway safety area edge elevation. Obstructions within the object free area may interfere with aircraft flight in the immediate vicinity of the runway. The FAA defines the object free area clearing standard:

"The object free area clearing standard requires clearing the object free area of above ground objects protruding above the runway safety area edge elevation. Except where precluded by other clearing standards, it is acceptable to place objects that need to be located in the object free area for air navigation or aircraft ground maneuvering purposes and to taxi and hold aircraft in the object free area. Objects non-essential for air navigation or aircraft ground maneuvering purposes are not to be placed in the object free area. This includes parked airplanes and agricultural operations."

The ROFA for Runway 16/34 (250 feet wide, extending 240 feet beyond each runway end) appears to be free of physical obstructions (excluding navigational aids, lighting, airfield signs, etc.) and meets FAA dimensional standards. Any future runway extensions will require corresponding object free area improvements based on the applicable design standard. The ROFA should be periodically inspected to remove any protruding objects and clear vegetation.

Obstacle Free Zone (OFZ)

Obstacle free zones (OFZ) are planes of clear airspace extending upward above runways that are intended to protect close-in obstructions that may create hazards for aircraft. The FAA defines the following clearing standard for the OFZ:

"The obstacle free zone clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible visual NAVAIDs [navigational aids] *that need to located in the obstacle free zone because of their function."*

The FAA defines four types of obstacle free zones based on approach capabilities, runway configuration and type of aircraft use. For Runway 16/34 only the *Runway* OFZ is required. Other OFZ types designed for runway ends with approach lights, significantly lower approach visibility minimums, or precision instrument approaches are not applicable to Runway 16/34.

<u>The FAA defines the Runway Obstacle Free Zone as</u>:

"The runway OFZ [obstacle free zone] *is a defined volume of airspace centered above the runway centerline. The runway OFZ is the airspace above a surface whose elevation at any point is the same as the elevation of*

the nearest point on the runway centerline. The runway OFZ extends 200 feet beyond each end of the runway."

The FAA recommended ROFZ width for Runway 16/34 is 250 feet, based on the design aircraft (B-I small). Based on a recent visual inspection conducted during the master plan inventory, no penetrations to the existing runway OFZ were observed, other than the runway lights, precision approach path indicator units, runway end identifier lights, directional signage, and distance remaining signs which have locations fixed by function. All items currently located within the runway OFZ meet the FAA frangibility (break away) standard. Aircraft hold lines are located 125 feet from runway centerline on each of the exit taxiways connecting to the runway, which keeps holding aircraft entirely outside the runway OFZ.

Taxiway Safety Area

Taxiway safety areas (TSA) serve a similar function as runway safety areas and use the same design criteria for surface condition (see description of runway safety area provided earlier in this chapter), with varying dimensions based on airplane design group. The main taxiways on the airfield are designed to accommodate the same design aircraft as the runway (Airplane Design Group I). The ADG I standard TSA dimension is 49 feet, centered on the taxiway, extending 24.5 feet each side of centerline. Based on the existing 30-foot width on the parallel taxiway, the outer edge of the TSA extends 9.5 feet beyond the taxiway pavement edge. As noted in the Inventory chapter, the widths of the exit taxiways vary from 25 to 35 feet, which results in the outer, unpaved portions of the TSAs varying from 7 to 12.5 feet on each side.

The south access taxiway also appears to meet safety area standards, with the exception of the bridge crossing Cox Creek. The bridge is approximately 30 feet wide, elevated approximately 12 to 15 feet above the creek at mid-channel. The bridge provides approximately 19 feet less safety area width than the ADG I standard (49 feet).

Items within TSAs that have locations fixed by function (taxiway reflectors, edge lights, signs, etc.) must be mounted on frangible (break away) mounts. Based on a recent visual inspection conducted during the master plan inventory, the west and east parallel taxiways, exit taxiways and south access taxiway (with the exception of the taxiway bridge) appear to meet the surface condition and obstruction clearing standards required for taxiway safety areas.

As with runway safety areas, the ground surface located immediately adjacent to the taxiways periodically requires maintenance or improvement to adequately support the weight of an aircraft or an airport vehicle. Grading and/or soil compaction within taxiway safety areas should be completed as needed, and grass, brush or other debris should be regularly cleared to maintain FAA standards. Taxiway pavement edges should be periodically inspected to ensure that grass, dirt or gravel build ups do not exceed 3 inches.

It is noted that safety area standards do not apply to *taxilanes* typically located within hangar developments or aircraft parking aprons. Taxilanes provide aircraft access within a parking or hangar area; taxiways provide aircraft access between points on the airfield and serve runways (e.g. parallel taxiways and exit taxiways).

Taxiway/Taxilane Object Free Area

Taxiway and taxilane object free areas (OFA) are intended to provide unobstructed taxi routes (adequate wingtip clearance) for aircraft. The outer edge of the OFA defines the recommended standard distance from taxiway or taxilane centerline to a fixed or moveable object. The FAA clearing standard prohibits service vehicle roads, holding or parked aircraft, and above ground objects (hangars, other built items, etc.), except for objects with locations that are fixed by function (navigational aids, airfield signs, etc.).

All taxiways and taxilanes at Albany Municipal Airport are designed to meet ADG I standards, or the corresponding Taxiway Design Group I (TDG I) standards (new in 2012). The FAA added taxiway design groups in the last major update (9/28/12) of its Airport Design advisory circular (AC 150/5300-13A). The standards are based on the outer main gear width and cockpit to main gear distance. Some design elements associated with taxiways remain under airplane design group, while others are included under taxiway design group. With very few exceptions, most aircraft that are included in ADG I will also be included in TDG I. For the purposes of this discussion, the standards will be combined (ADG/TDG I).

TAXIWAYS

The standard ADG/TDG I taxiway OFA width dimension is 89 feet, which extends outward 44.5 feet from centerline in both directions. As with the taxiway safety area, any items within the taxiway OFA that have locations fixed by function, must be frangible (break away mount) to meet the FAA clearing standard.

As noted in the Inventory chapter, the west parallel taxiway is physically separated from adjacent aircraft parking aprons and hangars and these items are located beyond the western edge of the taxiway OFA. However, the south aircraft holding area located near the Runway 34 threshold directly abuts the parallel taxiway on its west side and a portion (approximately 2/3) of the hold area is located within taxiway OFA. An aircraft performing a pre-takeoff checklist, engine run-up or awaiting an instrument flight plan clearance will be partially located in the taxiway OFA, creating an obstacle for aircraft passing on the adjacent taxiway. Expanding the hold area to allow aircraft to be positioned entirely outside the taxiway OFA should be considered in the alternatives evaluation.

The short section of east parallel taxiway that connects to the north end of the runway directly abuts the adjacent aircraft parking apron. The single row of eight west-facing tiedowns is located approximately 52 feet from the taxiway centerline (distance to the top of the painted “T”). This separation ensures that both the tiedowns and the aircraft that occupy the tiedowns are located beyond the taxiway OFA.

The OFA for the south access taxiway appears to be free of obstructions.

TAXILANES

The airport has a variety of taxilanes including apron taxilanes and hangar taxilanes that serve predominantly ADG I aircraft. The ADG I taxilane OFA standard dimension is 79 feet wide, extending 39.5 feet from centerline.

South Hangar Area Taxilanes.

As noted in the Inventory chapter, the clearances provided on these taxilanes (measured as the opening between hangar rows) is typically 79 feet, although the opening between the two southern-most hangars is approximately 72 feet.

The FAA allows a modification to standards for Taxilane OFA clearance based the following formula: 1.2 x airplane wingspan plus 20 feet. Using this formula, small hangars with 40-foot wide doors can accommodate most small single-engine and some smaller multi-engine aircraft. Assuming 1-foot of wingtip clearance on both sides, a 40-foot wide door opening could accommodate an aircraft with up to a 38-foot wing span. Based on an aircraft with a 38-foot wingspan, the corresponding taxilane OFA clearance derived from this formula would be approximately 66 feet (38' x 1.2 + 20' = 65.6'). For comparison, a Cessna 172 and 182 both have wingspans of 36 feet; a Cessna 150 has a wingspan of 33.3 feet.

While relocation of most hangars is not considered highly feasible, any new hangars (and the associated taxilanes) planned for this area should meet the applicable ADG I taxilane object free area clearance standard. A modification to FAA standards using the FAA-defined formula, providing an acceptable level of safety, should be noted for these hangars.

North Hangar Taxilanes.

The north hangar area located at the north end of the airport's west landside area has two taxilanes providing access to adjacent hangars. The north hangar taxilane extends from the parallel taxiway (Taxiway A) and Taxiway A1 and connects to the north end of the main apron. The opening between the open-front T-hangar and the adjacent row of conventional hangars is approximately 80 feet, however, the taxilane centerline is offset, approximately 45 feet from the front of the conventional hangars and 35 feet from the west side of the adjacent open-front T-hangar. As a result, the clearance on the east side of the taxilane is slightly below the 39.5-foot ADG I taxilane OFA standard. In addition, most vehicles observed parked in front of conventional hangars along the taxilane are obstacles within the taxilane OFA.

The T-hangar stub taxilane located on the east side of the building does not meet taxilane OFA standards based on its centerline clearance from the hangar (approximately 30 feet).

West Apron Taxilanes.

Several taxilanes on the west apron provide access within the apron and serve hangars and the FBO building located along the back edge of the apron. The apron has two main sections. The southern section provides access to the FBO building, attached hangars, aircraft tiedowns, and the aircraft fueling area. The northern section of the apron accommodates aircraft tiedowns and provides access to conventional hangars located along the western edge of the apron. The apron has three taxilane connections to the parallel taxiway (Taxiway A)—one located at each end and one directly in line with Taxiway A2, the mid-runway exit taxiway.

The north section of the apron has two rows of single, west-facing tiedowns that are served by two taxilanes. The eastern tiedown row has tail-in positions that are accessed from the eastern taxilane; the western row of tiedowns is accessible from either taxilane. The apron taxilanes are not marked with centerline striping.

The eastern taxilane has approximately 70 feet of clearance between the adjacent tiedown "T" markings which does not meet the FAA ADG I standard (79 feet). Since the OFA clearance is measured from the taxilane centerline to a fixed/moveable object (parked aircraft), the actual use of the tiedowns further reduces OFA clearance. For most small airplanes, the front portion of the aircraft extends 3 to 5 feet forward of the tiedown markings (into the adjacent taxilane). This can reduce the 70-foot opening on the eastern taxilane to 65-67 feet; when larger aircraft, such as the 4-engine ADG II aircraft or business jets, are parked in the small airplane tiedowns, the adjacent taxilane clearance is reduced even more, and can be significantly more when the large aircraft are parked in close proximity in east and west tiedown rows.

The western taxilane has approximately 90 feet of clearance between the western row of tiedown "T" markings and the fronts of adjacent hangars. While the space is sufficient to meet the taxilane OFA standard, vehicles parked directly in front of the City maintenance shop and the hangars located along the west edge of the apron reduce the actual clear area by 20 to 30 feet and large aircraft parked in the western tiedown row can extend up to 18 feet into the taxilane OFA. The taxilane and its setback is not marked, which makes it difficult to distinguish between protected taxilane and the areas used for vehicle parking.

A small taxilane located between the north end of the FBO hangars and a double row of tiedowns has approximately 70 feet of clearance, which is less than the ADG I standard taxilane OFA (79 feet).

The aircraft fueling area located at the south end of the terminal apron is adjacent to a north-south section taxilane that extends from the apron to the south connection to the parallel taxiway. The fuel storage tank and pumps are located beyond the taxilane OFA, but the aircraft fueling position is on the west side of the tank, within the taxilane OFA.

Figure 4-2, presented earlier in the chapter, illustrates the nonstandard taxilane clearances on the apron. Options for addressing existing apron configuration and conforming to OFA clearance standards will be included in the alternatives analysis. When required by FAA, changes in parking configurations are typically implemented when the apron areas are rehabilitated, reconfigured, or expanded. All new aircraft parking aprons should be designed to provide standard taxilane OFA clearances to the adjacent parked aircraft, rather than tiedown anchors. As noted earlier, the configuration of the east tiedown apron relative to the adjacent taxiway illustrates the desired clearance between parked and taxiing aircraft. Options for relocating vehicle parking to areas adjacent to apron should also considered in the alternatives evaluation.

Building Restriction Line (BRL)

A building restriction line (BRL) identifies the minimum setback required to accommodate a typical building height, such as a T-hangar or large conventional hangar, based on the ability to remain clear of all runway and taxiway clearances on the ground, and the protected airspace surrounding a runway. Taller buildings are located progressively farther from a runway in order to remain beneath the 7:1 Transitional Surface slopes that extend laterally from both sides of a runway.

The 2002 Airport Layout Plan depicts 250-foot BRLs on both sides of the Runway 16/34. The 250-foot BRLs can accommodate structures with roof heights up to 17.8 feet above runway elevation (at the BRL without penetrating the runway transitional surface associated with the existing visual approach).

All new construction on the airport and in the immediate vicinity of the airport should routinely involve FAA review for airspace compatibility. FAA Form 7460-1, Notice of Proposed Construction or Alternation, should be prepared and submitted to FAA at least 60 to 90 days prior to planned construction. The 7460 form should be submitted by the City for any projects located on the airport and submitted by the applicant for any projects located off airport property (coordinated with Linn County and City of Albany). The FAA reviews all proposed development to determine if the proposed action would create any obstructions to FAR Part 77 airspace surfaces. In general, the FAA will object to proposals that result in a penetration to any FAR Part 77 airspace surfaces on the basis of safety.

WEST BRL (250 FEET FROM RUNWAY CENTERLINE)

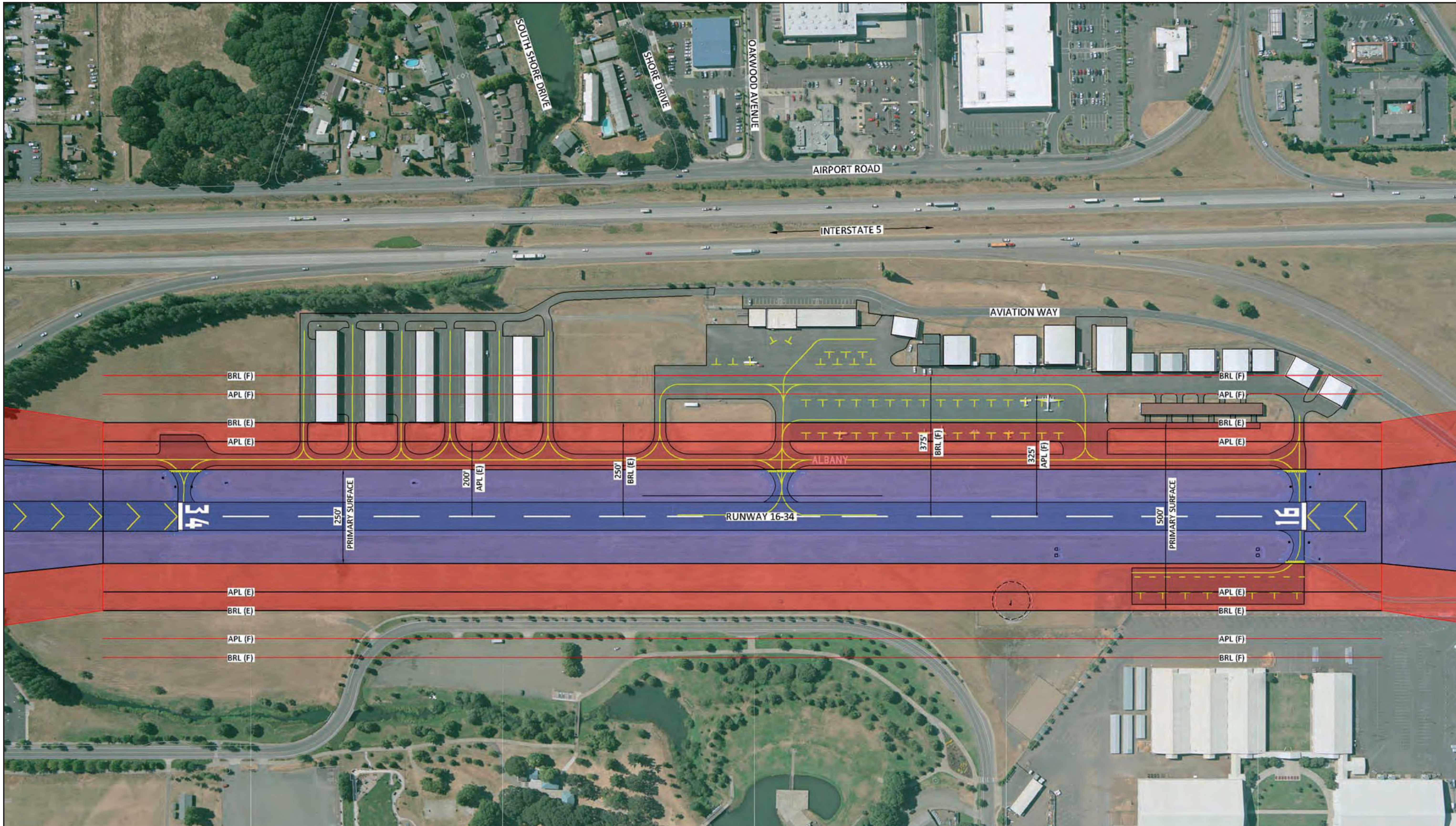
The nearest buildings on the west side of Runway 16/34 are the east ends of the T-hangars located in the south hangar area, located approximately 250 feet from runway centerline. The open-front T-hangar located in north hangar area is located approximately 270 feet from runway centerline. Hangars located along the western edge of the apron are approximately 400 feet from runway centerline and conventional hangars in the north hangar area are located 290 to 380 feet from runway centerline. Most buildings located along the back of the apron roof peak heights ranging from approximately 16 feet to 24 feet. None of the buildings appear to obstruct existing protected airspace associated with Runway 16/34.

EAST BRL (250 FEET FROM RUNWAY CENTERLINE)

There are no structures (on airport property) located on the east side of Runway 16/34. The nearest off-airport structures are located approximately 270 to 330 feet from runway centerline. The structures are not listed as obstructions on the 2002 Airspace Plan, but the roof heights for the close-in structures should be verified during a future obstruction survey.

Instrument Approach Upgrade Note:

As noted earlier, the potential development of a straight-in instrument approach to either runway end requires a 500-foot wide primary surface, compared to current 250-foot wide primary surface. The impact on the BRLs for Runway 16/34 would be a 125-foot lateral shift, caused by the corresponding shift of the transitional surface and the beginning of its 7:1 slope. To maintain the same 17.8-foot vertical clearance of the existing BRL, the new BRL would need to be located 375 feet from runway centerline. The south T-hangars located approximately 250 feet from runway centerline would be at the outer edge of the wider primary surface and the entire east end elevation of the structures would penetrate the transitional surface. Hangars located along the western edge of the apron, approximately 400 feet from runway centerline, could have roof elevations of approximately 21 feet with penetrating the shifted transitional surface. The open-front T-hangar in the north hangar area would also penetrate a shifted transitional surface. Some conventional hangars in the north hangar area would penetrate a shifted transitional surface. Penetrating objects would at a minimum require red obstruction lighting and any potential impact on the approach minimums would be determined during procedure design. **Figure 4-5** illustrates the changes in building restriction lines and aircraft parking lines that would be associated with an upgrade to a straight-in instrument approach.



ALBANY MUNICIPAL AIRPORT | AIRPORT MASTER PLAN

BRL/APL LOCATIONS PER FAR PART 77 | **FIG. 4-5**

CENTURY WEST
ENGINEERING CORPORATION

Runway Protection Zones (RPZ)

The FAA provides the following definition for runway protection zones:

"The RPZ's [runway protection zone] *function is to enhance the protection of people and property on the ground. This is achieved through airport owner control over RPZ's. Such control includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities. Control is preferably exercised through the acquisition of property interest in the RPZ. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The RPZ's begins 200 feet beyond the end of the area useable for takeoff or landing."*

Runway protection zones (RPZ) with buildings, roadways, or other items do not fully comply with FAA standards. It is recognized that realigning major surface roads located within the runway protection zone may not always be feasible. It is recommended that airport sponsors control the RPZs through ownership whenever possible. Alternatively, avigation easements[2] should be acquired where the airport purchases an easement that limits the height of any constructed items and may limit types of uses or activities that are allowed in the area.

The 2002 Airport Layout Plan depicts existing and future RPZs for Runway 16 and 34 based on standards for small aircraft and approach visibility minimums ("visual and not lower than 1-mile"). This standard is consistent with the current design aircraft and the existing circling and potential straight-in nonprecision instrument approaches.

Note: FAA Guidance of RPZs and Roads

In October 2012, the FAA released new guidance regarding runway protection zones and roads. Final FAA guidance has not been provided at the time of this writing. In short, the policy 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 roads outside RPZs or for changes to the RPZs themselves. Any proposed changes in the length of Runway 16/34 that change the location of existing RPZs evaluated in this study are subject to review by FAA headquarters in Washington D.C.

The FAA is also strongly discouraging development within RPZs. As noted in the inventory, the south apron and a portion of the south access taxiway are located within the Runway 34 RPZ. These facilities are not consistent with current FAA RPZ development guidelines and FAA has indicated that future improvements to these facilities or other development within the RPZ would not be supported.

[2] An avigation easement (*avigation = aviation + navigation*) involves the purchase of airspace rights over a particular defined ground area. The easement normally limits the maximum height of any natural or built items and may include provisions restricting the type of activities permitted. Compensation is negotiated between the airport owner and property owner.

Aircraft Parking Line

The aircraft parking line (APL) represents the minimum setback required for locating aircraft parking in order to clear the adjacent runway-taxiway system. The location of the APL is generally determined by the more demanding of runway airspace clearance and taxiway obstruction clearance.

The 2002 Airport Layout Plan depicts 200-foot APLs on both sides of the Runway 16/34. At 200 feet from runway centerline, an aircraft tail height of approximately 10.7 feet can be accommodated without penetrating the runway transitional surface that extends outward along the sides of the runway. Most small single-engine aircraft have tail heights less than 10 feet. Larger aircraft often have tail heights exceeding 10 feet and these aircraft require increased setback distances to avoid penetrating the transitional surface.

Instrument Approach Upgrade Note:

The potential development of a straight-in instrument approach to either runway end requires a 500-foot wide primary surface, compared to current 250-foot wide primary surface. Per FAR Part 77, the primary surface should be free of physical obstructions such as parked aircraft or structures. As with the BRLs, the impact on the APLs for Runway 16/34 would be a 125-foot lateral shift to accommodate the wider primary surface and shifted transitional surface. To maintain the same 10.7-foot vertical clearance of the existing APL, the new APL would need to be located 325 feet from runway centerline. (See **Figure 4-5**, presented earlier in the chapter). The eastern row of tiedowns on the main apron and the tiedowns on the east tiedown apron would be located within the expanded primary surface and would not be usable. The tails of aircraft parked in the western row of tiedowns of tiedowns would penetrate the transitional surface by an average of 2 to 5 feet (small single engine aircraft). It appears that the impact on the western row of tiedowns could be mitigated by modifying the tiedown row and/or reducing clearance slightly to accommodate single engine aircraft with typical tail heights of 8 to 9 feet. Larger aircraft parking would need to be located to avoid tail penetrations to the transitional surface.

These changes would increase the runway setback required for parked aircraft to avoid surface penetrations. With a 500-foot wide primary surface, a 306-foot setback would be required to accommodate a typical single engine airplane with a tail height of 8 feet, which represents a loss of 106 feet of useable apron from the current 200-foot APL.

Runway - Parallel Taxiway Separation

Runway 16/34 has a full length west and partial-length east parallel taxiway with runway separation of 150 feet, which meets the B-I small standard.

FAR Part 77 Surfaces

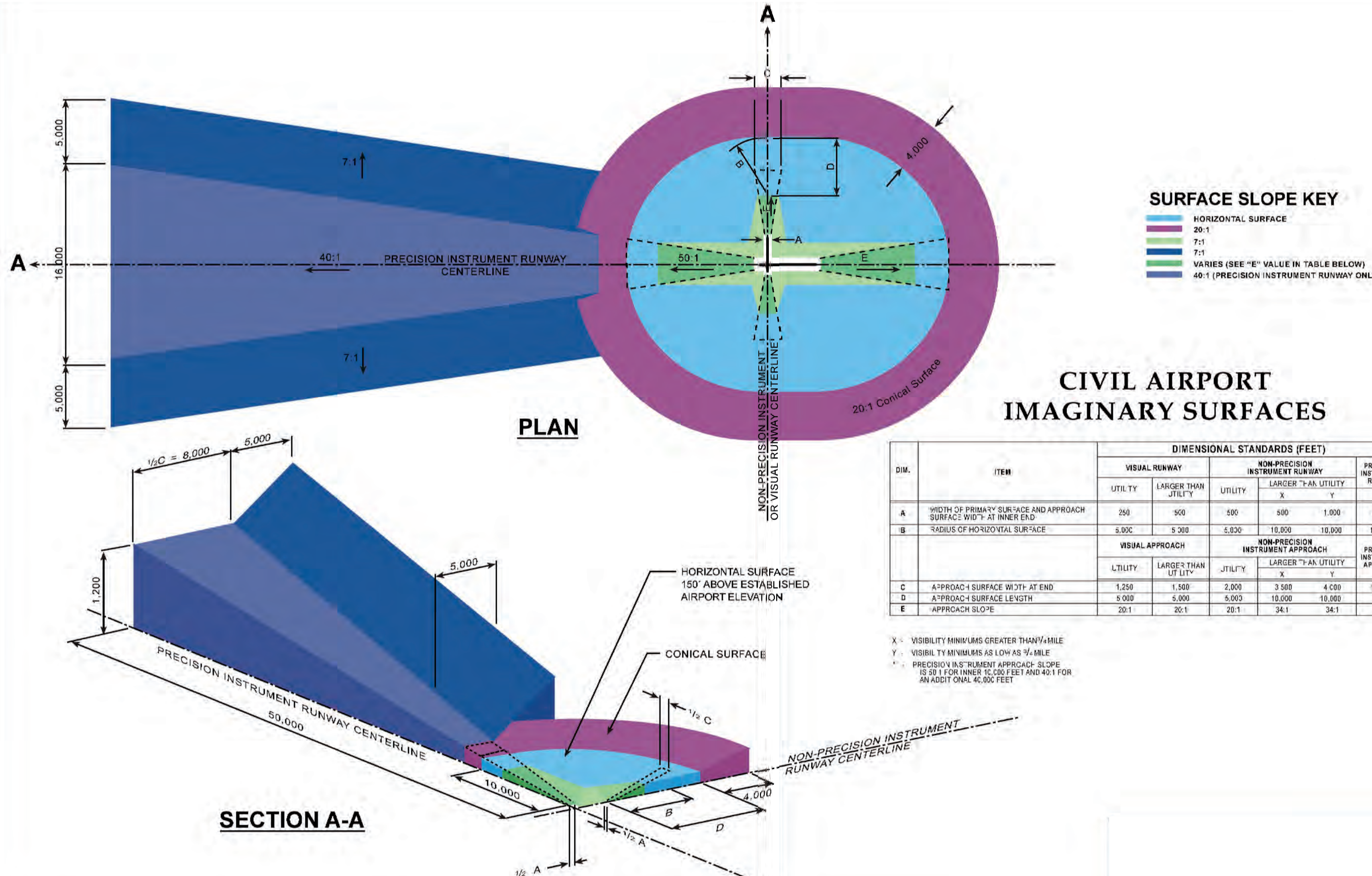
Airspace planning for U.S. airports is defined by Federal Air Regulations (FAR) Part 77 – Objects Affecting Navigable Airspace. FAR Part 77 defines imaginary surfaces (airspace) to be protected surrounding airports. **Figures 4-6 and 4-7** on the following pages illustrate plan and isometric views of generic Part 77 surfaces.

The 2002 Airspace Plan depicts airspace surfaces based on "utility" visual approaches for Runway 16/34. As noted earlier, the existing airspace associated with Runway 16/34 supports the current nonprecision instrument approach with a visual final approach segment. The 2002 Airspace Plan identified several items of interest in the immediate vicinity of the runway, although only one item (vehicles traveling on the airport access road) was listed as an obstruction (<1 foot in the Runway 16 approach). No areas of terrain penetration are depicted on the 2002 Airspace Plan. A review of topographical mapping will be conducted to verify the obstruction clearance for all airspace surfaces associated with Albany Municipal Airport as part of the drawing update. Updated obstruction data (where available) will be added to the updated airspace plan being prepared in the master plan update. Data gathered during future obstruction surveys should be added to the airspace plan drawing through periodic updates.

Table 4-3 summarizes the airspace surface dimensions for Albany Municipal Airport based on current and future approach options.

TABLE 4-3: FAR PART 77 AIRSPACE SURFACES

ITEM	RUNWAY 16/34 *(Utility - Visual)* *(Current Standard, as depicted on 2002 Airspace Plan)*	RUNWAY 16/34 *(Utility Non-Precision Instrument)* *(Optional Future Standard)*
Width of Primary Surface	250 feet	**500 feet**
Transitional Surface	7:1 Slope to 150 feet above runway	7:1 Slope to 150 feet above runway
Approach Surface Width at End	1,250 feet	**2,000 feet**
Approach Surface Length	5,000 feet	5,000 feet
Approach Surface Slope	20:1	20:1
Horizontal Surface Elevation Horizontal Surface Radius	150 feet above airport elevation 5,000 feet	150 feet above airport elevation 5,000 feet
Conical Surface	20:1 for 4,000 feet	20:1 for 4,000 feet



CIVIL AIRPORT IMAGINARY SURFACES

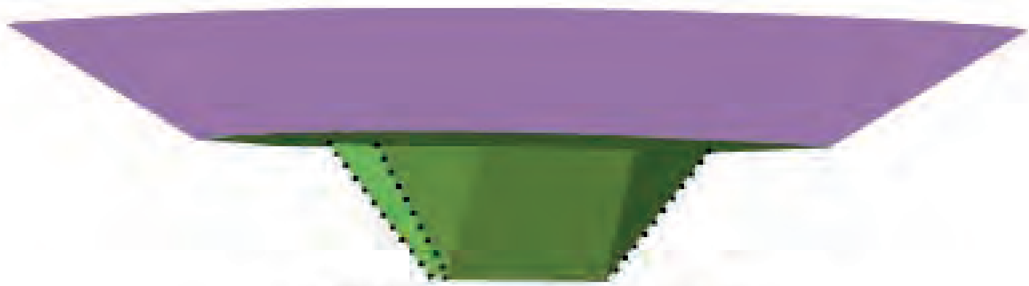
DIM.	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		UTILITY	LARGER THAN UTILITY	UTILITY	LARGER THAN UTILITY X	LARGER THAN UTILITY Y	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
		UTILITY	LARGER THAN UTILITY	UTILITY	LARGER THAN UTILITY X	LARGER THAN UTILITY Y	
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

X - VISIBILITY MINIMUMS GREATER THAN 3/4 MILE

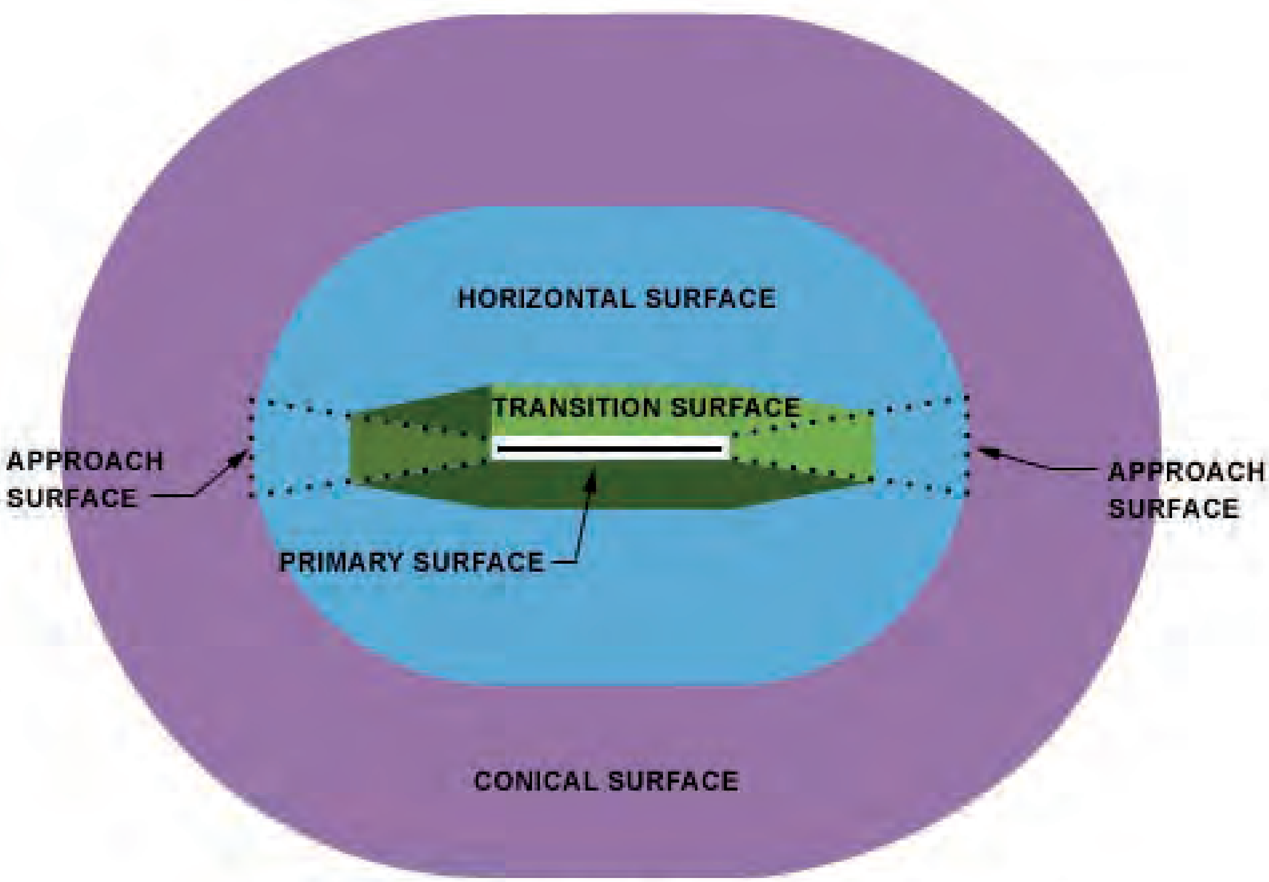
Y - VISIBILITY MINIMUMS AS LOW AS 3/4 MILE

* - PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET

HEIGHT HAZARD AIRSPACE ZONES



PROTECTED AIRSPACE



OVERHEAD VIEW

Approach Surfaces

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

The 2002 Airspace Plan depicts 20:1 approach surfaces for Runway 16/34 that are consistent with the runway category, existing approach capabilities, and approach visibility minimums. The approach surfaces extend 5,000 feet from the end of the runway primary surface. As noted earlier, a minor penetration (<1 foot) was previously identified (airport access road) for the Runway 16 approach surface based on an estimated road elevation and vehicle traveling on the roadway. Knox Butte Road was listed for reference only (no obstruction) within the Runway 16 approach surface. Elevation data and locations for numerous overhead light poles recently installed along the I-5 exit northbound exit will be added to the airspace plan. Four items (trees, powerline, Santiam Highway, and I-5 Off Ramp) are located within the Runway 34 approach surface but do not appear to penetrate the surface. The obstruction data for these items will be reviewed.

PRIMARY SURFACE

The primary surface is a rectangular plane of airspace, which rests on the runway (at centerline elevation) and extends 200 feet beyond the runway end. 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 primary surface end connects to the inner portion of the runway approach surface.

The 2002 Airspace Plan depicts a 250-foot wide primary surface for Runway 16/34 that is consistent with the runway category, existing approach capabilities and approach visibility minimums. No obstructions to the primary surface were identified on the 2002 plan.

TRANSITIONAL SURFACE

The transitional surface is located at the outer edge of the primary surface, represented by a plane of airspace that rises perpendicularly at a slope of 7 to 1, until reaching an elevation 150 feet above runway elevation. This surface should be free of obstructions (i.e., parked aircraft, structures, trees, etc.). No building or parked aircraft penetrations were identified within the Runway 16/34 transitional surfaces on the 2002 Airspace Plan.

HORIZONTAL SURFACE

The horizontal surface is a flat plane of airspace located 150 feet above runway elevation with its boundaries defined by the radii (5,000 feet for utility runways) that extend from each runway end. The outer points of the radii for each runway are connected to form an oval, which is defined as the horizontal surface.

The 2002 Airspace Plan depicted airport elevation at 225.91 feet (rounded to 226 feet) above mean sea level (MSL) with a horizontal surface elevation of 376 feet above mean sea level (MSL). No terrain penetrations or other obstructions were identified within the horizontal surface on the 2002 Airspace Plan.

CONICAL SURFACE

The conical surface is an outer band of airspace, which abuts the horizontal surface. The conical surface begins at the elevation of the horizontal surface and extends outward 4,000 feet at a slope of 20:1. The top elevation of the conical surface for Runway 16/34 is 576 feet MSL, 200 feet above the horizontal surface and 350 feet above airport elevation. No terrain penetrations or other obstructions were identified within the conical surface on the 2002 Airspace Plan.

Airside Requirements

Airside facilities are those directly related to the arrival and departure and movement of aircraft:

- Runways
- Taxiways
- Airfield Instrumentation and Lighting

RUNWAYS

The adequacy of the existing runway system at Albany Municipal Airport was analyzed from a number of perspectives including runway orientation, airfield capacity, runway length, and pavement strength.

Runway Orientation & Wind Coverage

The orientation of runways for takeoff and landing operations is primarily a function of wind velocity and direction, combined with the ability of aircraft to operate under adverse wind conditions. A runway's wind coverage is measured by an aircraft's ability to operate with a "direct" crosswind, which is defined as 90 degrees to the direction of travel. For runway planning purposes, the maximum direct crosswind for small aircraft is 12 miles per hour; larger general aviation aircraft are typically designed to accommodate a 15 mile per hour direct crosswind. Aircraft are able to operate safely in progressively higher wind speeds as the crosswind angle decreases and the wind direction turns more closely to the direction of flight. In addition, some aircraft are designed to safely operate with higher crosswind components. Ideally, an aircraft will take off and land directly into the wind or with light crosswind. The FAA recommends that primary runways accommodate at least 95 percent of local wind conditions; when this level of coverage is not provided, the FAA recommends development of a secondary (crosswind) runway.

The 2002 Airport Layout Plan indicates that Runway 16/34 has estimated wind coverage of 99 percent at 15 miles per hour. The source of the wind data is not available, although local pilots indicate that the existing runway alignment is generally favorable with the local prevailing winds.

Runway Length

Runway length requirements are based primarily upon airport elevation, mean maximum daily temperature of the hottest month, runway gradient, and the critical aircraft type expected to use the runway. For general aviation airport runways used predominantly by small aircraft (maximum takeoff 12,500 pounds of less), the FAA recommends an evaluation based on a percentage of the small airplane fleet that is consistent with aircraft use. A common planning approach for general aviation runways accommodating a combination of single engine and multi-engine piston aircraft is to base future runway length planning on 95 or 100 percent of the small airplane fleet (aircraft 12,500 pounds and less).

The 2002 Airport Master Plan recognized the existing runway's ability to accommodate 95 percent of the small airplane fleet and recommended use of the 100 percent segment for long term planning. It was also noted that the length required to accommodate 100 percent of the small airplane fleet (approximately 3,600 feet) is equivalent to various runway lengths required for a typical multi-engine turboprop or small jet (accelerate-stop or balanced field lengths) operating at the airport.

The existing and future design aircraft identified in the updated aviation activity forecasts (Chapter Three) is a multi-engine piston aircraft. However, Albany Municipal Airport also accommodates three locally-based turbine aircraft (business jets) and various transient turbine aircraft under 12,500 pounds. The small business jets and multi-engine turboprops have runway length requirements that represent the upper range of runway length requirements for small aircraft. Based on the specific composition of the based aircraft, the use of the 100 percent of the small airplane fleet is most consistent with actual use. The majority of these aircraft are included in Aircraft Approach Category B and Airplane Design Group I (ADG I).

FAA Advisory Circular (AC) 150-5325-4B, Runway Length Requirements for Airport Design provides the following guidance on determining the appropriate percentage of the fleet for runway length planning for small aircraft:

(a) Selecting Percentage of Fleet. The differences between the two percentage categories are based on the airport's location and the amount of existing or planned aviation activities. The airport designer should make the selection based on the following criteria.

(1) 95 Percent of Fleet. This category applies to airports that are primarily intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities. Also included in this category are those airports that are primarily intended to serve low-activity locations, small population communities, and remote recreational areas. Their inclusion recognizes that these airports in many cases develop into airports with higher levels of aviation activities.

(2) **100 Percent of Fleet.** This type of airport is primarily intended to serve communities located on the fringe of a metropolitan area or a relatively large population remote from a metropolitan area.

(b) **Future Airport Expansion Considerations.** Airports serving small airplanes remain fairly constant in terms of the types of small airplane using the airport and their associated operational requirements. However, it is recommended that the airport designer assess and verify the airport's ultimate development plan for realistic changes that, if overlooked, could result in future operational limitations to customers. The airport designer should at least assess and verify the impacts of:

(1) Expansions to accommodate airplanes of more than 12,500 pounds (5,670 kg). Failure to consider this change during an initial development phase may lead to the additional expense of reconstructing or relocating facilities in the future.

(2) Requirements to operate the runway during periods of Instrument Meteorological Conditions (IMC). The requirement for this capability is highest among airplanes used for business and air taxi purposes.

It is evident that the two considerations noted in item b (Future Airport Expansion Considerations) already exist at Albany Municipal Airport. The presence of small business jets at an airport Albany's size is unique and creates operational considerations that might not exist at other similar airports in communities the size of Albany and larger. The diverse mix of multi-engine piston and turbine aircraft that weigh 12,500 pounds or less included in ARC B-I effectively represent the last 5 percent of the small airplane fleet in terms of runway length requirements. For these reasons, the runway length required to accommodate 100 percent of the small airplane fleet is recommended for runway planning at Albany Municipal Airport. A summary of FAA recommended runway lengths for planning based on the requirements of small aircraft is presented in **Table 4-4**.

TABLE 4-4: FAA RECOMMENDED RUNWAY LENGTHS FOR PLANNING- (FROM FAA COMPUTER MODEL)

Runway Length Parameters for Albany Municipal Airport

- Airport Elevation: 226 feet MSL
- Mean Max Temperature in Hottest Month: 81.6 F
- Maximum Difference in Runway Centerline Elevation: 0.56 Feet
- Existing Runway Length: 3,004'

Small Airplanes with less than 10 seats	
➢ *75 percent of these airplanes*	*2,940 feet*
➢ *95 percent of these airplanes*	*3,040 feet*
➢ ***100 percent of these airplanes***	***3,610 feet***
➢ *Small airplanes with 10 or more seats*	*4,160 feet*

Based on local conditions and the methodology outlined in **AC 150/5324-4B,** a runway length of 3,610 feet is needed to accommodate 100 percent of small airplane fleet (12,500 pounds or less maximum gross takeoff weight) on Runway 16/34.

To further illustrate the potential capability for the runway to support increased turbine aircraft activity, the runway length requirements for several small business jets and turboprops are summarized in **Table 4-5**. It is noted that several small business jets currently have the ability to operate on the runway at reduced weights. The margin of safety for these turbine operations and all multi-engine operations would be improved with a runway capable of accommodating 100 percent of the small airplane fleet under typical load and summer day weather conditions.

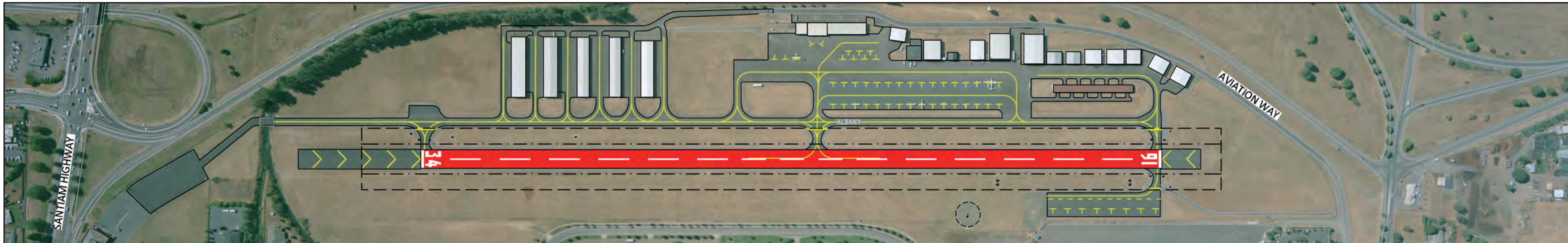
TABLE 4-5: TYPICAL BUSINESS AIRCRAFT RUNWAY REQUIREMENTS

AIRCRAFT	PASSENGERS (TYPICAL CONFIGURATION)	MAXIMUM TAKEOFF WEIGHT	RUNWAY LENGTH REQUIRED FOR TAKEOFF [1,3]	RUNWAY LENGTH REQUIRED FOR LANDING [2,3]
Beechcraft King Air 200	6-8	12,500	3,300 (a)	2,550 (a)
Cessna Citation Mustang	4-5	8,645	3,000(est.)	2,700 (est.)
Cessna Citation I	4-6	11,850	3,640	2,360
Cessna Citation CJ1+	4-6	10,700	3,990	2,690
Cessna Citation CJ2+	6-7	12,500	3,810	3,100

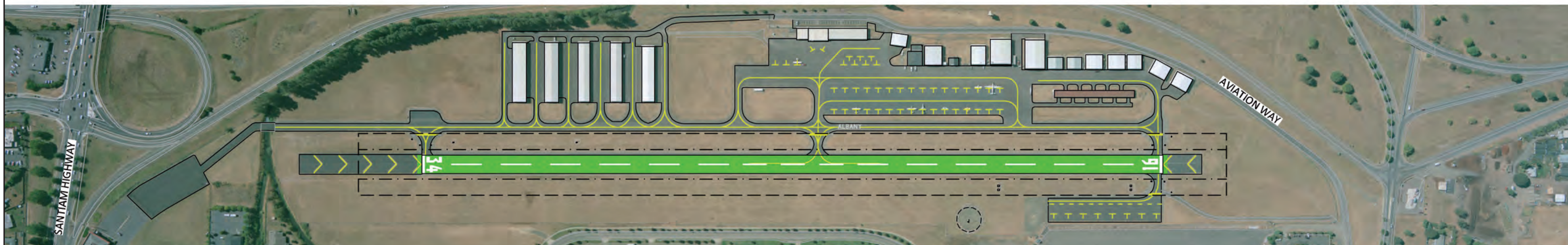
1. FAR Part 25 or 23 Balanced Field Length (Distance to 35 Feet Above the Runway); Sea Level, 86 degrees F; Zero Wind, Dry Level Runway, 15 degrees flaps, except otherwise noted.
2. Distance from 50 Feet Above the Runway; Flaps Land, Zero Wind.
3. Citation I Takeoff and Landing Temperature 90 degrees F

(a) For general comparison only. Manufacturer runway length data based on sea level and standard day temperature (59 degrees F) at maximum takeoff/landing weight.

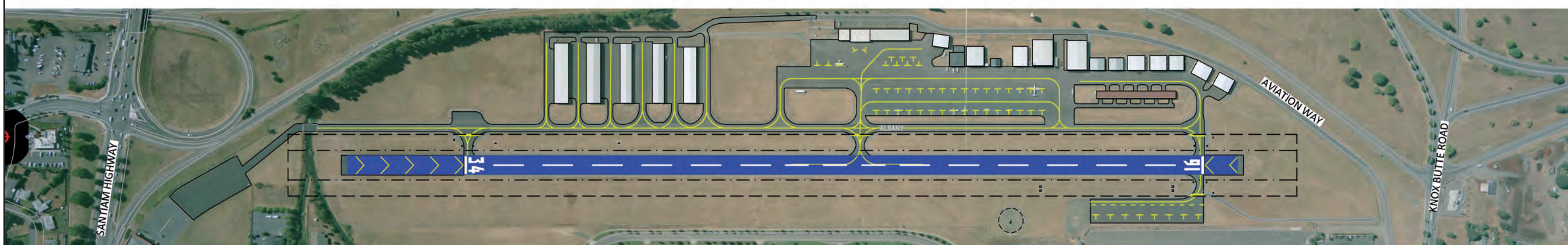
Source: Aircraft manufacturers operating data, flight planning guides.



RUNWAY 3004' X 75' (EXISTING)



RUNWAY 3040' X 75' - 95% SMALL AIRPLANE FLEET



RUNWAY 3610' X 75' - 100% SMALL AIRPLANE FLEET

NOTE:
1. THE INFORMATION DEPICTED IN THIS FIGURE IS FOR RUNWAY LENGTH ILLUSTRATION PURPOSES ONLY AND DOES NOT REFLECT A SPECIFIC RECOMMENDATION OR RUNWAY CONFIGURATION.

Runway Width

Runway 16/34 is 75 feet wide, which exceeds the ADG I standard of 60 feet.

AIRFIELD PAVEMENT

As noted in the Inventory chapter, the runway and exit taxiways were rehabilitated in 2011. The 2012 Pavement Evaluation / Maintenance Management Program for Albany Municipal Airport was based on pavement inspections conducted in July 2012. **Table 4-6** summarizes the pavement condition index (PCI) ratings for 2012 and the predicted conditions for 2017 and 2022, assuming no maintenance is performed. The PCI rating scale is 0 to 100. 100 represents new pavement and 0 represents "failed" pavement. The majority of existing airfield pavements are rated fair or better (55+) with recently rehabilitated pavements rated 100. The paved overruns at both ends of the runway were not rated in the recent inspection, but would be similar to the runway. Pavements with lower ratings include the center and outer sections of the main apron, the north hangar taxiway, the south aircraft hold area, south apron and the section of the south access taxiway located south of the bridge. It is expected that these pavements will require rehabilitation or reconstruction during the current twenty year planning period if they are to remain in service.

TABLE 4-6: SUMMARY OF AIRFIELD PAVEMENT CONDITION (PCI RATINGS)

PAVEMENT SECTION	2012	2017	2022
Runway 16/34	100	94	89
Runway Blast Pads (both runway ends)	Not rated	Not rated	Not rated
Paved Overruns	Not rated	Not rated	Not rated
West Parallel Taxiway Exit Taxiways (A1-A3)	84-89 100	82-84 96	82 88
Main Apron	72-80	44-57	14-56
East Tiedown Apron	85	79	76
North Hangar Taxilane	68	64	56
North T-Hangar Stub Taxilane	96	84	71
South Apron	44	41	40
South Access Taxiway	85 (N of bridge) 50 (S of bridge)	82 (north) 37 (south)	82 (north) 27 (south)
South Hangar Taxilanes	71-94	69-82	69-74

All airfield pavements require periodic crackfilling, vegetation removal and sealcoating to optimize useful life. With effective maintenance, the runway and other recently rehabilitated pavements should not require rehabilitation in the current twenty-year planning period.

TAXIWAYS

Taxiways are constructed primarily to facilitate aircraft movements to and from the runway system. Some taxiways are necessary simply to provide access between apron and runways, while other taxiways become necessary as activity increases and safer and more efficient use of the airfield is needed. The existing taxiway system at Albany Municipal Airport provides aircraft access to the runway and all landside facilities.

Parallel Taxiway

The west parallel taxiway serving Runway 16/34 provides efficient access to the runway from the airport's primary landside facilities. The parallel taxiway has three 90-degree connecting exit taxiways which facilitate movement of aircraft between the runway and parallel taxiway. The west parallel taxiway's aircraft holding area located near the end of Runway 34 does not fully conform to ADG I taxiway object free area clearance standards (wingtip clearances between taxiing and holding aircraft). No major capacity or service related improvements are anticipated. The west parallel taxiway is 30 feet wide, which exceeds the ADG I taxiway width standard (25 feet).

Taxilanes

The future development of new hangars or aircraft parking on the airport will require additional taxilane access. Access taxiways and taxilanes serving small hangar developments are 25 feet wide for ADG I aircraft with a 79-foot wide object free area. As noted earlier in this chapter, several existing hangar taxilanes do not meet FAA taxilane object free area clearing standards. While it may not be feasible to relocate existing hangars, new hangars should be configured to meet FAA standards.

The taxilanes located within the main aircraft apron should be configured to provide the standard object free area clearances. Light airplane tiedown rows and adjacent taxilanes are typically designed to accommodate airplane design group (ADG) I aircraft; parking positions for larger multi-engine aircraft should be sized appropriately. The taxilane centerline to the nearest fixed/moveable object (parked aircraft) of 39.5 corresponds to the object free area dimensions for ADG I.

The east aircraft parking apron is served by a taxilane that connects to Taxiway C at the north end of the runway. The taxilane is parallel to the runway and meets FAA design standards for both runway separation (150 feet) and taxilane object free area clearance to adjacent parked aircraft. Any future expansion of the east tiedown apron or other landside development to south of the apron, would require extending the east taxilane or adding a section of east parallel taxiway.

AIRFIELD INSTRUMENTATION, LIGHTING AND MARKING

Navigational Aids

Runway 16/34 currently supports a circling nonprecision instrument approach through conventional ground based navigational aids (the Corvallis VOR/DME, located 13 nautical miles southwest of Runway 16/34). There are no ground based electronic navigational aids located on the airport. The ongoing development and evolution of satellite-based instrument approach platforms has largely eliminated the need for airports to install and maintain conventional navigational aids, such as localizers or instrument landing systems (ILS). Instrument approaches currently being designed for general aviation airports typically use WAAS or LPV platforms, depending on the airfield capabilities and surrounding airspace. The FAA is currently implementing "NextGen" capabilities in the national airspace system that will eventually allow more efficient movement of aircraft between airports and provide more innovative instrument approach and departure routing and other capabilities.

Runway/Taxiway Lighting

The lighting systems associated with Runway 16/34 were installed new as part of the runway rehabilitation conducted in 2011. The lighting systems include medium intensity runway edge lighting (MIRL), runway end identifier lights (REIL), and visual approach slope indicators (VASI). The systems meet the standard for general aviation runways with visual or nonprecision instrument approaches.

The parallel taxiways and exit taxiways are not equipped with edge lighting. Medium-intensity taxiway lighting (MITL) may be considered if an upgrade from edge reflectors was desired or the level of night operations increased significantly.

Runway Markings

Runway 16/34 has basic (visual) markings, consistent with existing approach capabilities. The markings (threshold marking bars, runway end numbers, centerline stripe) are in excellent condition and were applied in the 2011 rehabilitation project. The runway exit taxiways have yellow aircraft hold line markings located 125 feet from runway centerline, which meets the runway OFA and OFZ clearing standard.

Airfield Signage

The lighted airfield signage (location, mandatory, directional, destination, and distance remaining signs) are internally illuminated and were installed new during the runway and lighting rehabilitation projects.

Airfield Lighting

Airport management reports that the existing airport beacon operates normally.

The internally lighted wind cone on the east side of the runway is in excellent condition.

ON FIELD WEATHER DATA

Albany Municipal Airport does not currently have on-site weather observation. Aircraft conducting instrument approaches at the airport are required to use the altimeter and Automated Weather Observation System (AWOS) at Corvallis Municipal Airport. The addition of on-site weather observation capabilities was recommended in the 2002 airport master plan to provide weather data to support airport operations in both visual and instrument conditions. Having onsite weather would also allow aircraft licensed under FAR Part 135 (air taxi/charter) to operate in IFR conditions.

Landside Facilities

For general aviation airports, landside facilities are generally defined as those that serve aircraft, passenger needs and their related functions. At Albany Municipal Airport, landside facilities include aircraft aprons, hangars, and fixed base operator (FBO) space and aircraft fueling facilities. The airport does not currently have an FBO to provide services to local or transient general aviation users and all fueling is self-service.

The 2002 Airport Layout Plan depicted apron expansion on the east side of the existing aviation fuel storage tank, a south taxilane connection on the main apron, vehicle parking behind the hangars located on the main apron, new hangar construction adjacent to the main apron and in the north and south hangar areas, and a future FBO reserve and large apron near the southwest corner of the airport. As noted in the Inventory chapter, several new hangars and the south taxilane connection on the apron have been constructed since the last master plan was completed.

AIRCRAFT PARKING AND TIEDOWN APRON

Aircraft aprons provide parking for locally based aircraft that are not stored in hangars and for transient aircraft visiting the airport and ground operations such as aircraft fueling. At Albany Municipal Airport, the main apron area accommodates small airplane tiedowns, aircraft fueling, and occasional aerial applicator activity. Larger aircraft parking is also accommodated on the apron (in small airplane tiedown rows), although there are no parking positions designed for larger aircraft. As noted earlier, larger aircraft parked in the small airplane tiedown rows typically extend well into the adjacent taxilanes, which reduces the available taxilane clearance. The addition of parking positions for twin-engine or other larger aircraft should be addressed in the apron alternatives evaluation.

The west apron area currently has 44 small airplane tiedowns. As noted earlier, the existing apron configuration does not meet FAA taxilane object free area clearance standards for ADG I aircraft in several areas. Options for reconfiguring the apron to meet standards will be included in the alternatives evaluation. It is noted that in order to meet FAA design standards, some reduction in the number of tiedown positions may be needed. Based on this possibility, future space calculations should not assume that 100 percent of existing tiedown capacity will be available to meet forecast demand.

The east tiedown apron has 8 small airplane tiedowns, although the apron has no vehicle access and limited pedestrian access. The east tiedown apron is convenient when staying at the adjacent hotels or attending events at the Fair and Expo Center, but is otherwise separated from aircraft fueling or surface access. The south apron has space to accommodate 12 aircraft, but due to its location in the Runway Protection Zone for Runway 34, it will not be included in the calculation of available apron capacity.

In order to address the uncertainty associated with predicting long term demand, aircraft apron reserve areas should be identified to preserve the airport's ability to accommodate user needs. A development reserve area equal to 50 to 100 percent of the net twenty year parking demand will provide a conservative planning guideline to accommodate unanticipated demand, changes in existing apron configurations, and demand beyond the current planning period. The location and configuration of the development reserves will be addressed in the alternatives analysis.

Aircraft Parking Demand (Local and Itinerant)

For planning purposes, it is assumed that 85 percent of forecast based aircraft will be stored in hangars and 15 percent will use apron parking. Based on these assumptions, 16 light aircraft tiedowns will be required for locally-based aircraft by 2032. These estimates may prove to be overly optimistic in gauging apron parking demand for based aircraft as additional hangar space is developed at the airport. However, this approach will ensure that adequate apron is preserved for long term use.

FAA **Advisory Circular 150/5300-13** suggests a methodology by which itinerant parking requirements can be determined from knowledge of busy day operations. Future demand for itinerant parking spaces was estimated based on 30 percent of design day itinerant operations (30% of daily itinerant operations divided by two, to identify peak parking demand). The FAA planning criterion of 360 square yards per itinerant aircraft was applied to the number itinerant spaces to determine future itinerant ramp requirements. By 2032, itinerant aircraft parking requirements are estimated to be 15 aircraft parking positions including aircraft 10 small airplane tiedowns, 4 twin-engine tiedowns or business aircraft drive-through parking positions and 1 transient helicopter parking position (see below). **Table 4-7** summarizes projected aircraft parking requirements based on the updated aviation activity forecasts.

As noted earlier, the main apron is not currently configured to allow efficient parking for larger B-I aircraft (multi-engine piston, turboprop, business jets). The alternatives analysis will consider options for accommodating a limited amount of aircraft parking for these types of the aircraft.

Aircraft Fueling Apron

The existing aircraft fueling area can accommodate one or two small aircraft on the apron located on the west side of the fuel tanks. However, as noted earlier, the existing clearance between the fueling area and the adjacent taxilane to the west does not meet FAA taxilane OFA standards. Options for reconfiguring, expanding or relocating the fueling apron will be addressed in the airport development alternatives.

Aerial Applicator Loading Area

A small area located at the south end of the main apron is periodically used by an agricultural aircraft operator. There are no permanent facilities in place and the site has no secondary containment in the area used for aircraft loading. Options for upgrading this facility or eliminating its use should be considered in the alternatives analysis.

AIRCRAFT HANGARS

Albany Municipal Airport accommodates a wide variety of hangars including commercial hangars and hangars used primarily for aircraft storage. It is estimated that 85 percent of the airport's 80 based aircraft are stored in hangars, with the remaining aircraft parked on aircraft apron. For planning purposes, it is assumed that existing hangar space is committed and all additional (forecast) demand would need to be met through new construction.

As indicated in the aviation activity forecasts, the number of based aircraft at Albany Municipal Airport is projected to increase by 28 aircraft during the twenty year planning period. Based on a projected 85 percent hangar utilization level, additional long term demand for new hangar space is estimated to be 24 spaces. A planning standard of 1,500 square feet per based aircraft stored in hangars is used to project gross space requirements (24 aircraft = 36,000 square feet). The projected hangar requirements for aircraft storage at Albany Municipal Airport are presented in **Table 4-7.**

In addition to aircraft storage, additional demand for business related and commercial hangar needs should be anticipated. Specialized aviation service businesses such as engine & airframe repair, avionics, interior and paint shops generally prefer locations that provide convenient aircraft access. Highly successful aviation service businesses generally rely on both locally based aircraft and their ability to attract customers from outside the local area. While there is no specific formula to predict demand for general aviation service businesses at a particular airport, reserving several spaces for larger commercial hangars is recommended.

Individual aircraft owners needs vary and demand can be influenced by a wide range of factors beyond the control of an airport. In addition, the moderate forecast growth in based aircraft may be exceeded if conditions are favorable. For this reason, it is recommended that hangar development reserves be identified to address the uncertainty of hangar market conditions and demand factors. Conservative development reserves should be established to accommodate a combination of conventional hangars -and T-hangars, roughly equal to 50 to 100 percent of the twenty year forecast (net) demand. The location and configuration of the development reserves is addressed in the alternatives analysis.

TABLE 4-7: APRON AND HANGAR FACILITY REQUIREMENTS SUMMARY

ITEM	BASE YEAR (2012)	2017	2022	2027	2032
Based Aircraft Forecast	**80**	**87**	**93**	**100**	**108**
Aircraft Parking Apron ***(Note: capacities reflect current configuration of existing apron areas, actual capacity when reconfigured may be significantly different.)***					
Small Aircraft Tiedowns (SE)	52				
Other Designated Parking Positions	0				
Total Designated Parking Spaces Available	52*				
Total Apron Area *(includes taxilanes and unusable space required for hangars access)*	30,000 sy				
Projected Needs (*Gross Demand*) [1]					
Itinerant Single Engine Aircraft Tiedowns (@ 360 SY each)		7 spaces / 2,520 sy	9 spaces / 3,240 sy	9 spaces / 3,240 sy	10 spaces / 3,600 sy
Locally Based Tiedowns (@ 300 SY each)		13 spaces / 3,900 sy	14 spaces / 4,200 sy	15 spaces / 4,500 sy	16 spaces / 4,800 sy
Multi-Engine Aircraft Parking (@ 625 SY each)		2 spaces / 1,250 sy	2 spaces / 1,250 sy	3 spaces / 1,875 sy	4 spaces / 2,500 sy
Small Helicopter Parking Positions (@ 380 SY each)		1 space / 380 sy	1 space / 380 sy	1 space / 380 sy	1 space / 380 sy
Total Apron Needs		**23 spaces 8,050 SY**	**26 spaces 9,070 SY**	**28 spaces 9,955 SY**	**31 spaces 11,280 SY**
Aircraft Hangars ***(Existing Facilities)***					
Existing Hangar Spaces (est.)	110-115				
Projected Needs ***(Net Increase in Demand)*** [2]					
(New) Hangar Space Demand (@ 1,500 SF per space) *(Cumulative twenty year projected demand: 24 spaces / 36,000 SF)*		**+6 spaces / 9,000 sf**	**+5 spaces / 7,500 sf**	**+6 spaces / 9,000 sf**	**+7 spaces / 10,500 sf**

1. Aircraft parking demand levels identified for each forecast year represent forecast gross demand.
2. Hangar demand levels identified for each forecast year represent the net increase above current hangar capacity.

Surface Access and Vehicle Parking

The primary surface access to the west landside area of the airport is provided by Aviation Way, which connects to Knox Butte Road. Existing access to all developed areas is adequate, although road extensions may be required if additional development occurs south of the south hangar area. The airport may want to consider providing vehicle access to the east tiedown apron through a controlled access gate to improve accessibility and increase its use.

Although the access provided by the Aviation Way serves all current tenants, the location of designated vehicle parking areas (adjacent to the FBO building and some large hangars) does not appear adequate for current needs. As noted earlier, vehicles are observed parking along the west edge of the main apron and north hangar taxiway, adjacent to individual hangars within defined object free areas for taxilanes. The 2002 airport layout plan depicted future vehicle parking areas behind the hangars with access provided from the adjacent roadway. However, a conventional hangar was constructed in the location where access was recommended (immediately north of the FBO building). Options for providing functional vehicle parking in the west landside area should be addressed in the alternatives evaluation. The City of Albany parking code provides guidance on parking allocations based on building square footage or another acceptable metric.

Support Facilities

AVIATION FUEL STORAGE

The city-owned aviation fuel storage (12,000 gallon Aviation Gasoline) and dispensing facilities appear to be adequate to accommodate current demand. As noted earlier, the existing clearance between the fueling area and the adjacent taxilane does not meet FAA standards. Options for addressing the current configuration will be included in the evaluation of airport development alternatives. In addition, adequate space should be reserved to accommodate additional tanks that may be needed for jet fuel or automobile gasoline. The growth in manufacturing of small turbine aircraft, particularly single engine turboprops, very light jets, and turbine helicopters will increase demand for jet fuel for transient aircraft in addition to demand from locally-based turbine aircraft. It is also noted that several light airplane manufacturers are now offering diesel engines (that burn jet fuel) as an alternative to conventional AVGAS fueled piston engines.

The development of a secondary containment area for (future) mobile fuel truck parking should also be considered. Most mobile fuel trucks in use today have single wall tank construction and do not provide the secondary containment of double wall aboveground bulk storage tanks. It is anticipated that federal or state regulations will eventually require secondary containment for single wall tank mobile fuel trucks when unattended, such as for overnight parking when the trucks are not in service or otherwise monitored. Locating secondary containment areas for airport fuel trucks in close proximity to the bulk fuel storage areas may be the most efficient use of land in the terminal area.

AIRCRAFT WASH DOWN FACILITIES

Wash down facilities are recommended to accommodate general aviation aircraft with a catch basin and hard piping to divert wash residue into a sewer or stormwater treatment system. Wash facilities are typically sized to accommodate one aircraft on a pad approximately 50 feet by 50 feet. The wash pad may be located adjacent to existing parking apron or hangars; close access to utility systems is a key siting factor. Albany Municipal Airport does not currently have aircraft wash down facilities.

AIRPORT UTILITIES

The existing utilities on the airport appear to be adequate both in capacity and service within the developed areas of the airport. Extensions of water, sanitary sewer and electrical service to serve future landside developments may be required. All power lines located in the vicinity of the airfield are required to be buried. Expansion or upgrade of existing stormwater systems will be required as the impervious surface on the airport increases through development.

SECURITY

The airport has chain link fencing and gates extending along the west landside area and around the north and south ends of the airport of the airport to the east side where it connects to chain link fencing for the Fair and Expo Center.

Additional flood lighting should be provided in expanded aircraft parking and hangar areas and any other new development areas on the airport to maintain adequate security. The use of full or partial cutoff light fixtures is recommended for all exterior lighting on the airport to limit upward glare.

Facility Requirements Summary

The projected twenty year facility needs for Albany Municipal Airport are summarized in Table 4-8. As noted in the table, maintaining existing pavements represents a significant, ongoing facility need. The updated forecasts of aviation activity anticipate moderate growth in activity that will result in similarly moderate airside and landside facility demands beyond existing capabilities. The existing airfield facilities have the ability to accommodate a significant 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, although there will be significant front end investments required in preparation, utility extensions, road extensions, and taxiway/taxilane construction. The nonconforming items noted at the beginning of this chapter are relatively minor and can be addressed systematically during the current planning period to improve overall safety for all users.

TABLE 4-8: FACILITY REQUIREMENTS SUMMARY

ITEM	SHORT TERM	LONG TERM
Runway 16/34	Pavement Maintenance[1] 600-foot Runway Extension based on accommodating 100% of small airplane fleet	Pavement Maintenance[1]
Taxiways	Expand/Reconfigure aircraft holding area at Rwy 34 end Rehabilitate Parallel Taxiway (Taxiway A) Rehabilitate Hangar Taxilanes Taxiways/Taxilanes to New Hangar Areas Pavement Maintenance[1]	Pavement Maintenance[1] Taxiways/Taxilanes to New Hangar Areas
Aircraft Aprons	Reconfigure Main Apron (rehabilitate / reconstruct older sections) to meet FAA Design Standards Expand Aircraft Fueling Apron Pavement Maintenance[1]	Pavement Maintenance[1] Apron Development Reserves
Hangars	Define development areas for T-hangars, conventional Hangars, and commercial Hangars	Hangar development reserves
Navigational Aids and Lighting	Upgrade Instrument Approach	Taxiway Edge Lighting (MITL) - Taxiway A
Fuel Storage	Expand Fueling Area (address nonstandard taxilane clearances) Define Reserve Area for additional fuel tanks/grades	Identify Secondary Containment Area(s) for Fuel Truck Parking
FBO	Identify FBO reserve(s) for commercial aviation tenants	Same
Utilities	Extend Service to New Development Areas	Same
Roadways	Extend/Improve Roads to New Development Areas	Same
Security	Complete Perimeter Fencing; Add Automated Gates for main apron and north hangar area Flood Lighting	Same

1. Vegetation control, crackfill, sealcoat, slurry seal, localized patching, joint rehabilitation, etc., as required.

AIRFIELD CAPACITY

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. The ratio between demand and capacity helps to define a timeline to address potential runway capacity constraints before they reach a critical point. If average delay becomes excessive (greater than 3 minutes per aircraft), significant congestion can occur on a regular basis, which significantly reduces the efficient movement of air traffic. ASV is calculated based on the runway and taxiway configuration, percent of VFR/IFR traffic, aircraft mix, lighting, instrumentation, the availability of terminal radar coverage and the level of air traffic control at an airport.

For long-term planning purposes, the FAA estimates ASV for a single runway with no air carrier traffic is approximately 230,000; 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. etc.), they provide a reasonable basis for approximating existing and future capacity:

Existing Capacity: 20,000 Annual Operations / 230,000 ASV = 8.7% (demand/capacity ratio)

Future Capacity: 32,400 Annual Operations/ 230,000 ASV = 14.1% (demand/capacity ratio)

Based on these ratios, the average delay per aircraft would be expected to remain below one minute through the planning period. The FAA recommends that airports proceed with planning to provide additional capacity when 60 percent of ASV is reached. Even applying a more realistic annual capacity in the range of 80,000 to 100,000 operations without an air traffic control tower, forecast demand is expected to remain well below available capacity during the current planning period and well beyond.

Chapter 5 – Airport Development Alternati es

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 Albany Municipal Airport is based on maintaining and improving the airport's ability to serve a wide range of general aviation and business aviation aircraft.

All proposed facility improvements are consistent with applicable FAA airport design standards and FAR Part 77 airspace planning standards. Airplane Design Group I (ADG I) standards are recommended for all facilities including the runway, major taxiways, aircraft parking apron, airplane tiedowns and T-hangar taxilanes. All proposed improvements are compatible with protecting the airport's existing and upgraded non-precision instrument approach capabilities.

Evaluation Process

Creating preliminary alternatives 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 that were the product of the last master planning process. The master plan update provides a fresh look at addressing facility needs, but also allows the components of the previous preferred alternative to be retained if they meet current needs.

The preliminary alternatives will be evaluated to identify 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. From this evaluation process, elements of a preferred alternative will emerge that can best accommodate all required facility improvements. The Consultant will integrate these items into a draft preferred alternative that will be reviewed and refined as the City proceeds through the process of selecting a final preferred development alternative for Albany Municipal Airport. Throughout this process, public input and coordination with the FAA will also help to shape the preferred alternative.

Once the preferred alternative is selected by the City, a detailed capital improvement program will be created that identifies and prioritizes specific projects that can be implemented. The elements of the preferred alternative will be integrated into the updated airport layout plan (ALP) drawings that will be used to guide future improvements at the airport.

Preferred Development Alternative Summary

A preferred alternative was developed through the evaluation process described above. For the convenience of the reader, a graphic summary (**Figure 5-0**) of the preferred alternative is presented on the following page. The original sequence and process of evaluation that was reflected in draft working papers is maintained in the sections that follow the executive summary. A complete description of the elements of the preferred alternative is presented in last section of the chapter.

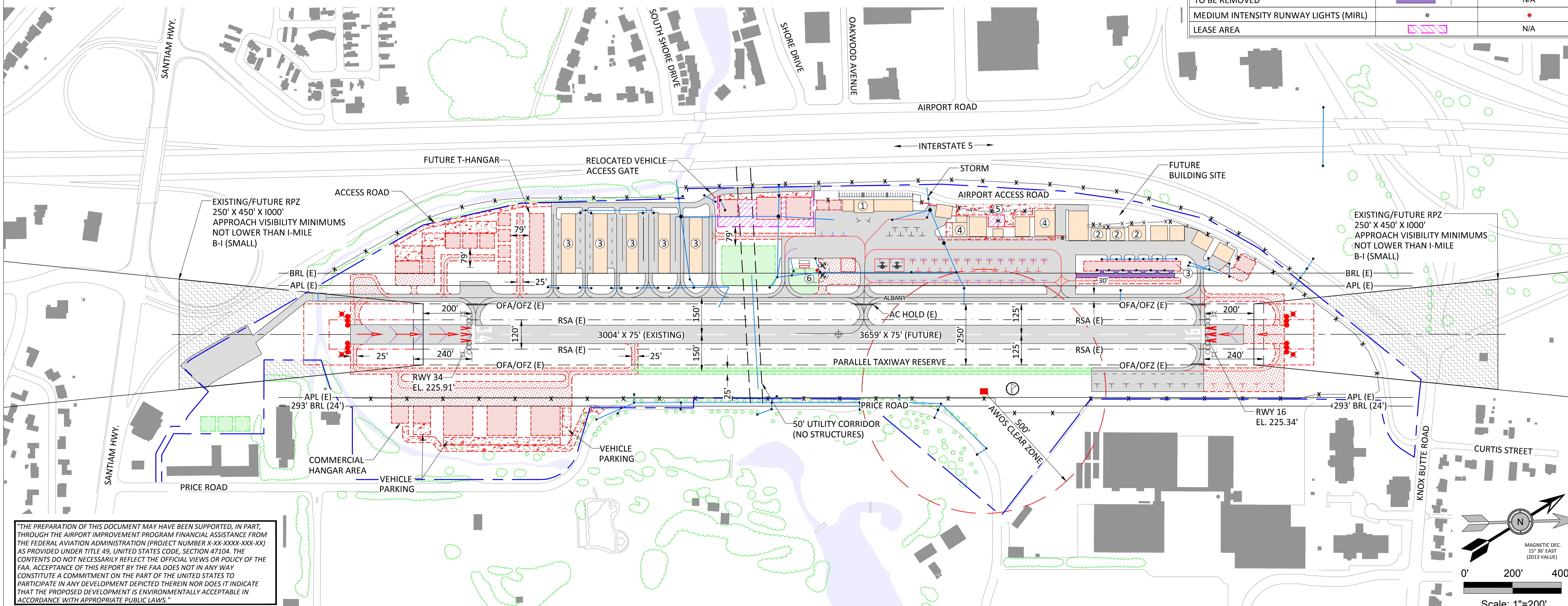
BUILDING / FACILITY KEY

	DESCRIPTION	OWNER
1	FBO	-
2	SMALL HANGAR	-
3	T-HANGAR	-
4	HANGAR (LARGE/MED. CONVENTIONAL)	-
5	ELECTRONIC BUILDING	-
6	FUEL STORAGE	-

NOTE:
1. RUNWAY TAKEOFF DISTANCES WILL BE LIMITED BY DECLARED DISTANCES TO MITIGATE POTENTIAL RPZ/ROAD CONFLICTS.

LEGEND

	EXISTING	FUTURE
BUILDINGS		
AIRFIELD PAVEMENT		
BUILDING RESTRICTION LINE (BRL)	BRL (E)	BRL (F)
AIRCRAFT PARKING LINE (APL)	APL (E)	APL (F)
AIRPORT PROPERTY LINE		
RUNWAY SAFETY AREA (RSA)		
OBJECT FREE AREA (OFA)		
OBSTACLE FREE ZONE (OFZ)		
TAXIWAY OBJECT FREE AREA (TOFA)		
RUNWAY PROTECTION ZONE (RPZ)		
GROUND CONTOURS	10'	SAME
AIRPORT REFERENCE POINT (ARP)		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
VISUAL GUIDANCE INDICATORS	(VASI)	(PAPI)
WIND INDICATOR		
SEGMENTED CIRCLE WIND INDICATOR		
FENCE		
BEACON		
THRESHOLD LIGHTS		
ACCESS ROAD/VEHICLE PARKING	N/A	
AVIGATION EASEMENT		
DEVELOPMENT RESERVE	N/A	
TO BE REMOVED		N/A
MEDIUM INTENSITY RUNWAY LIGHTS (MIRL)		
LEASE AREA		N/A



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CENTURY WEST ENGINEERING CORPORATION

BEND OFFICE
1020 SW EMKAY DRIVE #100
BEND, OR 97702
541.322.8962
541.382.2423 (FAX)
WWW.CENTURYWEST.COM

DESIGNED BY: DM	DRAWN BY: JLS	CHECKED BY: SLK	SCALE: AS SHOWN
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ALBANY MUNICIPAL AIRPORT

PREFERRED ALTERNATIVE

FIGURE NO.
-

SHEET NO.
1 OF 1

No-Action Alternative

In addition to proactive options that are designed to respond to future facility needs, a "no-action" option also exists, in which the City 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 forecast 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.

The no-action alternative concept establishes a baseline from which the action alternatives can be developed and compared. The purpose and need for the action alternatives is defined by the findings of the forecasts and facilities requirements analyses. Forecast aviation activity and the factors associated with increased 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 need to operate an airport on a financially sustainable basis.

Preliminary Development Alternatives

The primary facility needs identified in the facility requirements analysis include runway length, aircraft parking and aircraft hangars. Other items such as fencing, lighting improvements, minor roadway extensions and pavement maintenance do not typically require an alternatives analysis and will be incorporated into the preferred development alternative. The preliminary alternatives have been organized into two groups to address these broad needs and other related needs:

- **Airside Development Options (Runway/Taxiway)**
- **Landside Development Options (Aircraft Storage and Support)**

Airside facilities include runway and major taxiways, signage and lighting. Landside facilities include aircraft storage (parking or hangar space), fueling, vehicle parking and other support facilities. The preliminary development alternatives are described below with graphic depictions (**Figures 5-1 through 5-6**) provided to illustrate the key elements of each alternative. The preliminary alternatives are intended to facilitate a discussion and evaluation about the best path to meet the facility needs of the airport.

It is important to note that the eventual preferred alternative selected by the City may come from one of the preliminary alternatives, a combination or hybrid of the preliminary alternatives, or a new concept that evolves through the evaluation and discussion of the preliminary alternatives.

Airside Development Options

The main component of the airside development options is a reconfiguration/extension of Runway 16/34 that would increase the current runway length of 3,004 feet to 3,610 feet. As noted in the Facility Requirements analysis, 3,610 feet was identified in the FAA's runway length model as the length required at Albany Municipal Airport to accommodate 100 percent of the small general aviation airplane fleet (see Chapter Four for detailed runway length evaluation).

Based on FAA criteria, the 100 percent of the small airplane fleet is most consistent with current and forecast activity for Albany Municipal Airport. The FAA model defines runway length requirements for use in airport planning that reflect the variety of aircraft and operational configuration within the specific segment of the fleet. Individual aircraft requirements will vary, particularly with heavier operating weights and higher temperatures. However, the FAA recommends planning based on the needs of the family of design aircraft rather one specific aircraft to avoid making facility improvements based on the needs of a single aircraft at an airport.

As noted in the facility requirements chapter, the FAA requires justification for all FAA-funded runway extensions. Typically, documentation of a minimum 500 annual itinerant operations by aircraft that are constrained by the existing runway length is required to meet the FAA's "substantial use" threshold for funding. Local pilots operating multi-engine turbine and piston aircraft on Runway 16/34 report weight limited or time of day restricted takeoffs during warmer months. Airport officials will be required by FAA to document activity and demonstrate justification prior to project implementation, assuming FAA funding.

RUNWAY CONFIGURATION

Each of the runway configuration options use existing paved overruns to greatest extent possible to obtain increased length. The proximity of obstructions beyond the runway ends significantly limits the ability to relocate landing thresholds as part of the runway extensions. The existing runway threshold locations are retained in all of the options (converted to displaced thresholds) based on maintaining existing approach clearances. Displaced thresholds are an effective compromise that provides comparable operational safety. The displaced thresholds require separate arrival and departure RPZs. Since the existing runway threshold locations are maintained, the relationships between existing roads and the new arrival RPZs for Runway 16 and 34 are unchanged from the existing arrival/departure RPZs for the runway.

Further evaluation of land use, environmental conditions and obstruction clearance will be performed for any development options selected for further consideration.

A comparison of available runway lengths for each option is presented in **Table 5-1**.

AUTOMATED WEATHER OBSERVATION SYSTEM (AWOS)

The addition of onsite weather observation capabilities was identified in the facility requirements as a need to support operations during both visual and instrument conditions. Two potential AWOS locations have been identified on the east side of the runway. The primary siting challenge is the FAA requirement to establish a 500-foot radius clear area around the AWOS to ensure accurate readings, particularly wind readings. The AWOS sites are included **Airside Options 2 and 3**. Protecting the AWOS clear area normally prevents locating any structures or other built items. Aircraft parking, roads, and other minor items may be allowed if determined not to adversely impact data accuracy. The AWOS clearing requirements can be compared to proposed landside developments in these areas depicted in **Landside Options 2 and 3**.

Airside Option 1

Airside Option 1 (see **Figure 5-1**) presents Runway 16/34 with a future length of 3,521 feet with standard runway safety area (RSA) and object free area (OFA) clearances beyond both runway ends. The north end of the RSA and OFA is limited by Aviation Way and the south end is limited by a drainage ditch (Cox Creek). These local site features limit runway length when using conventional design methods. This option provides clear 20:1 approaches through the use of displaced thresholds and obstacle clearance surfaces (OCS) at both runway ends.

A south 326-foot extension utilizes the existing paved overrun with a connecting taxiway added to the west parallel taxiway. A north 192-foot extension includes 157 feet of existing paved overrun and an additional 35 feet of new pavement. The north extension also includes a 192-foot extension of the west parallel taxiway and a new connecting taxiway. Based on the standard RSA and OFA clearances provided at both ends of the runway, the entire 3,521 feet is available for takeoff in both directions. Landing distances are reduced by the lengths of the displaced thresholds (3,330 feet for Runway 16 and 3,196 feet for Runway 34).

RUNWAY PROTECTION ZONE (RPZ) AND ROAD EVALUATION

The new arrival RPZs for Runway 16 and 34 in **Airside Option 1** are unchanged from the existing arrival/departure RPZs for the runway. The addition of separate departure RPZs does result in existing roadways being located closer to the proposed runway ends, compared to the current runway ends. Eliminating all existing roadways from RPZs is not considered feasible in this location. The proximity of U.S. interstate highway interchanges and major arterial streets makes relocation outside the RPZs infeasible. The full length/width runway OFA at each end of the runway provides a significant measure of safety and obstruction clearance for departing aircraft.

Airside Option 2

Airside Option 2 (see **Figure 5-2**) presents Runway 16/34 with a future length of 3,610 feet with standard runway safety area (RSA) and object free area (OFA) clearances beyond both runway ends. This option includes closing Aviation Way near the north end of runway, and shifting the north end of the runway 292 feet. New surface access to the west side of the airport would be provided by a new roadway connection from Price Road, near the southeast corner of the airport. The new access road would enter the airport near the south aircraft parking apron and would travel along the western property line and connect to the existing roadway located near the T-hangar development. The roadway would require a new structure or culvert for crossing Cox Creek.

The south end of the RSA and OFA is limited by a drainage ditch (Cox Creek); the closing of Aviation Way provides space required for the RSA and OFA for the 3,610-foot runway. This option also provides clear 20:1 approaches through the use of displaced thresholds and obstacle clearance surfaces (OCS) at both runway ends.

A south 314-foot extension utilizes the existing paved overrun with a connecting taxiway added to the west parallel taxiway. A north 292-foot extension includes 157 feet of existing paved overrun and an additional 135 feet of new pavement. The north extension also includes a 292-foot extension of the west parallel taxiway and a new connecting taxiway. Based on the standard RSA and OFA clearances provided at both ends of the runway, the entire 3,610 feet is available for takeoff in both directions. Landing distances are reduced by the lengths of the displaced thresholds (3,318 feet for Runway 16 and 3,296 feet for Runway 34).

RUNWAY PROTECTION ZONE (RPZ) AND ROAD EVALUATION

The new arrival RPZs for Runway 16 and 34 in **Airside Option 2** are unchanged from the existing arrival/departure RPZs for the runway. The closure of Aviation Way would eliminate a road within the existing Runway 16 RPZ (future arrival RPZ), located approximately 234 feet from the inner edge of the RPZ. Aviation Way also crosses through the future departure RPZ for Runway 16, which would also be eliminated by the road closure. The development of a new access road from the south does result in a new roadway being located in the Runway 34 arrival and departure RPZs, however, the distance between the new road and the inner edge of the arrival RPZ is increased from 234 to 435 feet. The proximity of U.S. interstate highway interchanges and major arterial streets makes relocation of these roads outside the RPZs infeasible. The full length/width runway OFA at each end of the runway provides a significant measure of safety and obstruction clearance for departing aircraft. It is noted that the changes in airport access roads defined in this option could also be applied to Options 1 and 3.

Airside Option 3

Airside Option 3 (see **Figure 5-3**) presents Runway 16/34 with a future length of 3,610 feet with modifications at the south end of the runway to accommodate the nonstandard runway safety area (RSA) beyond the runway end. The primary impact of the modification is a reduction in available runway length for Runway 16 takeoffs and landings. This option also provides clear 20:1 approaches through the use of displaced thresholds and obstacle clearance surfaces (OCS) at both runway ends.

A south 449-foot extension utilizes the existing paved overrun with a connecting taxiway added to the west parallel taxiway. A north 157-foot extension utilizes the existing paved overrun. Unlike the other two runway configuration options, Option 3 does not require any new runway pavement beyond the existing paved overruns. The north extension also includes a 157-foot extension of the west parallel taxiway and a new connecting taxiway.

Based on the standard RSA provided at the north end of the runway, the entire 3,610 feet is available for takeoffs on Runway 34. The Runway 34 landing distance available (3,161 feet) is determined by the 449-foot displaced threshold configuration and standard RSA at the far end of the runway.

For Runway 16, the length available for takeoff (3,505 feet) is reduced by 105 feet due to the nonstandard RSA provided at the south end of the runway. The Runway 16 landing distance available (3,348 feet) is determined by the 157-foot displaced threshold configuration and a reduction of 105 feet for nonstandard RSA at the far end of the runway.

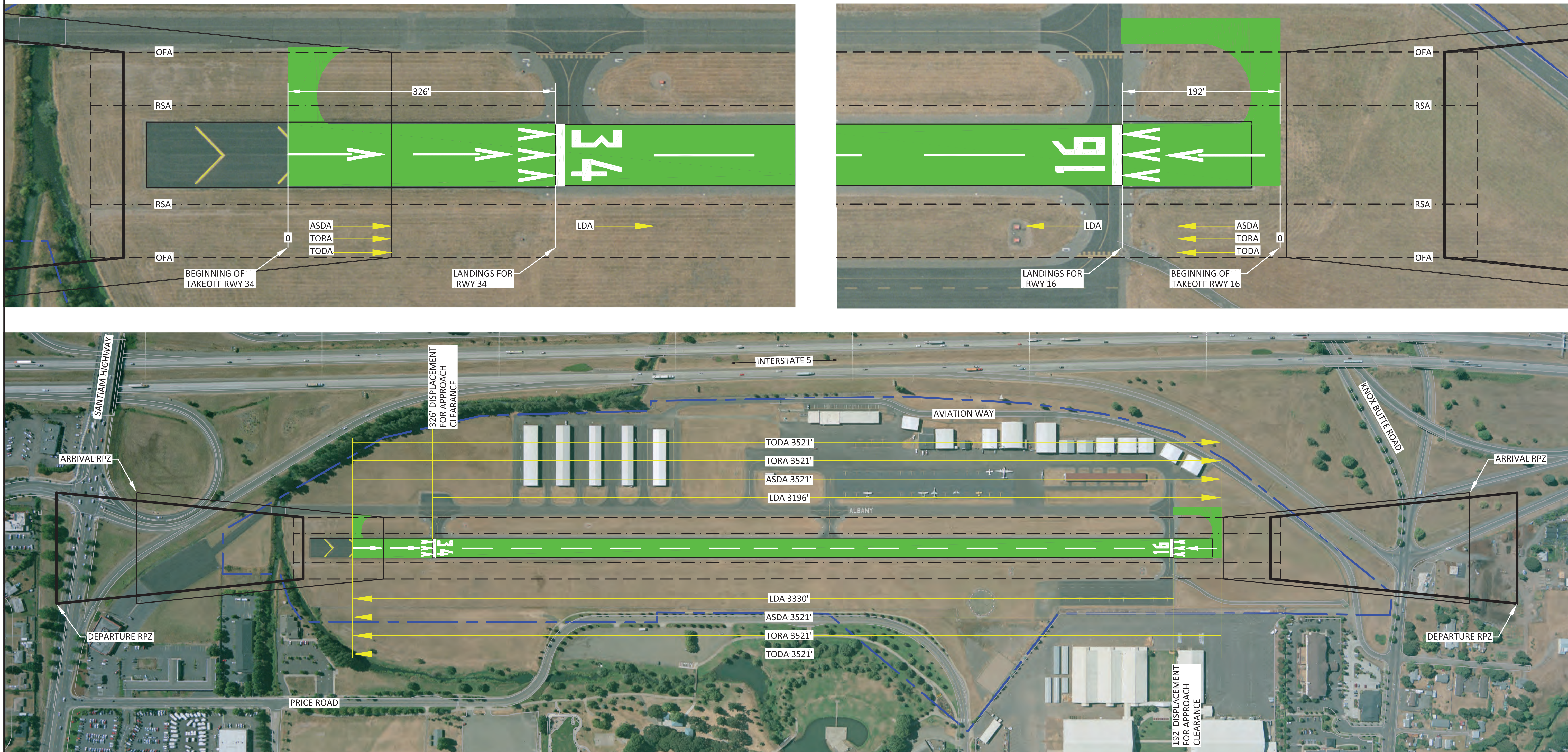
This option relies on declared distances to address nonstandard RSA at the south end of runway. Based on the use of the displaced threshold on Runway 34 for obstruction clearance, the nonstandard RSA does not require any additional reduction in available runway length for landing. All Runway 16 operations will have a 105-foot reduction in available runway length. The declared distances would be published in the FAA Airports/Facility Directory (AFD) to inform pilots about the runway configuration and useable lengths. The south end of the runway would require additional lighting to clearly indicate the end of useable runway (240 feet from the end of the full length RSA). Pilots rolling down the runway on takeoff or landing would see red threshold and edge lights beyond this point. Runway 34 takeoffs using this section of runway would be unaffected (the light fixtures would reflect the configuration of the displaced threshold).

RUNWAY PROTECTION ZONE (RPZ) AND ROAD EVALUATION

The new arrival RPZs for Runway 16 and 34 in **Airside Option 3** are unchanged from the existing arrival/departure RPZs for the runway. The addition of separate departure RPZs does result in existing roadways being located closer to the proposed runway ends, compared to the current runway ends. Eliminating all existing roadways from RPZs is not considered feasible in this location. The proximity of U.S. interstate highway interchanges and major arterial streets makes relocation outside the RPZs infeasible. The full length/width runway OFA at each end of the runway provides a significant measure of safety and obstruction clearance for departing aircraft.

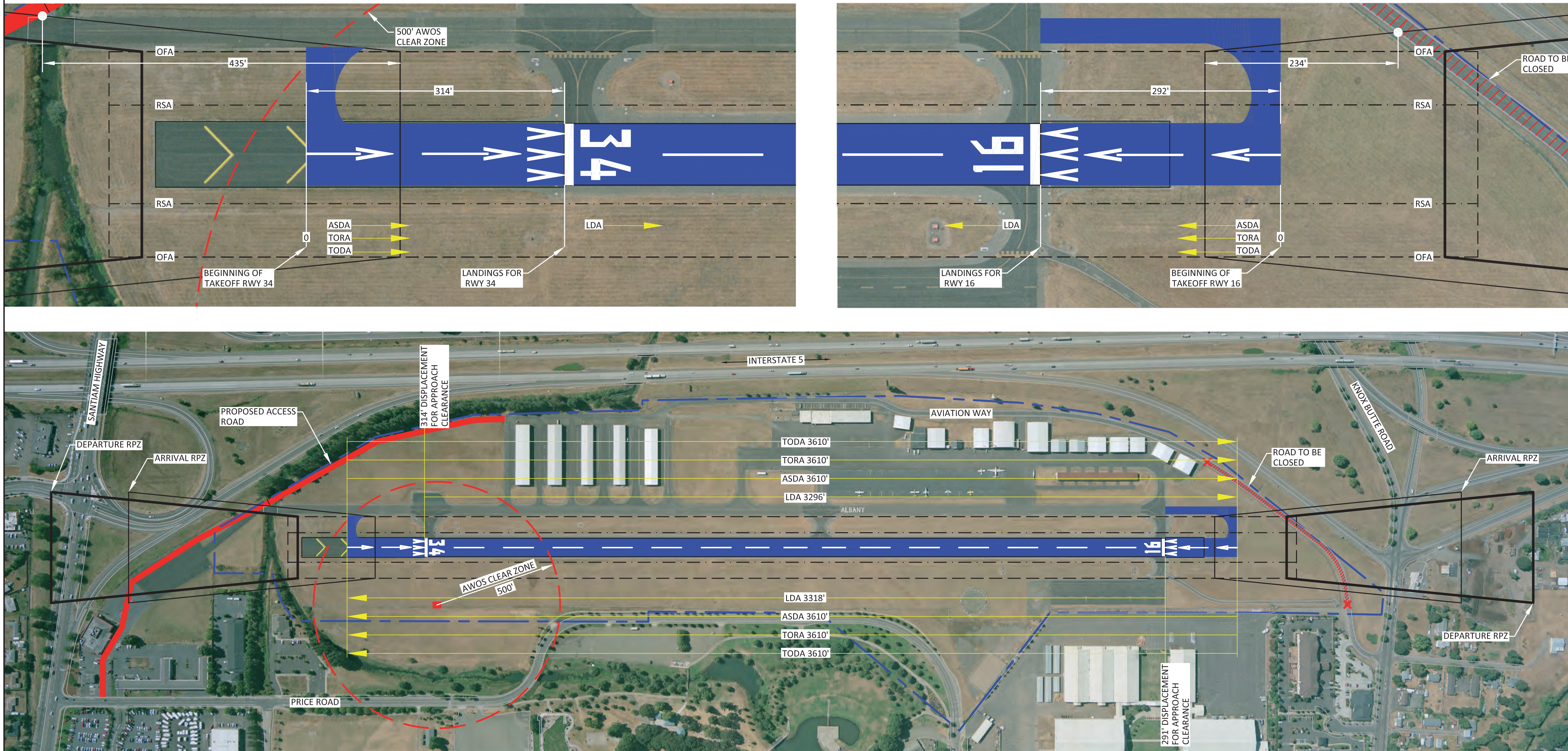
TABLE 5-1: COMPARISON OF RUNWAY LENGTHS

	OPTION 1	OPTION 2	OPTION 3
Takeoff Distance Available (TODA)	3,521 feet (Rwy 16 & 34)	3,610 feet (Rwy 16 & 34)	3,505 feet (Rwy 16) 3,610 feet (Rwy 34)
Takeoff Run Available (TORA)	3,521 feet (Rwy 16 & 34)	3,610 feet (Rwy 16 & 34)	3,505 feet (Rwy 16) 3,610 feet (Rwy 34)
Accelerate Stop Distance Available (ASDA)	3,521 feet (Rwy 16 & 34)	3,610 feet (Rwy 16 & 34)	3,505 feet (Rwy 16) 3,610 feet (Rwy 34)
Landing Distance Available (LDA)	3,330 feet (Rwy 16) 3,196 feet (Rwy 34)	3,318 feet (Rwy 16) 3,296 feet (Rwy 34)	3,348 feet (Rwy 16) 3,161 feet (Rwy 34)



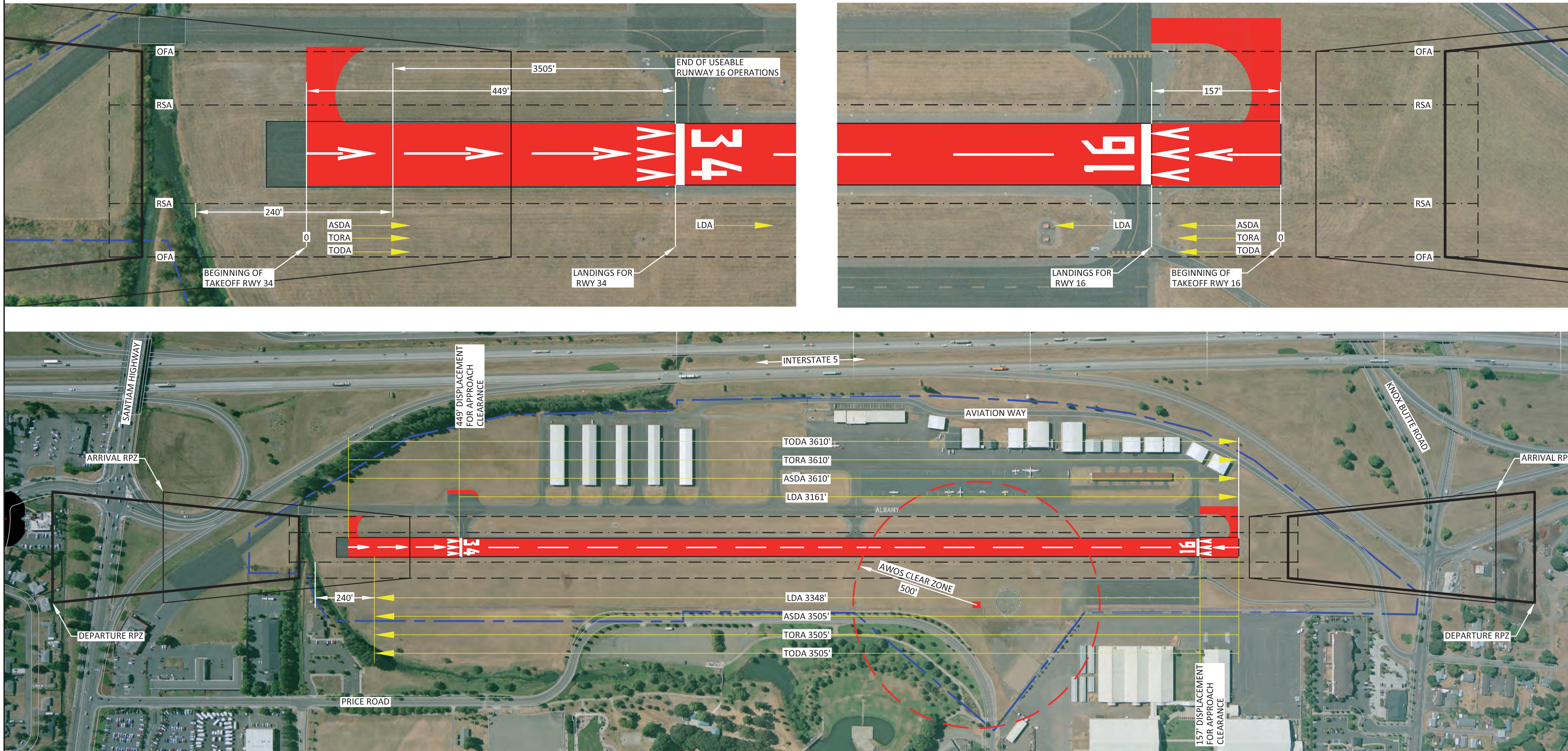
OPTION 1 - RUNWAY 3521' X 75'

- RUNWAY LENGTH
  (TAKEOFF) : 3521 FEET
  (LANDING) : 3196 - 3330 FEET
- RUNWAY 16 AND 34 ENDS SET BY RSA, OFA



OPTION 2 - RUNWAY 3610' X 75'

- RUNWAY LENGTH
  (TAKEOFF) : 3610 FEET
  (LANDING) : 3296 - 3318 FEET
- NORTH ACCESS ROAD CLOSE
- NEW ACCESS ROAD (SOUTH)
- REDUCES ROAD/RPZ CONFLICT
- SOUTHEAST AWOS RESERVE
- RUNWAY 34 END SET BY RSA, OFA



OPTION 3 - RUNWAY 3610' X 75'

- RUNWAY LENGTH
  (TAKEOFF) : 3505 - 3610 FEET
  (LANDING) : 3161 - 3348 FEET
- DECLARED DISTANCES USED TO ADDRESS RSA @ RWY 34 END

Landside Development Options

As noted in the facility requirements analysis, several needs were identified including several items related to the existing main apron area in addition to new demand driven needs for aircraft hangars, parking, etc. As noted earlier, a basic function of the development alternatives process is to the reflect facility requirements in a variety of facility layouts in order to define a preferred alternative that best serves the needs of the airport and community.

The landside facility requirements defined in Chapter Four include the following:

- Main Apron Taxilane Clearances (non-standard clearances to parked aircraft, fueling, etc.)
- Small Aircraft Parking (configuration and capacity)
- Multi Engine Aircraft Parking (configuration and capacity)
- Helicopter Parking (dedicated parking for helicopter)
- Aircraft Fueling Area (clearance from apron taxilanes, expansion)
- Vehicle Parking
- Hangars (aircraft storage and commercial/mixed use)

Landside Option 1

Landside Option 1 (see **Figure 5-4**) reflects future landside improvements depicted on the 2002 Airport Layout Plan (ALP). This option is the current preferred alternative for the airport, based on the previous master planning process. This option provides a baseline configuration of new aircraft apron and hangar facilities, but does not necessarily include all of the items noted above. However, if this concept is retained, it can be modified to include any other required items (helicopter parking, etc.).

MAIN APRON EXPANSION

The south end of the main apron is expanded to provide additional parking and frontage for large hangars. The aircraft fueling area can be expanded as part of the apron expansion immediately south of Taxiway A2. A large FBO development reserve is identified where the existing FBO building is located. The future of the FBO building was unknown during the last master plan and this reserve was intended to accommodate future FBO facilities (existing or replacement building, etc.).

<u>Hangars and Apron Reserves</u>

This option includes two additional 10/11 unit T-hangars at the north and south ends of the airport's T-hangar development. Two additional hangar stub taxilanes are located adjacent to the new T-hangars. Two large commercial hangars are depicted near the south end of the main apron. One small conventional hangar is depicted in the site currently occupied by the Bird hangar. Vehicle parking is also depicted on the west side of the hangars located along the north end of the main apron. Access was originally planned from the gate located at the north end of the FBO building, but a hangar (building 485) has been added in that area. Access will now need to be provided directly from Aviation Way. The south end of the development area includes several small/medium conventional hangars, additional aircraft apron and an FBO reserve.

An aircraft apron and aviation related lease area reserve is depicted near the northeast corner of the airport, extending from the south end of the east tiedown apron. A future airport related lease area is also depicted near the southeast corner of the airport.

Landside Option 2

Landside Option 2 (see **Figure 5-5**) incorporates apron reconfiguration (to meet FAA design standards) with new development to address near and long-term landside facility needs. This option also includes the northeast AWOS site identified in Airside Option 3.

MAIN APRON RECONFIGURATION

The reconfiguration of the main apron includes consolidating the two main rows of west facing tiedowns into one dual-sided row of tiedowns (tail-in). The reconfiguration of tiedowns and taxilanes is designed to meet FAA taxilane OFA clearances. The existing 32 small airplane tiedowns are reconfigured into 25 small airplane tiedowns and 2 drive-through positions for multi-engine aircraft. The taxilanes on both sides of the center tiedown row have standard ADG I taxilane OFA clearance (79 feet). However, in order to accommodate the western taxilane, vehicle activity (parking, loading/unloading, etc.) directly in front of the buildings along the western edge of the main apron would be limited to about 12 feet. The addition of vehicle parking off of the aircraft apron is proposed to address tenant parking needs. This option requires removal of existing tiedown anchors and installation of new anchors, which would typically be done as part of a future apron project.

The taxilane extending along the west side of the aircraft fueling area on the main apron is relocated to the west to provide standard taxilane OFA clearances between taxiing and fueling aircraft. Three existing small airplane tiedowns located near the south end of the FBO building are eliminated to accommodate the taxilane. The other nine tiedowns located near the FBO building are not affected. A fuel storage reserve is identified adjacent to the existing above ground fuel tank on its east side.

TERMINAL AREA LANDSIDE

The apron taxilane reconfiguration near the fueling area is designed to be compatible with development of new hangars and an access taxilane at the south end of the terminal area. As currently depicted, this area would accommodate several larger commercial hangars. A short north-south section of taxilane extends from the south end of the existing apron and connects to the northern-most hangar stub taxilane. Hangar development in this area is limited by a 50-foot wide utility easement (no structures). An aircraft parking reserve area is depicted south of the main apron.

A transient helicopter parking position is depicted immediately south of the center apron taxilane (aligned with Taxiway A2). The helicopter parking position is physically separated from adjacent tiedowns to reduce potential rotor wash exposure.

Southwest Development Area

The southwest corner of the airport would accommodate a variety of aircraft storage hangars in this option. One 10/11-unit T-hangar and eleven small/medium conventional hangars area located immediately south of the existing T-hangar development. Extensions of the existing south access road and utilities would be required to serve the new development. Taxilane access into the southwest hangar area would be extended from the parallel taxiway by two new stub taxilanes. The landside development depicted in this area is configured to be compatible with an expanded aircraft hold area adjacent to the Runway 34 threshold (to meet parallel taxiway OFA clearance requirements). A small aircraft apron is depicted near the southern end of the development area with a separate taxilane connection to the parallel taxiway.

Southeast Development Area

Several larger hangars and aircraft apron is depicted in this area. Smaller hangars could also be accommodated. The apron is configured to be compatible with an east parallel taxiway. Initially, a single taxilane connection to the south end of the runway would be adequate, although a partial length parallel taxiway would facilitate aircraft movement, particularly taxiing between the runway and the southeast landside area. For reference, an east parallel taxiway reserve is depicted that would connect the north and south aprons on the east side.

Vehicle access to the southeast development area would extend from Price Road, on the west side of Cox Creek. Working with existing road geometry presents some challenges, although the traffic volumes and travel speeds on the road should allow another access road connection. This location may also be suited to a roundabout.

Landside Option 3

Landside Option 3 (see **Figure 5-6**) also incorporates apron reconfiguration (to meet FAA design standards) with new development to address near and long-term landside facility needs. This option also includes the southeast AWOS site identified in Airside Option 2.

MAIN APRON RECONFIGURATION

The reconfiguration of the main apron is similar to Option 2, although the existing west-facing tiedowns remain in place and the new east-facing tiedowns are relocated. The primary benefit of this approach is cost savings associated with tiedown anchor removal/installation. The primary drawback with this approach is that the vehicle parking, loading/unloading area directly in front of the buildings along the western edge of the main apron would be limited to about 5 feet. The addition of vehicle parking off of the aircraft apron is proposed to address tenant parking needs.

The existing 32 small airplane tiedowns are reconfigured into 28 small airplane tiedowns and 1 drive-through position for multi-engine aircraft. A second drive-through position is located on the south side of the center apron taxilane.

The taxilane extending along the west side of the aircraft fueling area on the main apron is retained and the aircraft fueling position is relocated to unpaved area between the apron and parallel taxiway. The fueling position is configured east-west to allow aircraft access from the apron or adjacent taxiways on the north side of the fuel tank. A fuel storage reserve is identified adjacent to the existing above ground fuel tank on its east side.

Additional taxilane access is located near the southwest corner of the main apron to serve commercial hangar development in south terminal area. Three existing small airplane tiedowns located near the south end of the FBO building are not affected; the expanded apron (SW corner) would accommodate two additional tiedowns in this row. The other nine tiedowns located near the FBO building are eliminated to accommodate reconfigured taxilanes and a transient helicopter parking position.

TERMINAL AREA LANDSIDE

The additional apron taxilane near the southwest corner of the main apron will serve new hangars constructed around the apron's west and south perimeter. An aircraft parking reserve is also depicted south of the main apron, which could be used by an adjacent commercial hangar tenant. A row of rectangular hangars (also referred to as "executive hangars") is located immediately north of the northern-most taxilane serving the T-hangar development. The hangars will use the existing taxilane (south facing doors). The hangar row is served by an access road extension and vehicle parking that separates it from the adjacent commercial hangars to the north. The taxilane serving the north T-Hangar is relocated and widened to meet FAA design standards. A future (replacement) hangar is depicted in this area.

SOUTHWEST DEVELOPMENT AREA

The southwest corner of the airport would accommodate a variety of aircraft storage hangars in this option. The landside development depicted in this area is configured to be compatible with a relocated aircraft hold area adjacent to the future Runway 34 end (final location to be determined based on preferred airside option).

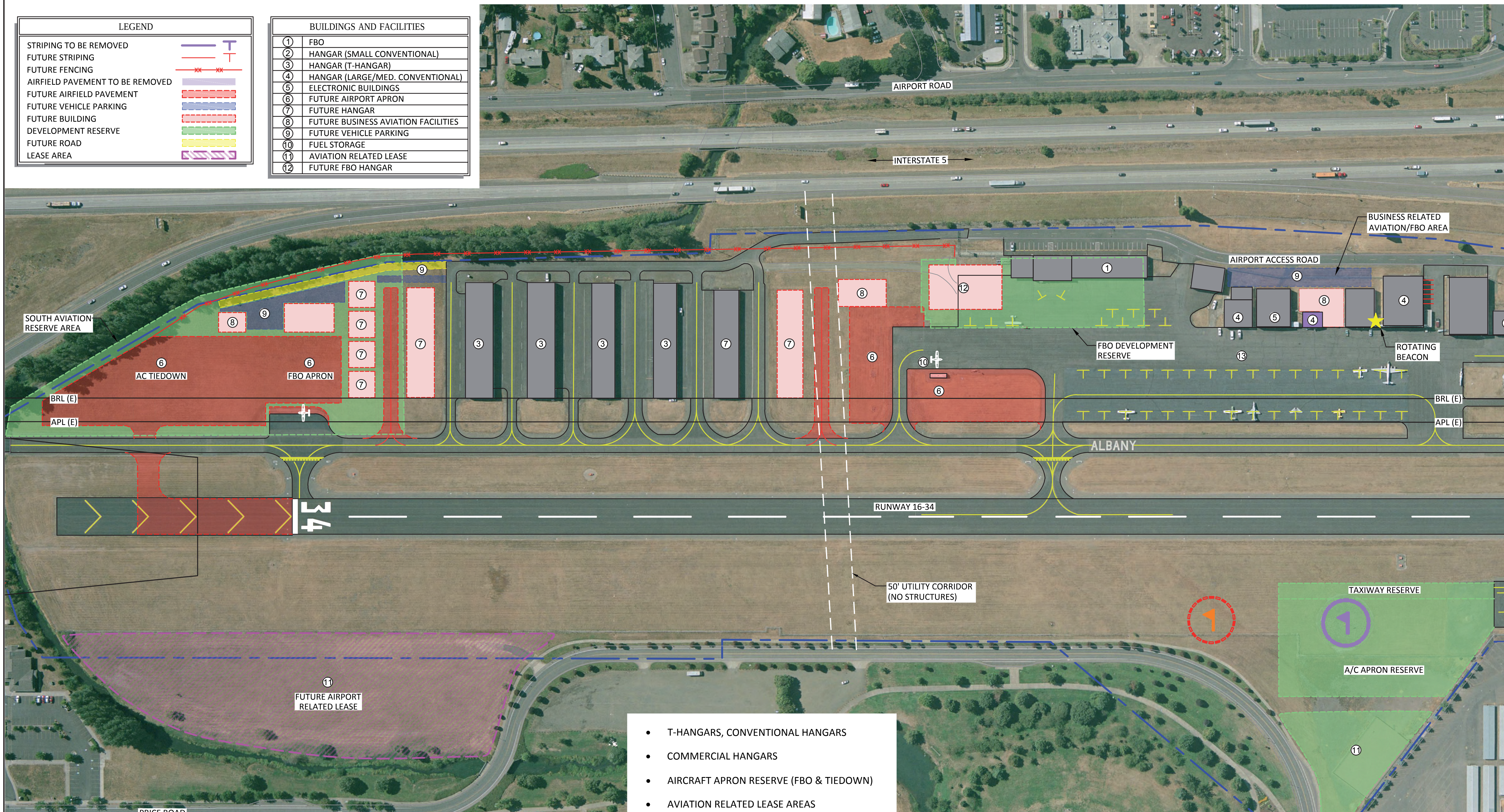
One 10/11-unit T-hangar and nine small/medium conventional hangars area located immediately south of the existing T-hangar development. Extensions of the existing south access road and utilities would be required to serve the new development. Taxilane access into the southwest hangar area would be extended from the parallel taxiway by two new stub taxilanes. A small aircraft apron is depicted near the southern end of the development area with a separate taxilane connection to the parallel taxiway.

NORTHEAST DEVELOPMENT AREA

Expansion of the northeast landside area includes additional paved apron (north end of the tiedown apron) and additional grass/paved apron reserve at the south end of the apron. The triangular shaped parcel located behind the apron could accommodate a variety of aviation uses (hangars, etc.) in the section abutting the apron, and non-aeronautical uses in the areas without airfield access. The addition of vehicle access and parking is intended to serve the existing tiedown apron and future facilities. The existing segmented circle would be relocated to accommodate the southern apron expansion. An east parallel taxiway reserve is also depicted.

LEGEND	
STRIPING TO BE REMOVED	
FUTURE STRIPING	
FUTURE FENCING	
AIRFIELD PAVEMENT TO BE REMOVED	
FUTURE AIRFIELD PAVEMENT	
FUTURE VEHICLE PARKING	
FUTURE BUILDING	
DEVELOPMENT RESERVE	
FUTURE ROAD	
LEASE AREA	

BUILDINGS AND FACILITIES	
1	FBO
2	HANGAR (SMALL CONVENTIONAL)
3	HANGAR (T-HANGAR)
4	HANGAR (LARGE/MED. CONVENTIONAL)
5	ELECTRONIC BUILDINGS
6	FUTURE AIRPORT APRON
7	FUTURE HANGAR
8	FUTURE BUSINESS AVIATION FACILITIES
9	FUTURE VEHICLE PARKING
10	FUEL STORAGE
11	AVIATION RELATED LEASE
12	FUTURE FBO HANGAR



- T-HANGARS, CONVENTIONAL HANGARS
- COMMERCIAL HANGARS
- AIRCRAFT APRON RESERVE (FBO & TIEDOWN)
- AVIATION RELATED LEASE AREAS

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landside option 1 | fig. 5-4

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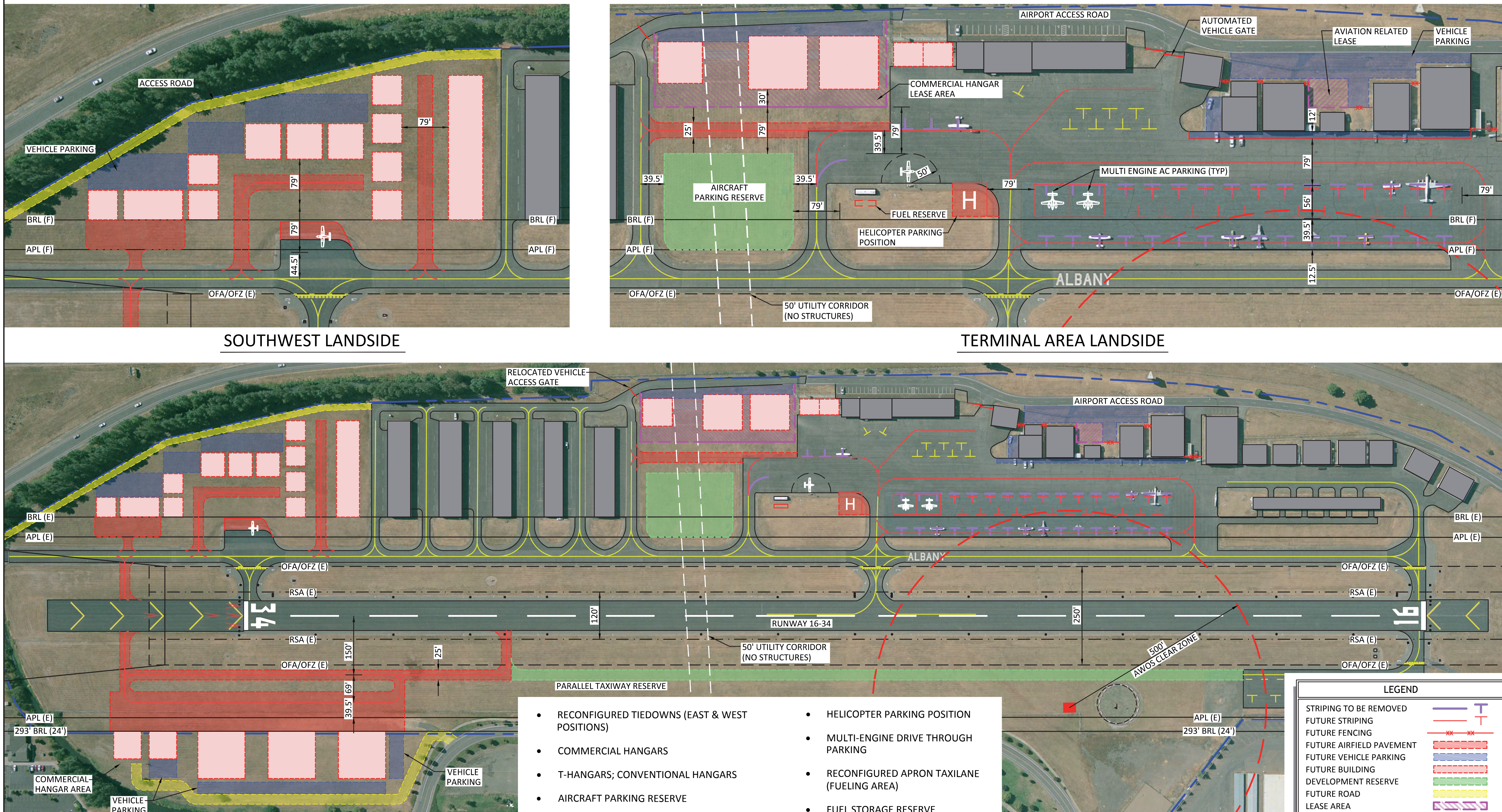
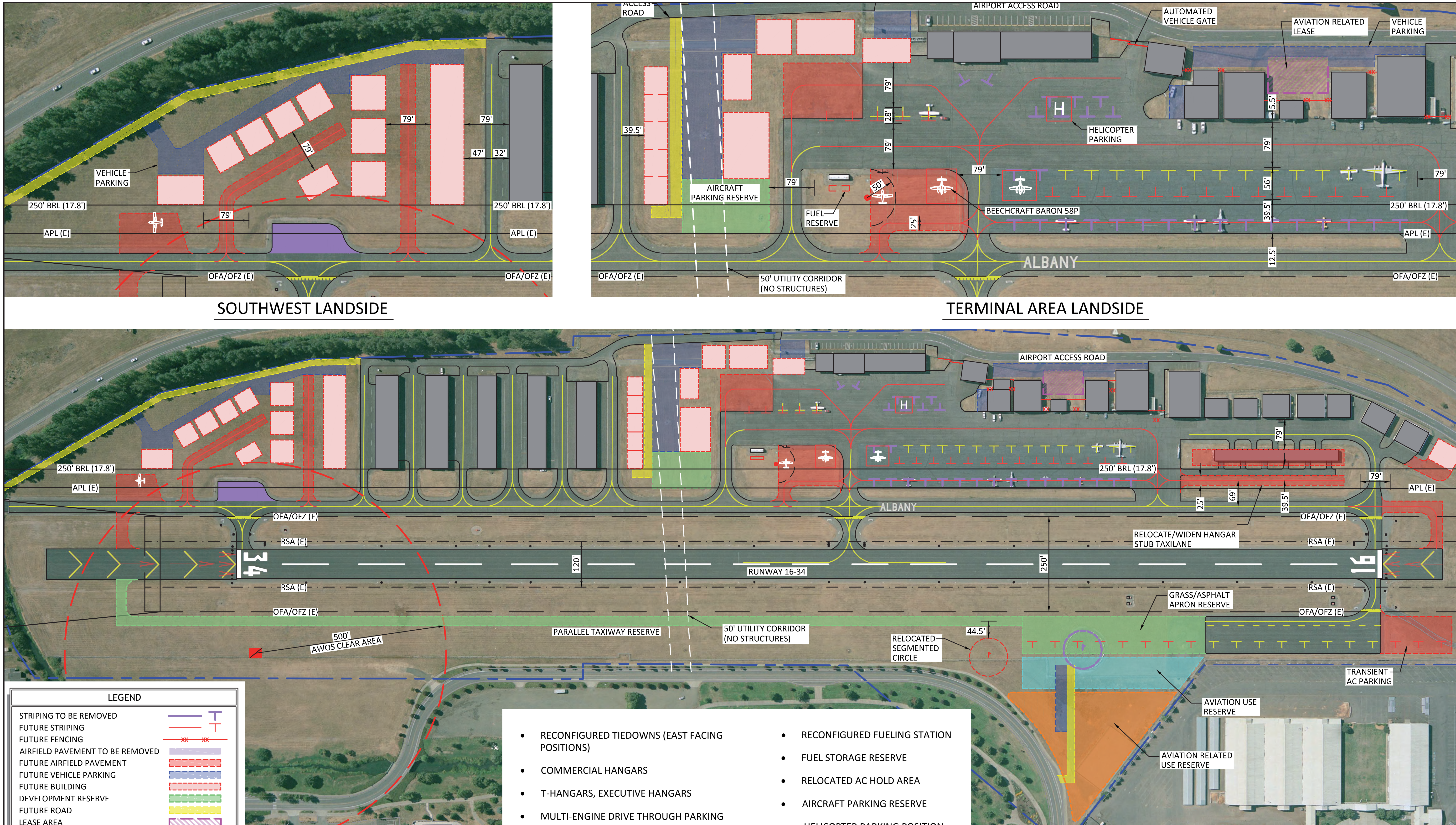


albany municipal airport | airport master plan

landside option 2 | fig. 5-5

CENTURY WEST ENGINEERING CORPORATION



albany municipal airport | airport master plan

landside option 3 | fig. 5-6

CENTURY WEST ENGINEERING CORPORATION

Preferred Development Options

Airside Options

The preliminary Airside Options 1, 2, and 3 were reviewed by City staff and the Planning Advisory Committee with Option 3 being selected as the preliminary preferred alternative. The proposed runway configuration utilized displaced thresholds and declared distances at both ends with full length runway safety area to increase various operational lengths. As presented, Airside Option 3 increased the takeoff distances available from 3,004 feet to 3,505 feet (Runway 16) and 3,610 feet (Runway 34). Maintaining existing RPZ locations, particularly at the north end of the runway was identified during local review as a potential modification to avoid changes to existing avigation easements and land use.

The FAA Seattle Airports District Office (ADO) review of the preliminary airside options provided an informal response indicating that the options would not be supported based on the ADO's interpretation of the FAA Interim Guidance on Land Uses Within a Runway Protection Zone (RPZ), dated September 27, 2012. The Seattle ADO's comments indicated that the FAA-approved airport layout plan (ALP) drawing must be consistent with FAA policy. The ADO indicated that any change to the existing RPZ/road composition that increased the presence (proximity to runway end, etc.) of the road within the RPZ was not consistent with the FAA's interim guidance. The ADO also indicated that the interim guidance applies to both FAA-funded and locally-funded projects depicted on an FAA-approved airport layout plan (LP).

AIRSIDE OPTION 4

Based on review comments and direction provided by the FAA Seattle ADO noted above, the Consultant developed a fourth airside option that worked within the strict confines of the FAA's interim guidance for RPZs. This option became the recommended preferred alternative as a result of the other preliminary airside options not being supported by the Seattle ADO.

Similar to the previous options considered, Airside Option 4 (see **Figure 5-7**) also uses displaced thresholds and declared distances, but limits takeoff distances by "freezing" the location of the existing RPZ at the opposite end of the runway as the future "departure RPZ." As a result, the existing arrival/departure RPZs located at each runway end are maintained with no changes in road/RPZ conditions. This also allows all existing RPZ-defined avigation easements to remain in effect without revision.

The portions of the displaced thresholds located beyond the opposite runway threshold are available for landing distance and accelerate-stop distance calculations, within the limits of the runway safety area (RSA). For example, at the south end of the runway, approximately 148 feet of the displaced threshold pavement will not be included in Runway 16 landing distance or accelerate-stop distance calculations due to the limited length (approximately 92 feet) of RSA beyond the runway end (limited by a creek). The entire 157-foot length of the displaced threshold at the north end of the runway may be included in Runway 34 landing distance and accelerate-stop distance calculations since the RSA can be extended 240 feet beyond the end of runway pavement.

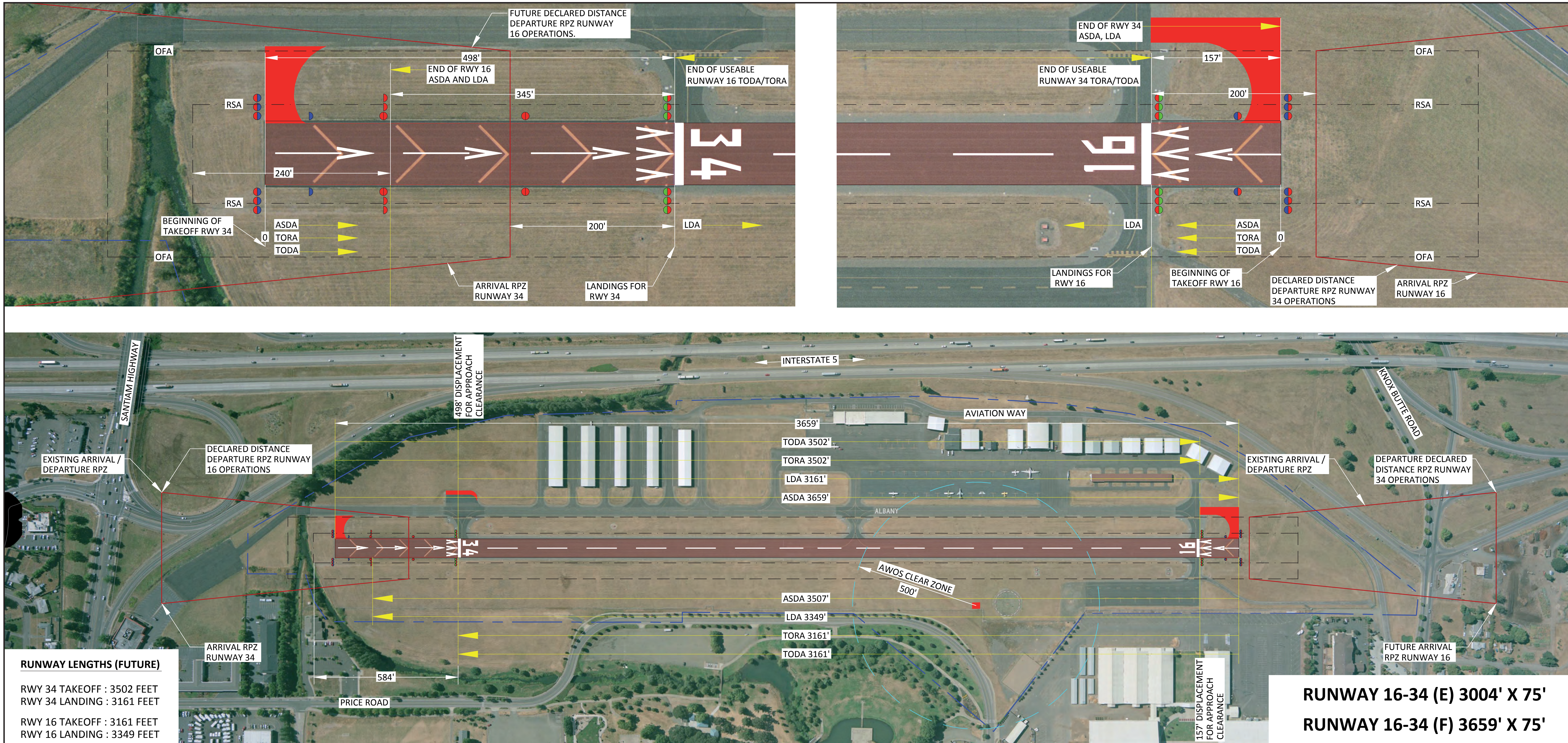
The runway reconfiguration includes taxiway connections, lighting, marking and signage upgrades. The existing visual guidance indicators and threshold lights for the Runway 16 and 34 ends are not affected. Obstruction clearance for the current 20:1 runway approach paths is also maintained.

RUNWAY/TAXIWAY IMPROVEMENTS

The primary features of the Preferred Airside Option include:

- New Exit/Connecting Taxiways (2) at north and south ends of runway
- Paved overruns are converted to usable runway and configured with displaced thresholds; modify lighting, marking and signage
- Publish declared distances published for Runway 16/34 per ALP
- New aircraft hold area at south end of runway on Taxiway A
- Taxiway Edge Lighting (Taxiway A and exits)

Note: The FAA Seattle ADO recently indicated that the FAA's Interim Guidance on Land Uses Within a Runway Protection Zone is being reviewed/modified internally to address a variety of concerns which surfaced through early implementation efforts of the policy. No timeline has been set for presenting final guidance. In addition to clarifying the evaluation and determination process, the FAA is expected to clarify whether the final guidance and resulting determinations will be "recommended" or "mandatory."



KEY FEATURES

- NO CHANGE IN EXISTING RPZ LOCATIONS (THROUGH USE OF DECLARED DISTANCES)
- NO CHANGE IN CURRENT ROAD/RPZ CONFIGURATION
- NO NEW RUNWAY PAVEMENT REQUIRED
- RUNWAY 16 ASDA AND LDA LIMITED BY RUNWAY SAFETY AREA (RSA)

OPTION 4 - DISPLACED THRESHOLDS WITH DECLARED DISTANCES

NOTES

1. DECLARED DISTANCES USED TO MAINTAIN DEPARTURE RPZ @ BOTH RUNWAY ENDS.
2. THIS OPTION LIMITS USABLE RUNWAY FOR TAKEOFF AT FAR ENDS OF RUNWAY, BY MAINTAINING EXISTING DEPARTURE RPZ'S.
3. DECLARED DISTANCES WOULD BE PUBLISHED IN FAA AIRPORT / FACILITIES DIRECTORY (A / FD).
4. DISTANCE TO GO SIGNAGE AND LIGHTING REQUIRED TO IDENTIFY END OF USEABLE RUNWAY.

Preferred Landside Option

Based on review of the preliminary Landside Options 1, 2, and 3 by City staff and the Planning Advisory Committee, a preferred option was defined based on Option 2, combined with several elements of Option 3. The Preferred Landside Option is depicted in **Figure 5-8** and will be integrated into the updated airport layout plan and refined as needed. The FAA did not comment on the preliminary landside development options. The primary features of the Preferred Landside Option include:

MAIN APRON AREA

- Reconfigured Small Aircraft Tiedowns and Apron Taxilanes
- 2 Drive-Through Parking Positions (multi-engine aircraft)
- Reconfigured Aircraft Fueling Apron; Fuel Storage Reserve
- Transient Helicopter Parking Position
- Reconfigured Fencing; Automated Vehicle Gate (Main Apron)
- South Apron Taxilane (Access for New Hangar Sites)
- Conventional Hangar Sites (Small and Large)
- Relocated Vehicle Access Gate (South Hangar Area)
- Apron Reserve
- Vehicle Parking
- Non-Aeronautical Building Sites
- Stormwater Improvements

NORTHWEST LANDSIDE AREA

- Conventional Hangar Site
- Reconfigured Hangar Taxilane/Open T-Hangar Replacement Reserve
- Non-Aeronautical Building Sites
- Vehicle Parking
- Stormwater Improvements

SOUTHWEST LANDSIDE AREA

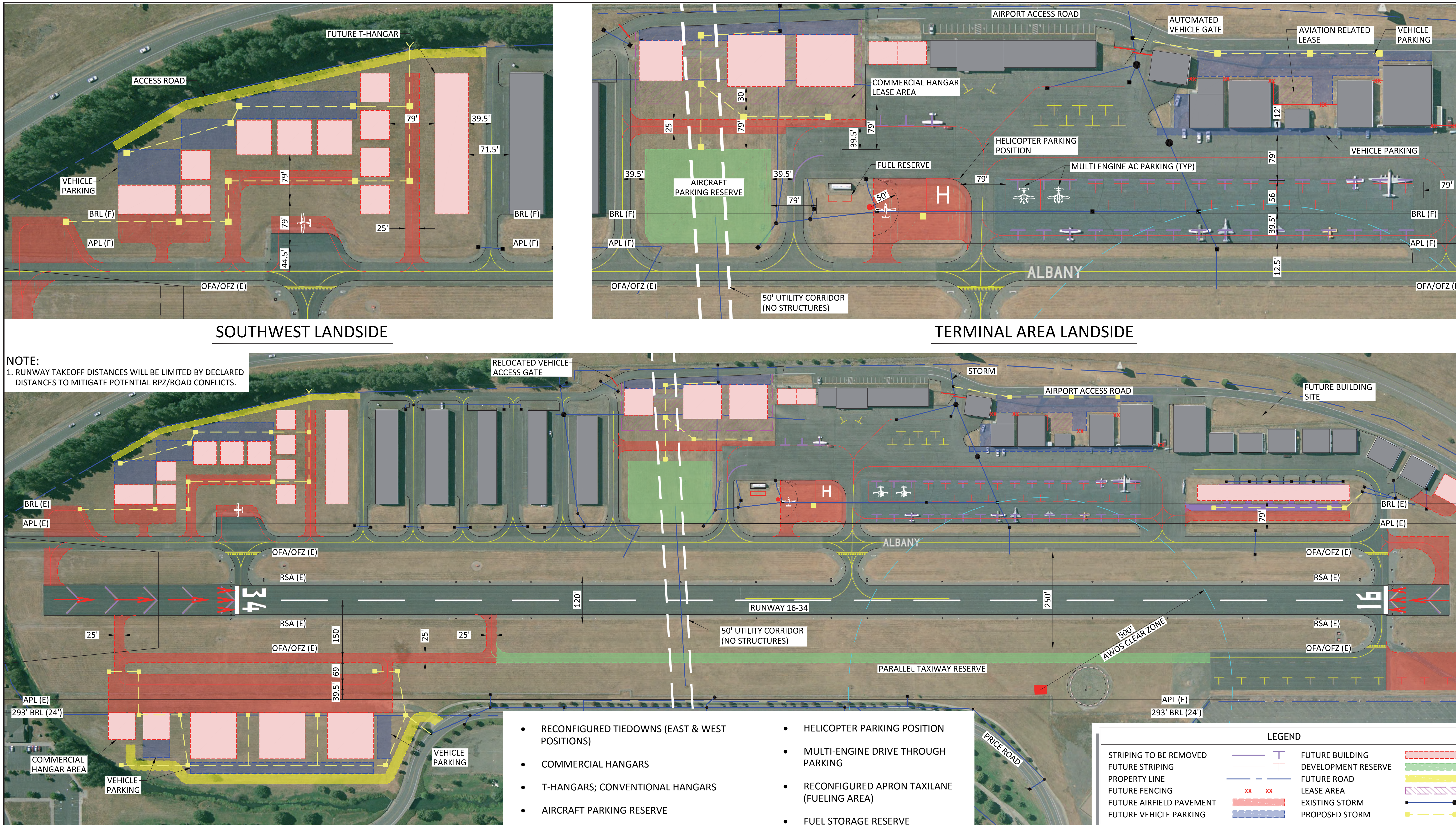
- Hangar Stub Taxilanes
- T-Hangar Site (10 units)
- Conventional Hangar Sites
- Access Road Extension and Vehicle Parking
- Small Apron with Hangar Sites
- Expanded Aircraft Hold Area (to meet ADG I Taxiway OFA Clearing Standard)
- New Aircraft Hold Area at Future South Taxiway Connection
- Stormwater Improvements

SOUTHEAST LANDSIDE AREA

- East Parallel Taxiway (Partial Length)
- Aircraft Apron and Commercial Hangar Sites
- Access Road Extension and Vehicle Parking
- Stormwater Improvements

NORTHEAST LANDSIDE AREA

- East Parallel Taxiway Reserve
- Automated Weather Observation System (AWOS)
- Expanded Transient Aircraft Tiedown Apron



ALBANY MUNICIPAL AIRPORT | AIRPORT MASTER PLAN

PREFERRED LANDSIDE DEVELOPMENT OPTION | FIG. 5-8

CENTURY WEST ENGINEERING CORPORATION

Chapter 6 – Environmental Review

Chapter 6 – Environmental Review

Introduction

The purpose of this Environmental Review is to identify physical or environmental conditions of record which may affect the recommended improvements at Albany Municipal Airport. This environmental review includes the evaluation of airport noise for both existing conditions and future years and an evaluation of other environmental conditions unique to the site.

With the exception of the airport noise evaluation and wetland delineation, the scope of work for this element is limited to compiling, reviewing and briefly summarizing information of record from applicable local, federal and state source for the airport site and its environs. The airport noise evaluation was conducted based on prescribed Federal Aviation Administration (FAA) guidelines, using the FAA's Integrated Noise Model (INM) computer software with several airport-specific inputs including FAA-approved air traffic forecasts, fleet mix, common aircraft flight tracks, and existing/future runway configurations.

Local Site Conditions

Albany Municipal Airport is located in a developed urban area, surrounded primarily by commercial, industrial and recreational land uses. An environmental review of existing airport site conditions and items of interest was conducted as part of the master plan and included land use, water resources (wetlands, stormwater), species of concern, federal 4f lands, and essential fish habitat. The environmental review technical memorandum is included in **Appendix D.**

As noted in the technical memorandum, future development will require the City to update its Stormwater Pollution Control Plan (SWPCP) for the airport to reflect new development and ensure consistency with NPDES Permit requirements. The future development projects (new impervious surfaces) will require measures to minimize impacts of increased stormwater runoff.

A wetland delineation was performed for the undeveloped area located on the west side of the runway to define wetland boundaries and classifications for use in subsequent evaluations. Potential jurisdictional wetlands were observed during the field reconnaissance, consisting primarily of man-made stormwater runoff pathways or shallow depressions. Additional City coordination with the State of Oregon Department of State Lands (DSL) and the US Army Corps of Engineers (Corps) is needed to determine if the areas meet the criteria used to define jurisdictional wetlands.

Airport Noise Analysis

AIRPORT NOISE AND NOISE MODELING

It is often noted that noise is the most common negative impact associated with airports. A simple definition of noise is "unwanted sound." However, sound is measurable, whereas noise is subjective. The relationship between measurable sound and human irritation is the key to understanding aircraft noise impact. A rating scale has been devised to relate sound to the sensitivity of the human ear. The A-weighted decibel scale (dBA) is measured on a "log" scale, by which is meant that for each increase in sound energy level by a factor of 10, there is a designated increase of 1 dBA. This system of measurement is used because the human ear functions over such an enormous range of sound energy impacts. At a psychological level, there is a rule of thumb that the human ear often "hears" an increase of 10 decibels as equivalent to a "doubling" of sound.

The challenge to evaluating noise impact lies in determining what amount and what kind of sound constitutes noise. The vast majority of people exposed to aircraft noise are not in danger of direct physical harm. However, much research on the effects of noise has led to several generally accepted conclusions:

- The effects of sound are cumulative; therefore, the duration of exposure must be included in any evaluation of noise.
- Noise can interfere with outdoor activities and other communication.
- Noise can disturb sleep, TV/radio listening, and relaxation.
- When community noise levels have reached sufficient intensity, community wide objection to the noise will likely occur.

Research has also found that individual responses to noise are difficult to predict.[1] Some people are annoyed by perceptible noise events, while others show little concern over the most disruptive events. However, it is possible to predict the responses of large groups of people – e.g. communities. Consequently, community response, not individual response, has emerged as the prime index of aircraft noise measurement.

On the basis of the findings described above, a methodology has been devised to relate measurable sound from a variety of sources to community response. For aviation noise analysis, the FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activities must be established in terms of yearly day/night average sound level (DNL) as FAA's primary metric. The DNL methodology is used in conjunction with the standard A-weighted decibel scale (dBA) which is measured on a "log" scale, by which is meant that for each increase in sound energy level by a factor of 10, there is a designated increase of 1 dBA. DNL has been adopted by the U. S. Environmental Protection Agency (EPA), the Department of Housing and Urban Development (HUD), and the Federal Aviation Administration (FAA) for use in evaluating noise impacts. In a general sense, it is the yearly average of aircraft-created noise for a specific location (i.e., runway), but includes a calculation penalty for each night flight.

The FAA has determined that a significant noise impact would occur if analysis shows that the proposed action will cause noise sensitive areas to experience an increase in noise of DNL 1.5 dB or more at or above DNL 65 dB noise exposure when compared to the no action alternative for the same time frame. As an example, an increase from 63.5 dB to 65 dB is considered a significant impact. The DNL methodology also includes a significant calculation penalty for each night flight. DNL levels are normally depicted as contours. These contours are generated from noise measurements processed by a FAA-approved computer noise model. They are superimposed on a map of the airport and its surrounding area. This map of noise contour levels is used to predict community response to the noise generated from aircraft using that airport.

The basic unit in the computation of DNL is the sound exposure level (SEL). An SEL is computed by mathematically summing the dBA level for each second during which a noise event occurs. For example, the noise level of an aircraft might be recorded as it approaches, passes overhead, and then departs. The recorded noise level of each second of the noise event is then added logarithmically to compute the SEL. To provide a penalty for nighttime flights (considered to be between 10 PM and 7 AM), 10 dBA is added

[1] Beranek, Leo, *Noise and Vibration Control*, McGraw-Hill, 1971, pages ix-x.

to each nighttime dBA measurement, second by second. Due to the mathematics of logarithms, this calculation penalty is equivalent to 10-day flights for each night flight.[2]

A DNL level is approximately equal to the average dBA level during a 24-hour period with a weighting for nighttime noise events. The main advantage of DNL is that it provides a common measure for a variety of different noise environments. The same DNL level can describe an area with very few high noise events as well as an area with many low-level events.

NOISE MODELING AND CONTOUR CRITERIA

DNL levels are typically depicted as contours. Contours are an interpolation of noise levels drawn to connect all points of a constant level, which are derived from information processed by the FAA-approved computer noise model. They appear similar to topographical contours and are superimposed on a map of the airport and its surrounding area. It is this map of noise levels drawn about an airport, which is used to predict community response to the noise from aircraft using that airport. DNL mapping is best used for comparative purposes, rather than for providing absolute values. That is, valid comparisons can be made between scenarios as long as consistent assumptions and basic data are used for all calculations. It should be noted that a line drawn on a map by a computer does not imply that a particular noise condition exists on one side of the line and not on the other. These calculations can only be used for comparing average noise impacts, not precisely defining them relative to a specific location at a specific time.

NOISE AND LAND-USE COMPATIBILITY CRITERIA

Federal regulatory agencies of government have adopted standards and suggested guidelines relating DNL to compatible land uses. Most of the noise and land-use compatibility guidelines strongly support the concept that significant annoyance from aircraft noise levels does not occur outside a 65 DNL noise contour. Federal agencies supporting this concept include the Environmental Protection Agency, Department of Housing and Urban Development, and the Federal Aviation Administration.

Federal Aviation Regulations (FAR) Part 150, Airport Noise Compatibility Planning provides guidance for land-use compatibility around airports. **Table 6-1** summarizes the federal guidelines for compatibility or non-compatibility of various land uses and noise exposure levels. Under federal guidelines, all land uses, including residential, are considered compatible with noise exposure levels of 65

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[2] Where Leq ("Equivalent Sound Level") is the same measure as DNL without the night penalty incorporated, this can be shown through the mathematical relationship of:

$$Leq_d = 10 \log \left(\frac{N_d \times 10^{(SEL/10)}}{86{,}400} \right)$$

If SEL equals the same measured sound exposure level for each computation, and if N_d = 10 daytime flights, and N_n = 1 night-time flight, then use of a calculator shows that for any SEL value inserted, $Leq_d = Leq_n$.

DNL and lower. Generally, residential and some public uses are not compatible within the 65-70 DNL, and above. As noted in this table, some degree of noise level reduction (NLR) from outdoor to indoor environments may be required for specific land uses located within higher-level noise contours. Land uses such as commercial, manufacturing, some recreational uses, and agriculture are compatible within 65-70 DNL contours.

Residential development within the 65 DNL contour and above is not recommended and should be discouraged. Care should be taken by local land use authorities to avoid creating potential long-term land use incompatibilities in the vicinity of the airport by permitting new development of incompatible land uses such as residential subdivisions in areas of moderate or higher noise exposure. Oregon's airport noise and land use compatibility guidelines discourage residential development within the 55 DNL contour, although it is not prohibited. Albany Municipal Airport is located within an area of predominantly industrial and commercial zoning that provides an effective land use buffer between the airport and residential development.

The City of Albany should update current airport overlay zoning text and mapping (Albany Development Code, Section 4.40), to be consistent with the ultimate FAR Part 77 airspace surfaces depicted on the updated airport airspace plan drawing.

The portions of the FAR Part 77 surfaces for Albany Municipal Airport that extend over adjacent jurisdictions (Linn County, Benton County, City of Millersburg) are the responsibility of each jurisdiction (for compliance with Oregon airport protection requirements). City of Albany staff should initiate coordination with the other jurisdictions to: 1) ensure that adequate measures are in place to protect Albany Municipal Airport, and 2) provide technical assistance to address Oregon airport protection requirements. The Oregon Department of Aviation (ODA) is also available to provide technical assistance. Ideally, all jurisdictions would utilize common ordinance language (joint adoption of an airport overlay zone ordinance) that is consistent with state and federal airport protection guidelines.

TABLE 6-1: LAND USE COMPATIBILITY WITH DNL

	Yearly Day-Night Average Sound Level (DNL) in Decibels					
Land Use	<65	65-70	70-75	75-80	80-85	85+
Residential						
Residential, other than mobile homes & transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile Home Parks	Y	N	N	N	N	N
Transient Lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and Nursing Homes	Y	25	30	N	N	N
Churches, Auditoriums, and Concert Halls	Y	25	30	N	N	N

Government Services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, Business and Professional	Y	Y	25	30	N	N
Wholesale and Retail-Building Materials, Hardware and Farm Equipment and Farm Equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail Trade-General	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing General	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and Optical	Y	Y	25	30	N	N
Agriculture (except livestock) and Forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock Farming and Breeding	Y	Y(6)	Y(7)	N	N	N
Mining and Fishing, Resource Production and Extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor Sports Arenas, Spectator Sports	Y	Y(5)	Y(5)	N	N	N
Outdoor Music Shells, Amphitheaters	Y	N	N	N	N	N
Nature Exhibits and Zoos	Y	Y	N	N	N	N
Amusement Parks, Resorts and Camps	Y	Y	Y	N	N	N
Golf Courses, Riding Stables and Water Recreation	Y	Y	25	30	N	N

Y (Yes) Land-use and related structures compatible without restrictions.

N (No) Land-use and related structures are not compatible and should be prohibited.

NLR - Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into design and construction of the structure.

25, 30 or 35 - Land uses and structures generally compatible; measure to achieve NLR or 25, 30 or 35 dB must be incorporated into design and construction of the structure.

NOTES:

Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor Noise Levels Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB; thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.

Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

Land-use compatible, provided special sound reinforcement systems are installed.

Residential buildings require an NLR of 25.

Residential buildings require an NLR of 30.

Residential buildings not permitted.

SOURCE: Federal Aviation Regulations, Part 150, Airport Noise Compatibility Guidelines

PLANNING PERIOD NOISE CONTOURS

A noise analysis of the effects of aircraft operations and proposed projects/activities linked to the updated airport master plan has been performed using the FAA's Integrated Noise Model (INM), version 7.0c. The INM data runs are included in **Appendix E.**

The noise contours and associated information have been developed to assess current and future aircraft noise exposure and support local land use compatibility planning. Data from the updated forecasts of activity levels were assigned to the common arrival, departure and airport traffic pattern flight tracks defined for the runway. The existing and future noise contours were generated based on the FAA-approved master plan aircraft operations forecast for 2012, 2017 and 2032.

The 2012 noise contours reflect the existing runway configuration. The future (2017 and 2032) noise contours reflect the planned change to the runway configuration, which involves runway extensions (converting paved overruns to usable runway, configured with displaced thresholds) at both ends.

The runway use (directional) distributions for the updated noise analysis are consistent with the noise analysis conducted in the previous master plan. The current runway use distribution (60% Runway 34/40% Runway 16) and traffic pattern configuration are maintained for all noise runs.

The current and future year noise contours are depicted in **Figure 6-1**. The contours are plotted in 5 DNL increments from 65 DNL to 85 DNL, which is consistent with FAA noise and land use compatibility planning. As noted earlier in this section, under federal standards, all land uses are considered compatible with noise exposure below 65 DNL and the FAA does not formally recognize noise levels below 65 DNL in its land use compatibility planning assessments. As part of the FAA-approved Airport Layout Plan (ALP) drawing set, the Airport Land Use Plan will depict the 2032 noise contours beginning at 65 DNL, consistent with the FAA standard. A plot of the current and future noise contours beginning at 55 DNL (consistent with Oregon standards) is provided in **Appendix E**.

Noise Contours Overview

Small areas of the current and future year noise contours (65 DNL or above) extend beyond airport property near the runway ends and in areas where airport property width is narrow (mid runway–east side). The future year noise contours assume the runway extensions at both ends are completed. The areas of noise exposure located on the west side of the runway (northwest and southwest) extend over the Oregon Department of Transportation (ODOT) right of way for Interstate 5 (I-5) interchanges located north and south of the runway. The areas of 65 DNL noise exposure on the east side of the runway extend over commercial development (southeast corner), the adjacent City-owned Timber-Linn Park (east), or the Linn County Fair and Expo Center (northeast). Two small areas of 70 DNL noise exposure extend beyond airport property, immediately southwest (I-5 interchange) and southeast (a portion of one commercial parcel) of the runway in the 2017 and 2032 noise runs. The levels of airport-generated noise exposure that extend beyond airport property (65 or 70 DNL) are compatible with the underlying land uses and the adjacent transportation corridors (Interstate 5 and nearby major surface streets).

Table 6-2 summarizes the overall size (measured in square miles) of the 65 to 85 DNL noise contours for the current, 5-year, and 20-year INM runs. The increase in surface area for each noise level is consistent with the forecast increase in air traffic, minor changes in aircraft fleet mix, and planned changes to the current runway configuration. It is noted that the airport currently consists of approximately 92 acres, which translates into 0.144 square miles. This surface area represents a portion of the overall size of each contour.

TABLE 6-2: CURRENT AND FUTURE NOISE CONTOUR SIZE

DNL Noise Levels	Size of Contours (in square miles)		
	2012	**2017**	**2032**
65	0.090	0.106	0.133
70	0.037	0.043	0.059
75	0.014	0.015	0.020
80	0.005	0.006	0.007
85	0.003	0.003	0.003
Total Area (sq. miles) (DNL 65-85)	**0.149**	**0.173**	**0.222**
Note: Current airport property area is 92 acres (0.144 square miles); a portion of each contour area noted above is located over airport property.			

A characteristic of aircraft noise exposure on a runway is the increase in contour size (width) near the ends of the runway. Like wake turbulence generated from aircraft wings during flight, noise energy is dissipated behind and to the sides of the aircraft. The enlarged contours near the runway ends reflect the increase in noise generated during the initial application of power for takeoff and during the initial slow movement of aircraft at the beginning of the takeoff roll. The low altitude of aircraft during final approach and landing also concentrates noise exposure at the runway ends.

<u>2012 Noise Contours</u>

The 65 DNL noise contour extends beyond the airport property line on the northeast and east sides (Fair and Expo Center and Timber-Linn Park). No areas of 70 DNL or higher noise exposure extend beyond airport property. Continuous areas of 70 and 75 DNL contours extend along the entire runway length and slightly beyond each runway end. Areas of 80 and 85 DNL contours are located at each runway end, contained entirely within airport property.

<u>2017 Noise Contours</u>

The noise contours for 2017 have the same overall shape as the 2012 contours, with a slight increase in size based on the forecast increase in aircraft operations and increased runway length. The contour is elongated based on the planned runway extensions at both ends. The runway extensions increase the area of 65 DNL noise exposure beyond the airport's north and south property line and extends areas of 70 DNL less than 100 feet beyond the southeast property line (over one commercial land use parcel). The areas of 75 to 85 DNL also increase marginally, but are contained within airport property.

2032 Noise Contours

The noise contours for 2032 have the same overall shape as the 2012 and 2017 contours, with continued growth due to the forecast increase in flight activity. Areas of 65 DNL extend further south and north, and widen along the airport's east side. An area of 70 DNL extends approximately 150 to 200 feet beyond the southeast property line (over one commercial land use parcel). The areas of 75 to 85 DNL increase in size, but are contained within airport property.

LEGEND

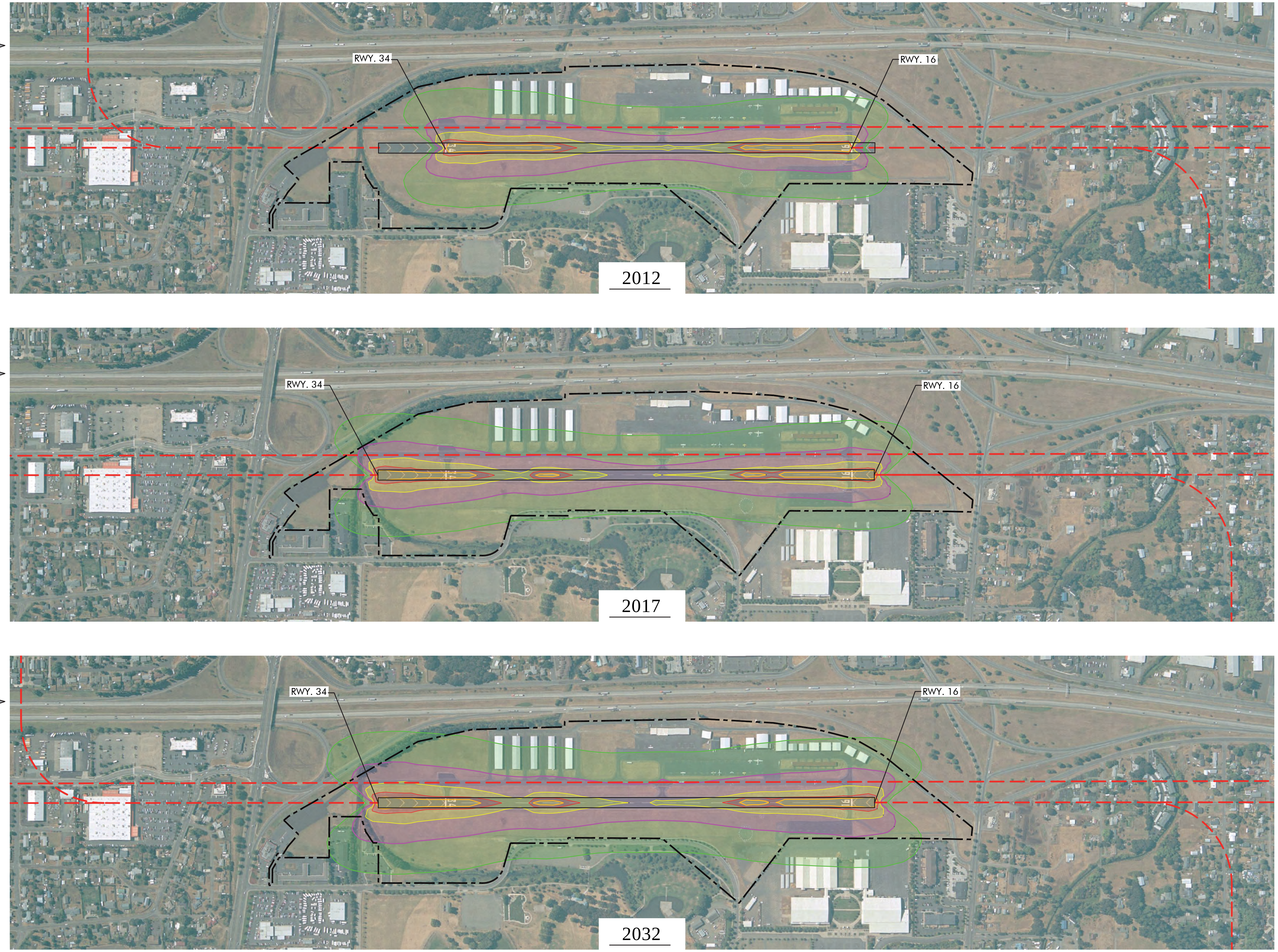
- 65 DNL
- 70 DNL
- 75 DNL
- 80 DNL
- 85 DNL
- FLIGHT TRACKS
- PROPERTY LINE

DAY-NIGHT LEVEL (DNL)

N

0' 400' 800'

Scale: 1"=400'



NOTE:
1. FAA INM VERSION 7.0C USED TO DEVELOP NOISE CONTOURS. CONTOURS BASED ON MASTER PLAN FORECAST AIRCRAFT OPERATIONS FOR 2012 AND 2032.

ALBANY MUNICIPAL AIRPORT | AIRPORT MASTER PLAN

2012, 2017, AND 2032 NOISE CONTOURS | **FIG. 6-1**

CENTURY WEST ENGINEERING CORPORATION

Chapter 7 – Financial and Development Program

Chapter 7 – Financial and Development Program

Introduction

The purpose of this chapter is to present the projects identified in the Airport Capital Improvement Program (ACIP) that have been developed and assembled based on the analyses conducted in the Facility Requirements and Development Alternatives chapters (Chapters Four and Five). The ACIP projects are summarized in **Table 7-1** and depicted in **Figure 7-1** later in the chapter. The ACIP is organized in short, intermediate- and long-term 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 airside elements (improvements to west parallel taxiway exit locations and geometry, a future east parallel taxiway, new taxiway access to hangars, lighting upgrades, converting paved overruns to useable runway with displaced thresholds), and landside elements (main apron reconfiguration, helicopter parking, hangars, FBO related facility development areas). Minor pavement maintenance items such as vegetation removal and crack filling are not included in the capital improvement program, but will need to be undertaken by the City on an annual or semi-annual basis.

In addition to specific construction related activities, some projects will require environmental study. A brief environmental review presented in Chapter Six and **Appendix D**, provides an overview of areas of potential concern related to the proposed development. Individual projects may require additional project specific evaluations to meet applicable local, state or federal regulatory requirements.

The ACIP lists all major projects included in the twenty year planning period addressed in the Master Plan. 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 Eight

.

A primary source of potential funding identified in this plan is the FAA's Airport Improvement Program (AIP). As proposed, approximately 90 percent of the airport's 20 year ACIP will be eligible for federal funding. 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 to all airports in the United States that are included in the federal airport system (National Plan of Integrated Airport Systems – NPIAS).

However, as noted in **Table 7-1**, the projected twenty year total for FAA eligible projects in the ACIP significantly exceeds current FAA funding levels through the non-primary entitlement program. While other types of FAA funding may be available for some projects, it is reasonable to assume that despite establishing eligibility for FAA funding, not all eligible projects are likely to be funded by FAA. As the City manages its ACIP, maximizing the use of available FAA and other outside sources of funding is assumed. However, in some cases, the limited availability of outside funds may require projects to be deferred, or funded with increased levels of City, State or private funding.

Airport Development Schedule and Cost Estimates

Cost estimates for each individual project were developed in 2014 dollars based on typical construction costs associated for the specific type of project. The project costs listed in the ACIP represent order-of-magnitude estimates that approximate design engineering, environmental, other related costs, and contingencies. The estimates are intended only for preliminary planning and programming purposes. Specific project analysis and detailed engineering design will be required at the time of project implementation to provide more refined and detailed estimates of the development costs.

In future years, as the plan is carried out, these cost estimates can continue to assist management by adjusting the 2014-based figures for subsequent inflation. This may be accomplished by converting the interim change in the United States Consumer Price Index (USCPI) into a multiplier ratio through 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
238.343 **(1982-1984 = 100)** **June 2014**

Multiplying the change ratio (Y) times any 2014-based cost figures 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 upon 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 first phase of the capital improvement program includes the highest priority projects recommended during the first five years of the planning period. Intermediate and long term projects are anticipated to occur in the 6 to 20 year time period, although changes in demand or other conditions could accelerate or slow demand for some improvements.

SHORT TERM PROJECTS

The short term program contains work items of the highest priority. Priority items include improvements related to safety. Because of their priority, these items will need to be incorporated into the State Capital Improvement Program (SCIP) managed by the FAA Seattle Airport District Office and Oregon Department of Aviation (ODA). To assist with this process, the short term projects are scheduled in specific calendar years for the first six years of the planning period (2014-2019).

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

The main focus in the short term development period is to complete the airport fencing, convert existing runway overruns to useable runway (displaced thresholds), add north and south taxiway connectors to runway ends, create a new aircraft hold area at south end of runway (west parallel taxiway), complete a main apron rehabilitation and reconfiguration as well as preserve pavement through pavement maintenance (sealcoat, repaint markings).

Short Term Projects:

- New airport fencing (completed in 2014);
- Runway 16/34 displaced thresholds, repaint markings, new lighting and signage (convert existing paved overruns);
- South taxiway connector (to displaced threshold); overlay south section of west parallel taxiway;
- North extension west parallel taxiway connector (to displaced threshold);
- South aircraft hold area (new at south end of runway);
- Main apron rehabilitation, reconstruction and reconfiguration (north-middle section); and
- Sealcoat hangar taxilanes, parallel and connector taxiways and tiedown apron.

INTERMEDIATE & LONG TERM PROJECTS

Several intermediate or long term projects are considered to be current needs. However, based on the limited funding resources available, it was necessary to shift some projects to the longer term timeline. However, projects may be completed sooner in the event that additional funding can be generated.

Intermediate Term Projects (6-10 years)

- Automated weather and observation system (AWOS);
- Northeast transient tiedown apron expansion;
- West parallel taxiway medium intensity taxiway lighting (MITL);
- Southwest hangar area, access road extension, stormwater and utilities;
- Main apron expansion and reconfiguration; fueling area, helicopter parking, stormwater;
- Sealcoat hangar taxilanes, main apron and tiedown apron;
- Sealcoat parallel taxiway with connectors and repaint markings; and

- Sealcoat Runway 16/34 and repaint markings.

Long Term Projects (11-20 years)

- Reconstruct north T-hangar portion of taxilane (east side of hangar);
- Southeast hangar area stormwater, access road extension and utilities;
- Main apron rehabilitation, reconstruction (east section);
- Sealcoat the tiedown apron and hangar taxilanes;
- Overlay Runway 16/34 and repaint markings;
- Sealcoat Main Apron (as needed);
- Hangar taxilanes, west parallel taxiway, connecting taxiways, tiedown apron overlay and repaint markings;
- East parallel taxiway and southeast apron sealcoat;
- Beacon replacement;
- Replace the existing Runway 16/34 medium intensity runway lights at the end of useful life;
- Replace Runway 16/34 runway end identifier lights at the end of useful life; and
- Replace Runway 16/34 precision approach path indicators at the end of useful life.

Albany Municipal Airport

Current NPE $ Accumulation: **$172,058** **(FY 2013, FY 2014)** Prepared by Century West Engineering

DRAFT 20-YEAR CAPITAL IMPROVEMENT PROGRAM 2014-2033

Short Term	Yr	Project	ID	Project Category	Unit	Quantity	Unit Cost	Subtotal Cost	40% Engineering/ Contingency/ Environmental	Total Cost	FAA GA Entitlement	Other FAA **	Local Costs		
2013-14	**0**	Airport Fencing (SW & East Airfield) (8' chain-link) *		Security	LS	1	$309,870	$309,870	$0	$309,870	$278,883	$0	$30,987	*see note **	
Subtotal - Year 0								$309,870	$0	$309,870	$278,883	$0	$30,987		
2015	**1**	Runway 16 & 34 Displaced Threshold Sealcoat, Marking, Lighting, Signage		Other	LS	1	$125,000	$125,000	$50,000	$175,000	$157,500	$0	$17,500		
		South Taxiway Connector (to Displaced Threshold); Overlay S. P. Txy (500')		Pavement Construction	SY	450	$75	$100,000	$40,000	$140,000	$126,000	$0	$14,000		
		North Extension West Parallel Taxiway Connector (to Displaced Threshold)		Pavement Construction	SY	770	$75	$57,750	$23,100	$80,850	$38,558	$34,207	$8,085	*NPE Accumulation*	*$172,058*
														FY 2015 NPE	*$150,000*
Subtotal - Year 1								$282,750	$113,100	$395,850	$322,058	$34,207	$39,585	*Total Available (NPE)*	*$322,058*
2016	**2**	South Aircraft Hold Area (new @ south end of runway)		Pavement Construction	SY	1,275	$75	$95,625	$38,250	$133,875	$120,488	$0	$13,388		
														NPE Accumulation	*$0*
														FY 2016 NPE	*$150,000*
Subtotal - Year 2								$95,625	$38,250	$133,875	$120,488	$0	$13,388	*Total Available (NPE)*	*$150,000*
2017	**3**	Main Apron (north-middle section) - Rehab/Reconst. & Reconfiguration		Pavement Rehabilitation	SY	8,900	$55	$504,500	$201,800	$706,300	$179,513	$456,158	$70,630		
														NPE Accumulation	*$29,513*
														FY 2017 NPE	*$150,000*
Subtotal - Year 3								$504,500	$201,800	$706,300	$179,513	$456,158	$70,630	*Total Available (NPE)*	*$179,513*
2018	**4**	West Parallel Taxiway & Exits - Sealcoat/Repaint Markings		Pavement Maintenance	SY	14,925	$2	$39,850	$15,940	$55,790	$50,211	$0	$5,579		
		NW Hangar Taxilanes - Sealcoat		Pavement Maintenance	SY	4,320	$2	$10,640	$4,256	$14,896	$13,406	$0	$1,490		
		SW Hangar Taxilanes - Sealcoat		Pavement Maintenance	SY	13,400	$2	$31,800	$12,720	$44,520	$40,068	$0	$4,452		
		NE Tiedown Apron and Taxiway Sealcoat		Pavement Maintenance	SY	5,450	$2	$15,900	$6,360	$22,260	$20,034	$0	$2,226		
		Runway 16/34 Sealcoat/Repaint Markings (3,004 x75')		Pavement Maintenance	SY	25,033	$2	$70,066	$28,026	$98,092	$26,281	$62,002	$9,809	*NPE Accumulation*	*$0*
														FY 2018 NPE	*$150,000*
Subtotal - Year 4								$168,256	$67,302	$235,558	$150,000	$62,002	$23,556	*Total Available (NPE)*	*$150,000*
2019	**5**	Main Apron (south-middle and west sections) - Rehab/Reconst. & Reconfig.		Pavement Rehabilitation	SY	10,875	$55	$610,125	$244,050	$854,175	$150,000	$618,758	$85,418		
														NPE Accumulation	*($0)*
														FY 2018 NPE	*$150,000*
Subtotal - Year 5								$610,125	$244,050	$854,175	$150,000	$618,758	$85,418	*Total Available (NPE)*	*$150,000*
							0-5	**$1,802,870**	**$597,200**	**$2,400,070**	**$1,050,941**	**$1,109,122**	**$240,007**		

* Current Year Project Grant not inlcuded in NPE accumulation effective 2014

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

Intermediate Term	2020-2024	Project		Project Category	Unit	Quantity	Unit Cost	Subtotal Cost	40% Engineering/ Contingency/ Environmental	Total Cost	FAA GA Entitlement	FAA Eligible **	Local Costs
		Automated Weather Observation System (AWOS)		Other	LS	1	$192,000	$192,000	$76,800	$268,800	$241,920	$0	$26,880
		NE Transient Tiedown Apron Expansion		Pavement Construction	SY	2,537	$75	$193,275	$77,310	$270,585	$243,527	$0	$27,059
		West Parallel Taxiway - MITL		Lighting	LF	3,660	$60	$219,600	$87,840	$307,440	$264,553	$12,143	$30,744
		Main Apron - South Taxilane Extension (new); Stormwater		Pavement Construction	LF	970	$75	$87,750	$35,100	$122,850	$0	$110,565	$12,285
		SW Hangar Area - Stub Taxilane (1), Stormwater		Pavement Construction	SY	940	$75	$85,500	$34,200	$119,700	$0	$107,730	$11,970
		SW Hangar Area - Access Road Extension		Other	LF	700	$50	$65,000	$26,000	$91,000	$0	$81,900	$9,100
		SW Hangar Area - Utilities, Stormwater		Other	LF	1,500	$90	$135,000	$54,000	$189,000	$0	$37,800	$151,200
		Main Apron Expansion/Reconfigured Fueling Area, Helicopter Parking		Pavement Construction	SY	2,200	$75	$185,000	$74,000	$259,000	$0	$233,100	$25,900
		North Hangar Taxilanes - Sealcoat		Pavement Maintenance	SY	4,320	$2	$10,640	$4,256	$14,896	$0	$13,406	$1,490
		SW Hangar Taxilanes (Existing) - Sealcoat (phased)		Pavement Maintenance	SY	13,400	$2	$31,800	$12,720	$44,520	$0	$40,068	$4,452
		NW Hangar Taxilanes - Sealcoat		Pavement Maintenance	SY	4,320	$2	$10,640	$4,256	$14,896	$0	$13,406	$1,490
		NE Tiedown Apron and Taxiway Sealcoat		Pavement Maintenance	SY	7,990	$2	$20,980	$8,392	$29,372	$0	$26,435	$2,937
		Main Apron - Sealcoat (phased based on need)		Pavement Rehabilitation	SY	30,155	$2	$75,310	$30,124	$105,434	$0	$94,891	$10,543
		West Parallel Taxiway & Exits - Sealcoat/Repaint Markings		Pavement Maintenance	SY	14,925	$2	$39,850	$15,940	$55,790	$0	$50,211	$5,579
		Runway 16/34 Sealcoat/Repaint Markings (3,659' x75')		Pavement Maintenance	SY	30,500	$2	$81,000	$32,400	$113,400	$0	$102,060	$11,340
Subtotal - Year 6-10								**$1,433,345**	**$573,338**	**$2,006,683**	**$750,000**	**$923,715**	**$332,968**

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

5 year NPE $ = $750,000

Long Term	2025-2034	Project		Project Category	Unit	Quantity	Unit Cost	Subtotal Cost	40% Engineering/ Contingency/ Environmental	Total Cost	FAA GA Entitlement	FAA Eligible **	Local Costs
		North T-Hangar Stub Taxilane Replacement (east side of hangar)		Pavement Construction	SY	1,200	$75	$90,000	$36,000	$126,000	$113,400	$0	$12,600
		SW Hangar Area - L Stub Taxilane (1), Stormwater		Pavement Construction	SY	1,070	$75	$100,250	$40,100	$140,350	$126,315	$0	$14,035
		Main Apron - Rehab/Reconst. (east section)		Pavement Rehabilitation	SY	8,230	$55	$479,650	$191,860	$671,510	$604,359	$0	$67,151
		East Parallel Taxiway w/ 2 Connectors - Southeast Hangar Area		Pavement Construction	SY	3,900	$75	$292,500	$117,000	$409,500	$368,550	$0	$40,950
		SE Hangar Area - Apron, Stormwater		Pavement Construction	SY	8,500	$75	$660,500	$264,200	$924,700	$287,376	$544,854	$92,470
		SE Hangar Area - Access Road Extension, Stormwater		Other	LF	700	$50	$65,000	$26,000	$91,000	$0	$81,900	$9,100
		SE Hangar Area - Utilities, Stormwater		Other	LF	1,500	$90	$135,000	$54,000	$189,000	$0	$37,800	$151,200
		NW Hangar Taxilanes - Sealcoat (phased based on need)		Pavement Maintenance	SY	4,320	$2	$10,640	$4,256	$14,896	$0	$13,406	$1,490
		SW Hangar Taxilanes - Sealcoat (phased based on need)		Pavement Maintenance	SY	15,350	$2	$30,700	$12,280	$42,980	$0	$38,682	$4,298
		NE Tiedown Apron and Taxiway Sealcoat (existing + new tiedown area)		Pavement Maintenance	SY	7,990	$2	$25,980	$10,392	$36,372	$0	$32,735	$3,637
		West Parallel Taxiway & Exits - Overlay/Repaint Markings		Pavement Rehabilitation	SY	14,925	$55	$830,875	$332,350	$1,163,225	$0	$1,046,903	$116,323
		Runway 16/34 Overlay/Repaint Markings (3,659' x75')		Pavement Rehabilitation	SY	30,500	$55	$1,697,500	$679,000	$2,376,500	$0	$2,138,850	$237,650
		Main Apron - Sealcoat (phased based on need)		Pavement Rehabilitation	SY	30,155	$2	$75,310	$30,124	$105,434	$0	$94,891	$10,543
		Southwest Hangar Area - Stub Taxilanes - Sealcoat		Pavement Rehabilitation	SY	2,010	$2	$6,020	$2,408	$8,428	$0	$7,585	$843
		SW Hangar Taxilanes - Overlay Select Sections		Pavement Rehabilitation	SY	13,400	$55	$742,000	$296,800	$1,038,800	$0	$934,920	$103,880
		NW Hangar Taxilanes - Overlay Select Sections		Pavement Rehabilitation	SY	4,320	$55	$242,600	$97,040	$339,640	$0	$305,676	$33,964
		East Parallel Taxiway Sealcoat		Pavement Maintenance	SY	3,900	$2	$13,800	$5,520	$19,320	$0	$17,388	$1,932
		SE Apron Sealcoat		Pavement Maintenance	SY	8,500	$2	$20,000	$8,000	$28,000	$0	$25,200	$2,800
		Airport Beacon & Tower (replacement)		Lighting	LS	1	$125,000	$125,000	$50,000	$175,000	$0	$157,500	$17,500
		MIRL Runway 16/34 (3,659') (replacement)		Lighting	LF	3,660	$60	$219,600	$87,840	$307,440	$0	$276,696	$30,744
		REIL - Runway 16 & 34 (replacement)		Lighting	ea	2	$25,000	$50,000	$20,000	$70,000	$0	$63,000	$7,000
		PAPI - Runway 16 & 34 (replacement)		Lighting	ea	2	$60,000	$120,000	$48,000	$168,000	$0	$151,200	$16,800
		NE Tiedown Apron and Taxiway Overlay		Pavement Rehabilitation	SY	5,450	$55	$314,750	$125,900	$440,650	$0	$396,585	$44,065
								$6,347,675	**$2,539,070**	**$8,886,745**	**$1,500,000**	**$6,365,771**	**$1,020,975**
							20 Yr Total	$9,583,890	$3,709,608	$13,293,498	$3,300,940	$8,398,608	$1,593,950

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

10 year NPE $ = $1,500,000

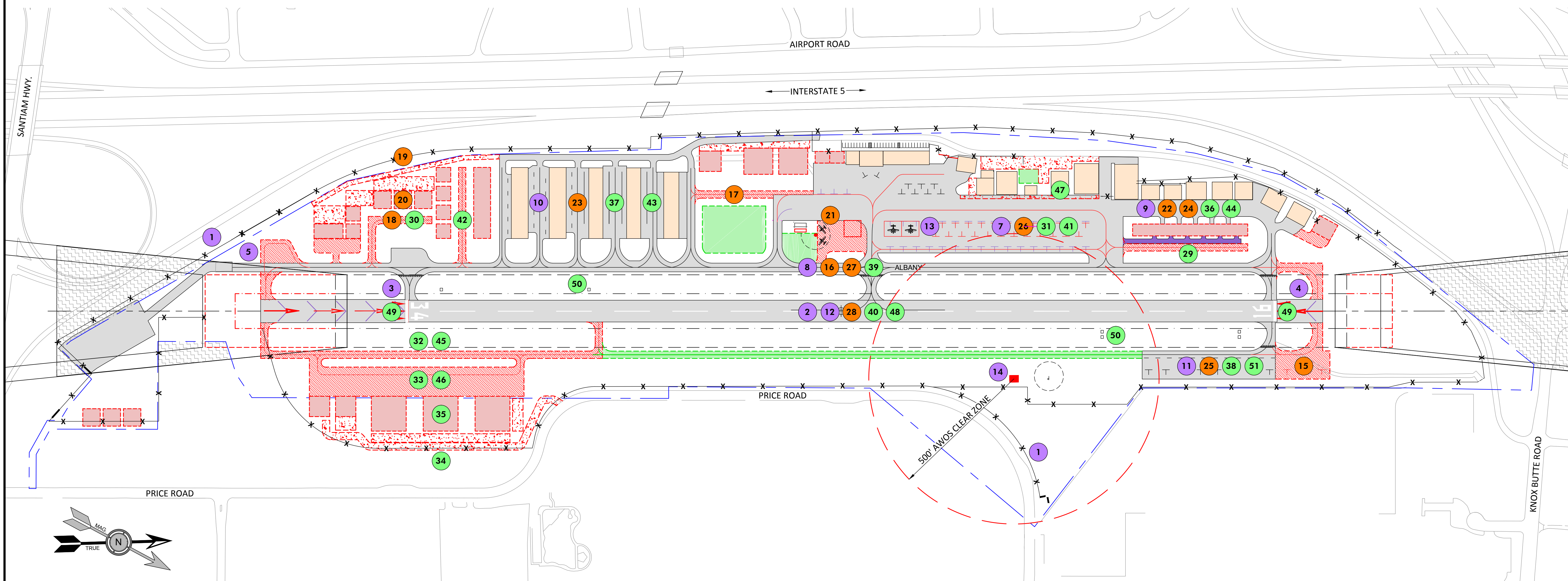
CAPITAL IMPROVEMENT PROGRAM TERM 2013 - 2018	
1	AIRPORT FENCING (SW & EAST AIRFIELD) (8' CHAIN-LINK)
2	RUNWAY 16 & 34 DISPLACED THRESHOLD SEALCOAT, MARKING, LIGHTING, SIGNAGE
3	SOUTH TAXIWAY CONNECTOR (TO DISPLACED THRESHOLD); OVERLAY S.P. TWY (500')
4	NORTH EXTENSION WEST PARALLEL TAXIWAY CONNECTOR (TO DISPLACED THRESHOLD)
5	SOUTH AIRCRAFT HOLD AREA (NEW @ SOUTH END OF RUNWAY)
7	MAIN APRON (NORTH-MIDDLE SECTION) - REHAB/RECONST. & RECONFIGURATION
8	WEST PARALLEL TAXIWAY & EXITS - SEALCOAT/REPAINT MARKINGS
9	NW HANGAR TAXILANES - SEALCOAT
10	SW HANGAR TAXILANES - SEALCOAT
11	NE TIEDOWN APRON AND TAXIWAY SEALCOAT
12	RUNWAY 16/34 SEALCOAT/REPAINT MARKINGS (3,004' X 75')
13	MAIN APRON (SOUTH-MIDDLE AND WEST SECTIONS) - REHAB/RECONST. & RECONFIG.
14	AUTOMATED WEATHER OBSERVATION SYSTEM (AWOS)

CAPITAL IMPROVEMENT PROGRAM TERM 2020 - 2024	
15	NE TRANSIENT TIEDOWN APRON EXPANSION
16	WEST PARALLEL TAXIWAY - MITL
17	MAIN APRON - SOUTH TAXILANE EXTENSION (NEW); STORMWATER
18	SW HANGAR AREA - STUB TAXILANE (1), STORMWATER
19	SW HANGAR AREA - ACCESS ROAD EXTENSION
20	SW HANGAR AREA - UTILITIES, STORMWATER
21	MAIN APRON EXPANSION/RECONFIGURED FUELING AREA, HELICOPTER PARKING
22	NORTH HANGAR TAXILANES - SEALCOAT
23	SW HANGAR TAXILANES (EXISTING) - SEALCOAT (PHASED)
24	NW HANGAR TAXILANES - SEALCOAT
25	NE TIEDOWN APRON AND TAXIWAY SEALCOAT
26	MAIN APRON - SEALCOAT (PHASED BASED ON NEED)
27	WEST PARALLEL TAXIWAY & EXITS - SEALCOAT/REPAINT MARKINGS
28	RUNWAY 16/34 SEALCOAT/REPAINT MARKINGS (3,659' X 75')

CAPITAL IMPROVEMENT PROGRAM TERM 2025 - 2034	
29	NORTH T-HANGAR STUB TAXILANE REPLACEMENT (EAST SIDE OF HANGAR)
30	SW HANGAR AREA - L STUB TAXILANE (1), STORMWATER
31	MAIN APRON - REHAB/RECONST. (EAST SECTION)
32	EAST PARALLEL TAXIWAY W/ 2 CONNECTORS - SOUTHEAST HANGAR AREA
33	SE HANGAR AREA - APRON, STORMWATER
34	SE HANGAR AREA - ACCESS ROAD EXTENSION, STORMWATER
35	SE HANGAR AREA - UTILITIES, STORMWATER
36	NW HANGAR TAXILANES - SEALCOAT (PHASED BASED ON NEED)
37	SW HANGAR TAXILANES - SEALCOAT (PHASED BASED ON NEED)
38	NE TIEDOWN APRON AND TAXIWAY SEALCOAT (EXISTING & NEW TIEDOWN AREA)
39	WEST PARALLEL TAXIWAY & EXITS - OVERLAY/REPAIR MARKINGS
40	RUNWAY 16/34 OVERLAY/REPAINT MARKINGS (3,659' X 75')
41	MAIN APRON - SEALCOAT (PHASED BASED ON NEED)
42	SW HANGAR AREA - STUB TAXILANES - SEALCOAT

CAPITAL IMPROVEMENT PROGRAM TERM 2025 - 2034	
43	SW HANGAR TAXILANES - OVERLAY SELECT SECTIONS
44	NW HANGAR TAXILANES - OVERLAY SELECT SECTIONS
45	EAST PARALLEL TAXIWAY SEALCOAT
46	SE APRON SEALCOAT
47	AIRPORT BEACON & TOWER (REPLACEMENT)
48	MIRL RUNWAY 16/34 (3,659') (REPLACEMENT)
49	REIL - RUNWAY 16 & 34 (REPLACEMENT)
50	PAPI - RUNWAY 16 & 34 (REPLACEMENT)
51	NE TIEDOWN APRON AND TAXIWAY OVERLAY

NOTE:
1. FACILITY DEVELOPMENT RESERVES DEPICTED IN GREEN.



CENTURY WEST
ENGINEERING CORPORATION

BEND OFFICE
1020 SW EMKAY DRIVE # 100
BEND, OR 97702
541.322.8962
541.382.2423 (FAX)
WWW.CENTURYWEST.COM

ALBANY MUNICIPAL AIRPORT

20 YEAR CAPITAL IMPROVEMENT PROGRAM PHASING DIAGRAM

Figure No.
7-1

Capital Funding Sources

FEDERAL GRANTS

Federal funding is provided through the Federal Airport Improvement Program (AIP). This reauthorization is the latest evolution of a funding program originally authorized by Congress in 1946 as the Federal Aid to Airports Program (FAAP). The program provides grant funding for airports listed in the National Plan of Integrated Airport Systems (NPIAS). Under current legislation, eligible general aviation airports can receive up to $150,000 per year in general aviation "non-primary entitlement" grants. Participating airport sponsors may roll over the funding allocations for up to four years, at which time the accumulated total of funds can be used for larger projects. Any unused funds that remain beyond the maximum allowable roll over period revert to the FAA for use at other airports. These funds may only be used for eligible capital improvement projects and may not support airport operation and maintenance costs. Current FAA funding levels are 90 percent with a 10 percent local match.

FAA funding is limited to projects that have clearly defined need that has been 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. The FAA will not generally participate in vehicle parking, utilities, building renovations or projects associated with non-aviation developments.

Projects such as hangar construction or fuel systems are eligible for funding, although the FAA indicates that this category of project would be considered to be a much lower priority than other airfield needs and would effectively preclude funding other FAA-eligible projects for several years.

The FAA also provides discretionary grants to airports. The dollar amounts of individual grants vary and can be significantly larger than the non-primary entitlements. Discretionary grants are awarded at the FAA's sole discretion. Discretionary funds are distributed after all entitlement funds have been allocated. For larger projects requiring substantially larger amounts of funding, non-primary entitlement, state apportionment, and discretionary grants are often combined. Other types of FAA funding include facilities & equipment (F&E) projects and Congressionally-appropriated dollars for specific projects.

STATE FUNDING

No specific level of Oregon Department of Aviation (ODA) funding has been assumed in the CIP presented in **Table 7-1**. It is recommended that the City maximize use of any ODA or other State of Oregon funds that are available in the planning period.

Pavement Maintenance Program

The Pavement Management Program (PMP) programs airfield pavement maintenance funds on established multi-year cycles. 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. As noted earlier, several short-term pavement maintenance projects are identified for Albany Municipal Airport in the most recent 2012 PMP. The program funds pavement maintenance and associated improvements (crack filling, repair, sealcoats, etc.), including some items which 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 3-year regional rotation. The program includes a regular schedule of inspection and subsequent field work. Benefits from the PMP include:

- Economy of scale in bidding contracts
- Federal/State/Local partnerships that maximize airport improvement funds
- 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 above 70
- Apply budget
- Limit work to patching, crack sealing, fog sealing, slurry sealing
- Add allowance for striping
- Program to include approximately 20 airports per year, depending on funding levels.

Financial Aid to Municipalities (FAM) Grants

ODA's FAM grant program has been suspended in recent years due to a lack of funding. Efforts to resume the program are currently being considered by ODA. Previously, FAM grants up to $25,000 were available to Oregon airports for eligible airport related projects.

State Capital Improvement Program (SCIP)

The FAA's Seattle Airport District Office (ADO) is working with state aviation agencies in Oregon, Washington and Idaho 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 the short term project lists annually 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

As currently defined, the locally funded (City/tenant) portion for twenty year planning period is estimated to be just under $1.6 million. Hangar construction costs and building maintenance have not been included in the CIP.

The majority of local matching funds are generated through airport revenues, including fuel sales, land leases and sale proceeds from non-aviation parcels in the airport industrial park. The city reviews Albany Municipal Airport's rates and fees schedule and land lease terms annually to ensure that the airport is generating fair and reasonable revenue for its facilities. Property appraisals are also recommended to periodically gauge local market valuation.

Airport sponsors occasionally fund infrastructure and revenue-generating development such as hangars locally, either through an inter fund loan or the issuance of long term debt (bonds).

Airport Rates and Fees

The primary aviation use rates and fees used at Albany Municipal Airport are summarized in **Table 7-2**. 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 considerably 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 7-2: EXISTING RATES AND FEES

Based Aircraft Tie-Downs	$25/Month
Open T-Hangar	$40/Month
Historic Bird Hangar	$60/Month
Large Historic Hangar	$500/Month
FBO Building Hangar	$150/Month
South FBO Building (portion)	$100/Month
North FBO (small office)	$30/Month
Aviation Use Ground Leases	$0.21 per square foot (annual)

Cash Flow Analysis

Based on data provided by the city and the noted assumptions on future events, a projection of airport operating revenues and expenses for the 20-year planning period is presented in **Table 7-3**. According to Albany Municipal Airport 2014 Revenue and Expenditure Report, the airport is currently operating with a positive cash flow of approximately $10,000 annually (based on operating revenues and expenses only). The general operating position of the airport is expected to improve as specific facility improvements occur and overall airport activity increases. Basic business decisions will also 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 three primary revenue categories: user charges, land leases, buildings and facilities. The current rates and fees structure appear to be generally in line with market rates at other general aviation airports in the region. For the purposes of projecting future revenues, it is assumed that revenues will increase at an average rate of 4 percent annually, through the 20-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.

The current level of maintenance and operating expenses is considered to be reasonable based on the size of the facility and reflects the efficient use of staff and outside resources. It is anticipated that airport operating and maintenance expenses will generally increase at a rate slightly higher than inflation to reflect both normal cost increases and nominal increases in expenses that would attribute to increased activity. Additional maintenance expenses are also anticipated as the airfield continues to expand physically. Although the precise staging of facility expansion will depend on market demand and availability of funding the new facilities identified in the 20-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.

TABLE 7-3: AIRPORT REVENUE AND EXPENSE PROJECTIONS FOR OPERATIONS (DOES NOT INCLUDE CAPITAL SPENDING)

	2014	2015	2016	2017	2018	2019	2020
Airport Revenues							
Land Leases	$45,000	$46,575	$48,205	$49,892	$52,595	$54,435	$56,341
Building Leases	$ 28,200	$29,187	$30,209	$31,266	$32,360	$33,493	$34,665
FBO	$9,000	$9,315	$9,641	$9,978	$10,328	$10,689	$11,063
Tiedowns	$600	$621	$643	$665	$689	$713	$738
Fuel Flowage	$185,500	$191,993	$198,712	$205,667	$212,866	$220,316	$228,027
Interest Income	$300	$300	$300	$300	$300	$300	$300
Total Operating Revenues	**$268,600**	**$277,990**	**$287,709**	**$297,769**	**$309,136**	**$319,945**	**$331,133**
Airport Expenses							
Building Maintenance	$20,900	$21,527	$22,173	$22,838	$23,523	$24,229	$24,956
Grounds Maintenance	$7,600	$7,828	$8,063	$8,305	$8,554	$8,810	$9,075
Utilities	$9,500	$9,785	$10,079	$10,381	$10,692	$11,013	$11,343
Personnel Services	$14,700	$15,141	$15,595	$16,063	$16,545	$17,041	$17,553
Misc.	$35,700	$36,771	$37,874	$39,010	$40,181	$41,386	$42,628
Aviation Fuel Purchase	$170,500	$175,615	$180,883	$186,310	$191,899	$197,656	$203,586
Total Operating Expenses	**$258,900**	**$266,667**	**$274,667**	**$282,907**	**$291,394**	**$300,136**	**$309,140**

	2021	2022	2023	2024	2025	2026	2027
Airport Revenues							
Land Leases	$58,313	$60,353	$63,455	$65,676	$67,974	$70,353	$72,816
Building Leases	$35,878	$37,134	$38,434	$39,779	$41,171	$42,612	$44,104
FBO	$11,451	$11,851	$12,266	$12,695	$13,140	$13,600	$14,076
Tiedowns	$763	$790	$818	$846	$876	$907	$938
Fuel Flowage	$236,008	$244,268	$252,817	$261,666	$270,824	$280,303	$290,114
Interest Income	$300	$300	$300	$300	$300	$300	$300
Total Operating Revenues	**$342,712**	**$354,697**	**$368,090**	**$380,962**	**$394,286**	**$408,075**	**$422,347**
Airport Expenses							
Building Maintenance	$25,704	$26,475	$27,270	$28,088	$28,930	$29,798	$30,692
Grounds Maintenance	$9,347	$9,627	$9,916	$10,214	$10,520	$10,836	$11,161
Utilities	$11,684	$12,034	$12,395	$12,767	$13,150	$13,545	$13,951
Personnel Services	$18,079	$18,622	$19,180	$19,756	$20,348	$20,959	$21,587
Misc.	$43,906	$45,224	$46,580	$47,978	$49,417	$50,900	$52,427
Aviation Fuel Purchase	$209,693	$215,984	$222,464	$229,138	$236,012	$243,092	$250,385
Total Operating Expenses	**$318,414**	**$327,967**	**$337,806**	**$347,940**	**$358,378**	**$369,129**	**$380,203**

	2028	2029	2030	2031	2032	2033	2034
Airport Revenues							
Land Leases	$76,388	$79,062	$81,829	$84,693	$87,657	$91,785	$94,998
Building Leases	$45,647	$47,245	$48,898	$50,610	$52,381	$54,215	$56,112
FBO	$14,568	$15,078	$15,606	$16,152	$16,717	$17,303	$17,908
Tiedowns	$971	$1,005	$1,040	$1,077	$1,114	$1,154	$1,194
Fuel Flowage	$300,268	$310,777	$321,654	$332,912	$344,564	$356,624	$369,106
Interest Income	$300	$300	$300	$300	$300	$300	$300
Total Operating Revenues	**$438,143**	**$453,467**	**$469,328**	**$485,744**	**$502,735**	**$521,380**	**$539,618**
Airport Expenses							
Building Maintenance	$31,613	$32,562	$33,538	$34,545	$35,581	$36,648	$37,748
Grounds Maintenance	$11,496	$11,841	$12,196	$12,562	$12,938	$13,327	$13,726
Utilities	$14,370	$14,801	$15,245	$15,702	$16,173	$16,658	$17,158
Personnel Services	$22,235	$22,902	$23,589	$24,297	$25,026	$25,777	$26,550
Misc.	$53,999	$55,619	$57,288	$59,007	$60,777	$62,600	$64,478
Aviation Fuel Purchase	$257,897	$265,633	$273,602	$281,811	$290,265	$298,973	$307,942
Total Operating Expenses	**$391,609**	**$403,358**	**$415,458**	**$427,922**	**$440,760**	**$453,983**	**$467,602**

Revenue Assumptions:

A. Land leases increase at 3.5% per year (inflation factor) with specific bumps for additional leases estimated one new conventional hangar every 5 years (see below). *These numbers may vary based on the actual size of future hangars and actual year of construction.*

1. (2018) New 65x70 foot hangar ground lease (initial revenue $956/yr. at current $.21sq/ft. lease rates).

2. (2023) New 65x70 foot hangar ground lease (initial revenue $989/yr. at future estimated $.217sq/ft. lease rates).

3. (2028) New 65x70 foot hangar ground lease (initial revenue $1024/yr. at future estimated $.225sq/ft. lease rates).

4. (2033) New 65x70 foot hangar ground lease (initial revenue $1060/yr. at future estimated $.232sq/ft. lease rates).

B. Building leases increase at 3.5% per year (inflation factor). No plans of any future City owned hangar buildings to be constructed in the next 20 years.

C. FBO income increase at 3.5% per year (inflation factor).

D. Tie-downs increase at 3.5% per year (inflation factor).

E. Fuel flowage increase at 3.5% per year (inflation factor).

F. Interest income remains flat at $300 per year (based off current interest income for 2013-2014).

Expense Assumptions:

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

B. No increase in airport staffing assumed.

Chapter 8 – Airport Layout Plan

Chapter 8 – Airport Layout Plan Drawings

Introduction

The options that were considered for the long-term development of Albany Municipal Airport resulted in the selection of a preferred alternative. The preferred alternative has been incorporated into the airport layout plan drawings, which are provided 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 – Runway 16 Inner Approach Surface / RPZ
- Sheet 7 – Runway 34 Inner Approach Surface / RPZ
- Sheet 8 – Runway 16 Approach Plan and Profile
- Sheet 9 – Runway 34 Approach Plan and Profile
- Sheet 10 – On-Airport Land Use Plan
- Sheet 11 –Off-Airport Land Use Plan
- Sheet 12 – 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 20-year capital improvement program contained in Chapter Seven. The ALP drawing set was submitted along with the draft final airport master plan report to Federal Aviation Administration (FAA) for review and approval. The drawings were reviewed and approved by the FAA Airports District Office (ADO) with additional review coordinated with other FAA offices (Flight Procedures, Flight Standards, etc.). The final ALP drawing set are signed by the City of Albany 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 local geographic information systems (GIS) to support land use planning, airport overlay zone mapping, etc.

A brief summary of the individual drawings is provided below:

AIRPORT DATA SHEET DRAWING

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

AIRPORT LAYOUT PLAN DRAWING

The Airport Layout Plan (ALP) drawing graphically depicts existing and future airfield facilities. The existing paved overruns at both ends of Runway 16/34 are recommended to be converted to displaced thresholds, would would increase usable runway length for certain operations. No other changes to Runway 16/34 are recommended in the current 20-year planning period.

Future facilities are color-coded (red) to distinguish them from existing facilities. Future facilities are represented in the airport master plan's 20-year capital improvement program (CIP) as individual projects or project groupings. Long term development reserves depicted on the ALP are also color coded (green). These items are intended to serve as placeholders or are provided for reference only.

TERMINAL AREA PLAN DRAWINGS

Terminal Area Plan drawing depicts the landside areas located on the west side of Runway 16/34 in additional detail. Recommended improvements include reconfigured/expanded aircraft parking apron, new hangar areas, fuel storage facilities, taxiway and taxiway improvements, and access roads.

FAR PART 77 AIRSPACE DRAWING

The FAR Part 77 Airspace drawing depicts the protected airspace defined for Runway 16/34 in Federal Air Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*. The airspace plan drawing depicts the five "imaginary surfaces" defined in FAR Part 77.25 including the primary, transitional, approach, horizontal and conical surfaces, previously described in Chapter Four. Part 77 surfaces should be free of built or terrain obstructions to the great extent possible. Objects that penetrate FAR Part 77 surfaces may require action to mark or remove depending on their severity, location and the feasibility of the action. The drawing includes a table of obstructions with recommended dispositions.

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

- **Runway 16/34 Approach Surfaces:** Extend 5,000 feet from the ends of the runway primary surface. The approach surfaces have a slope of 20:1 that represents the horizontal distance required for each increment of vertical rise. As noted in the alternatives analysis, the planned changes in runway configuration maintain the existing threshold locations (configured as displaced thresholds) to preserve existing approach clearances. Converting the existing paved overruns to usable runway increases overall runway length and shifts the FAR Part 77 approach surfaces outward, beginning 200 feet beyond the ends of the usable runway. As a result, there will be an increase in Part 77 approach surface penetrations. However, the displaced thresholds mitigate the obstructions by maintaining the current approach path for landing. Although the FAR Part 77 approach surfaces are not physically modified by the displaced thresholds, the desired clearance over obstructions is achieved by locating the physical landing point further down the runway.

- **Primary Surface:** Based on the visual approach standards for a utility runway, the primary surface is 250 feet wide and extends 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. For Runway 16/34, the future primary surface is 4059 feet long and 250 feet wide.

- **Runway 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.

RUNWAY APPROACH SURFACE PLAN AND PROFILE DRAWINGS

The Approach Surface drawings depict plan and profile views of the runway approach surfaces depicted in the FAR Part 77 airspace plan. 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 Part 77 Airspace Plan. The drawings also depict the threshold siting surfaces (TSS) that are used to mitigate obstructions to the Part 77 approach surfaces for Runway 16 and 34. The appropriate applications, dimensions and slope for the TSS are defined in FAA Advisory Circular (AC) 150/5300-13A (paragraph 303, section b.).

RUNWAY RPZ & INNER APPROACH SURFACE DRAWINGS

The Runway Protection Zone (RPZ) and Inner Approach Surface drawings depict detailed plan views of these areas and a profile view of the approach surface and threshold siting surface (when used). The drawings include obstruction data tables for items depicted on the drawing, using the same numbering identifiers from the overall Part 77 Airspace Plan and Approach Surface Plan and Profile drawings.

ON AND OFF AIRPORT LAND USE PLANS

The Airport Land Use Plan drawings depict existing land uses and zoning for the airport and its immediate vicinity. 20-year noise contours are depicted on the off-airport land use plan drawing. The noise contours reflect forecast airport activity for 2032 (see Chapter Six for additional information). The land areas surrounding the Airport are developed with light industrial and commercial land uses associated with the Interstate 5 (I-5) corridor and an urban setting. These land uses provide a buffer between airport operations and nearby residential land uses and other noise sensitive land uses (hospitals, churches, schools, etc.). The Airport and its immediate surroundings are located within the Albany city limits.

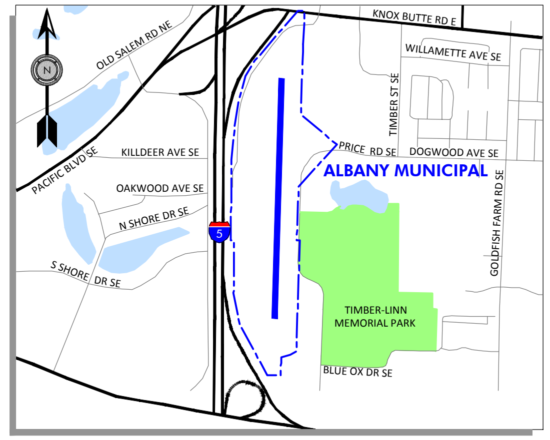
EXHIBIT "A" – AIRPORT PROPERTY PLAN

The Airport Property Plan drawing provides depicts all property owned by the City included in the airport. The drawing notes the form of ownership or control (fee simple, avigation easement, etc.) and the date of acquisition per FAA guidelines.

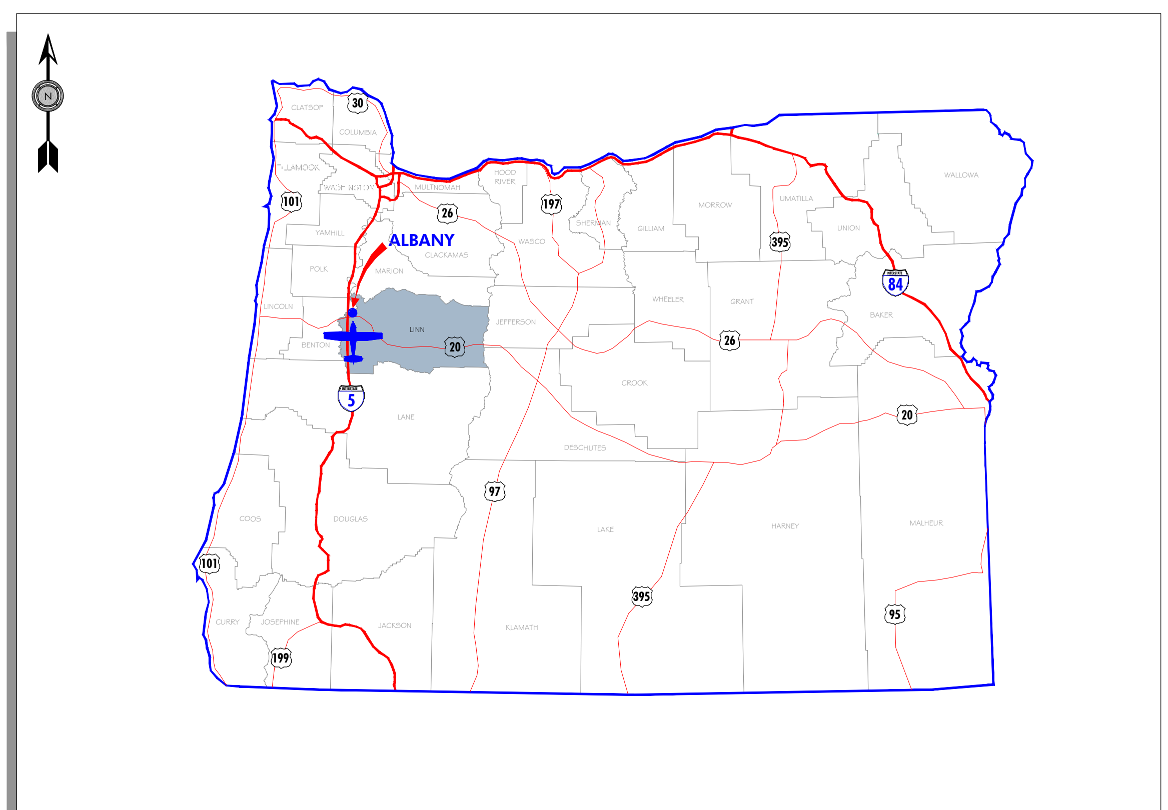
ALBANY MUNICIPAL AIRPORT (S12)
AIRPORT MASTER PLAN

ALBANY, OREGON
AIP NO. 3-41-0001-012-01
AIRPORT LAYOUT PLAN
OCTOBER 2014

AERIAL PHOTO



VICINITY MAP



LOCATION MAP

SHEET INDEX

CENTURY WEST
ENGINEERING CORPORATION
1020 S.W. Emkay Drive, Suite 100
Bend, Oregon 97702
541-322-8962 phone ♦ 541-382-2423 fax
www.centurywest.com

AIRPORT DATA TABLE

DESCRIPTION		EXISTING	FUTURE
AIRPORT ELEVATION (MSL)		225.91'	SAME
AIRPORT ACREAGE		92	SAME
ARP COORDINATES	LAT. LONG.	N 44° 38' 16.1325" W 123° 03' 34.015"	N 44° 38' 14.4519" W 123° 03' 34.0116"
MAGNETIC DECLINATION		15°36'47"E (3/2014) ANNUAL RATE OF CHANGE 9.2'W	SAME
MEAN MAX. DAILY TEMPERATURE		82° F	SAME
FAA IDENTIFIER		S12	SAME
DATUM		NAD 83/NGVD 88	SAME

RUNWAY DATA TABLE

	EXISTING CONDITIONS RUNWAY 16 - 34		FUTURE CONDITIONS RUNWAY 16 - 34	
RUNWAY LENGTH AND WIDTH	3004' X 75'		3659' X 75' (SEE NOTE 1)	
RUNWAY LIGHTING	MIRL		SAME	
RUNWAY PAVEMENT STRENGTH (IN 1000 LBS)	30 SW		SAME	
RUNWAY PAVEMENT TYPE	ASPHALT		SAME	
RUNWAY PERCENT WIND COVERAGE (12 MPH)	99% EST.		SAME	
RUNWAY PERCENT GRADIENT / MAXIMUM GRADE	0.017%		0.027%	
AIRPORT REFERENCE CODE (ARC)	B-I (SMALL)		SAME	
FAR PART 77 DESIGNATION	UTILITY - VISUAL		SAME	
NPIAS ROLE / SERVICE LEVEL	GENERAL AVIATION		SAME	
TERMINAL NAVAIDS	BEACON		SAME	
TAXIWAY LIGHTING	REFLECTORS		MITL	
TAXIWAY MARKING	VISUAL		SAME	
OFZ PENETRATION	RWY 16 - NO	RWY 34 - NO	RWY 16 - NO	RWY 34 - NO

RUNWAY DATA TABLE

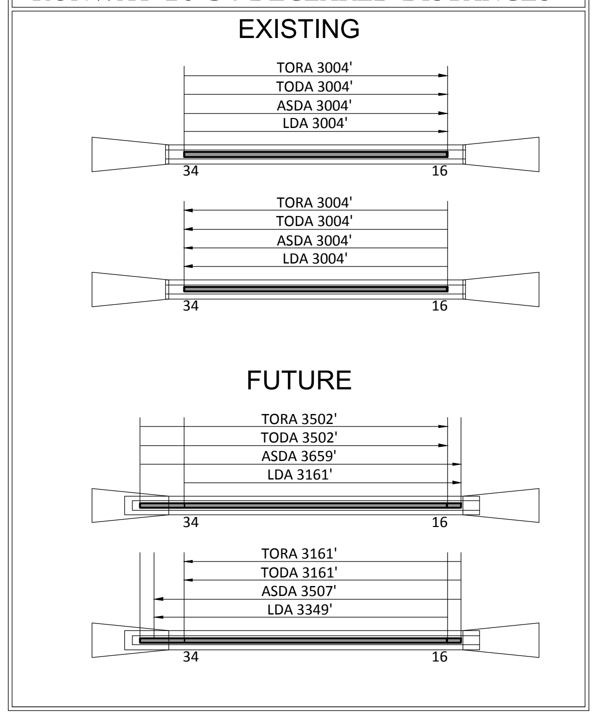
	EXISTING CONDITIONS	EXISTING STANDARD	FUTURE CONDITIONS	FUTURE STANDARD
RUNWAY SAFETY AREA LENGTH AND WIDTH LENGTH BEYOND RUNWAY END	3484' X 120' 240'	3484' X 120' 240'	3991' X 120' 92'(34) - 240'(16)	3991' X 120' 92'(34) - 240'(16)
OBJECT FREE AREA LENGTH AND WIDTH LENGTH BEYOND RUNWAY END	3484' X 250' 300'	3484' X 250' 300'	3991' X 250' 92'(34) - 240'(16)	3991' X 250' 92'(34) - 240'(16)
OBSTACLE FREE ZONE LENGTH AND WIDTH LENGTH BEYOND RUNWAY END	3404' X 250' 200'	3404' X 250' 200'	3951' X 250' 92'(34) - 200'(16)	3951' X 250' 92'(34) - 200'(16)

		EXISTING CONDITIONS		FUTURE CONDITIONS	
RUNWAY END		16	34	16	34
RUNWAY APPROACH CATEGORY		VISUAL	VISUAL	VISUAL	VISUAL
RUNWAY APPROACH SLOPE	PART 77 REQUIRED	20:1	20:1	<20:1(SEE NOTE 2)	<20:1(SEE NOTE 2)
	ACTUAL	20:1	20:1	20:1(SEE NOTE 2)	20:1(SEE NOTE 2)
APPROACH VISIBILITY MINIMUMS		≧ 1 MILE	≧ 1 MILE	≧ 1 MILE	≧ 1 MILE
RUNWAY MARKINGS		VISUAL	VISUAL	VISUAL	VISUAL
RUNWAY END COORDINATES	LAT. LONG.	N 44° 38' 30.965" W 123° 03' 34.043"	N 44° 38' 01.301" W 123° 03' 33.987"	N 44° 38' 32.516" W 123° 03' 34.046"	N 44° 37' 56.387" W 123° 03' 33.977"
INSTRUMENTATION AND APPROACH AIDS		GPS	GPS	SAME	SAME
VISUAL APPROACH AIDS		REIL; VASI 4L	REIL; VASI 4L	REIL; PAPI	REIL; PAPI
CRITICAL AIRCRAFT (ARC)		BE-58		BE-58	
WINGSPAN		<49 FEET		SAME	
WEIGHT		≤12,500 LBS		SAME	
APPROACH SPEED		<121 KNOTS		SAME	
LENGTH OF HAUL		<500 NAUTICAL MILES		SAME	

NON STANDARD CONDITIONS

NO.	ITEM	DESCRIPTION	DISPOSITION
1	TAXILANE OFA	LESS THAN STANDARD CLEARANCE	RECONFIGURE APRON
2	TAXILANE OFA	LESS THAN STANDARD CLEARANCE	RELOCATE TAXILANE
3	TAXILANE OFA	LESS THAN STANDARD CLEARANCE	NONE
4	TAXILANE SAFETY AREA	NO TSA BEYOND BRIDGE EDGE	MODIFY / CLOSE
5	OFA/OFZ/RSA	AREA PROVIDED BEYOND RUNWAY ENDS LESS THAN ADG I STANDARD	DISPLACED THRESHOLDS AND DECLARED DISTANCES USED TO PROVIDE STANDARD DIMENSIONS BEYOND RUNWAY ENDS FOR SPECIFIC OPERATIONS

RUNWAY 16-34 DECLARED DISTANCES



DECLARED DISTANCE NOTES:

1. FUTURE TORA AND TODA LENGTHS DETERMINED BY MAINTAINING RPZ LOCATIONS AT OPPOSITE END OF RUNWAY, PER FAA GUIDANCE ON INCOMPATIBLE LAND USES WITHIN RPZ's.

2. FUTURE LDA AND ASDA LENGTHS DETERMINED BY ADG I STANDARD RSA AND OFA BEING PROVIDED BEYOND END OF LDA AND ASDA.

NOTES:

1. FUTURE RUNWAY TO BE CONFIGURED WITH DISPLACED THRESHOLDS AT BOTH ENDS. EXISTING RUNWAY THRESHOLD LOCATIONS TO BE MAINTAINED FOR OBSTRUCTION CLEARANCE (20:1). RUNWAY LENGTHS AVAILABLE FOR TAKEOFF AND LANDING WILL BE DETERMINED BY DECLARED DISTANCES (TO BE PUBLISHED IN A/FD), AND WILL BE LESS THAN FULL RUNWAY LENGTH LISTED.

2. FAR PART 77 PRIMARY AND APPROACH SURFACES ARE DEFINED BY THE ULTIMATE ENDS OF USEABLE RUNWAY 20:1 APPROACH CLEARANCE MAINTAINED FOR EXISTING RUNWAY THRESHOLDS (CONVERTED TO DISPLACED THRESHOLDS) AND THRESHOLD SITING SURFACES.

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BEND OFFICE
1020 SW EMKAY DRIVE #100
BEND, OR 97702
541.322.8962
541.382.2423 (FAX)
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ALBANY MUNICIPAL AIRPORT

AIRPORT DATA SHEET

FIGURE NO.
-

BUILDING / FACILITY KEY

	DESCRIPTION
1	TERMINAL / FBO APRON
2	SMALL AIRCRAFT TIEDOWN APRON (EXISTING)
3	FBO / HANGAR (CITY OWNED)
4	CITY OWNED CONVENTIONAL HANGAR (EXISTING)
5	TENANT OWNED CONVENTIONAL HANGAR (EXISTING)
6	CITY OWNED T-HANGAR (EXISTING)
7	TENANT OWNED T-HANGAR (EXISTING)
8	AVIATION FUEL STORAGE / SELF FUELING AREA
9	CITY MAINTENANCE BUILDING
10	T-HANGAR / EXECUTIVE HANGAR (FUTURE)
11	CONVENTIONAL HANGAR (FUTURE)
12	AWOS (FUTURE)
13	LINN COUNTY FAIR & EXPO CENTER
14	AIRCRAFT APRON (EXISTING)
15	AIRCRAFT PARKING APRON (FUTURE)
16	HELICOPTER PARKING POSITION (FUTURE)
17	AIRFIELD ELECTRICAL BUILDING
18	AIRCRAFT FUEL APRON (FUTURE)
19	AERONAUTICAL USE RESERVE

NOTES:

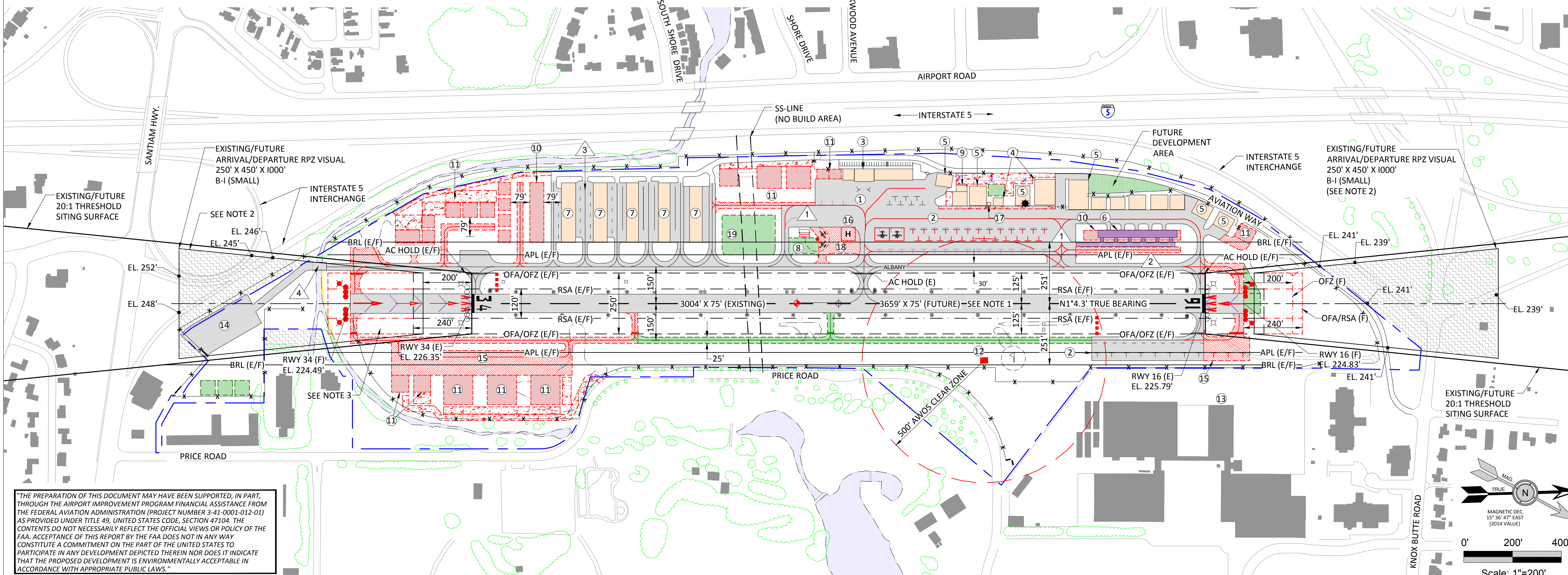
1. FUTURE RUNWAY LENGTHS AVAILABLE FOR TAKEOFF AND LANDING WILL BE LIMITED BY DECLARED DISTANCES (TO BE PUBLISHED IN A/FD). ADDITIONAL USEABLE RUNWAY PROVIDED BY BOTH ENDS TO BE CONFIGURED WITH DISPLACED THRESHOLDS.
2. THE EXISTING ARRIVAL/DEPARTURE RUNWAY PROTECTION ZONES (RPZ) FOR RUNWAY 16 AND 34 WILL BE MAINTAINED IN THEIR CURRENT LOCATIONS. THE END OF USEABLE RUNWAY FOR TAKEOFF WILL BE DETERMINED BY THE LOCATION OF THE EXISTING DEPARTURE RPZ FOR EACH RUNWAY END. DEPARTURE RPZ CONFIGURATIONS DETERMINED BY USE OF DECLARED DISTANCES TO MITIGATE UNACCEPTABLE INCOMPATIBLE LAND USES (PER AC 150/5300-13A)
3. RUNWAY 16 LDA AND ASDA LIMITED TO LESS THAN FULL RUNWAY PAVEMENT DUE TO RSA REQUIREMENT (240 FEET) BEYOND LDA AND ASDA.

NON STANDARD CONDITIONS

NO.	ITEM	DESCRIPTION	DISPOSITION
1	TAXILANE OFA	LESS THAN STANDARD CLEARANCE	RECONFIGURE APRON
2	TAXILANE OFA	LESS THAN STANDARD CLEARANCE	RELOCATE TAXILANE
3	TAXILANE OFA	LESS THAN STANDARD CLEARANCE	NONE
4	TAXILANE SAFETY AREA	NO TSA BEYOND BRIDGE EDGE	MODIFY / CLOSE
5	OFA/OFZ/RSA	AREA PROVIDED BEYOND RUNWAY ENDS LESS THAN ADG I STANDARD	DISPLACED THRESHOLDS AND DECLARED DISTANCES USED TO PROVIDE STANDARD DIMENSIONS BEYOND RUNWAY ENDS FOR SPECIFIC OPERATIONS

LEGEND

	EXISTING	FUTURE
BUILDINGS		
AIRFIELD PAVEMENT		
BUILDING RESTRICTION LINE (BRL)	BRL (E)	BRL (F)
AIRCRAFT PARKING LINE (APL)	APL (E)	APL (F)
AIRPORT PROPERTY LINE		
RUNWAY SAFETY AREA (RSA)		
OBJECT FREE AREA (OFA)		
OBSTACLE FREE ZONE (OFZ)		
TAXIWAY OBJECT FREE AREA (TOFA)		
RUNWAY PROTECTION ZONE (RPZ)		
GROUND CONTOURS	10'	SAME
AIRPORT REFERENCE POINT (ARP)		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
VISUAL GUIDANCE INDICATORS	(VASI)	(PAPI)
WIND INDICATOR		
SEGMENTED CIRCLE WIND INDICATOR		
FENCE		
BEACON		
THRESHOLD LIGHTS		
MEDIUM INTENSITY RUNWAY LIGHTS (MIRL)		
ACCESS ROAD/VEHICLE PARKING	N/A	
AVIGATION EASEMENT		
DEVELOPMENT RESERVE	N/A	
TO BE REMOVED		N/A



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BEND OFFICE
1020 SW EMKAY DRIVE #100
BEND, OR 97702
541.322.8962
541.382.2423 (FAX)
WWW.CENTURYWEST.COM

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ALBANY MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN

FIGURE NO. -
SHEET NO. 3 OF 12

BUILDING / FACILITY KEY

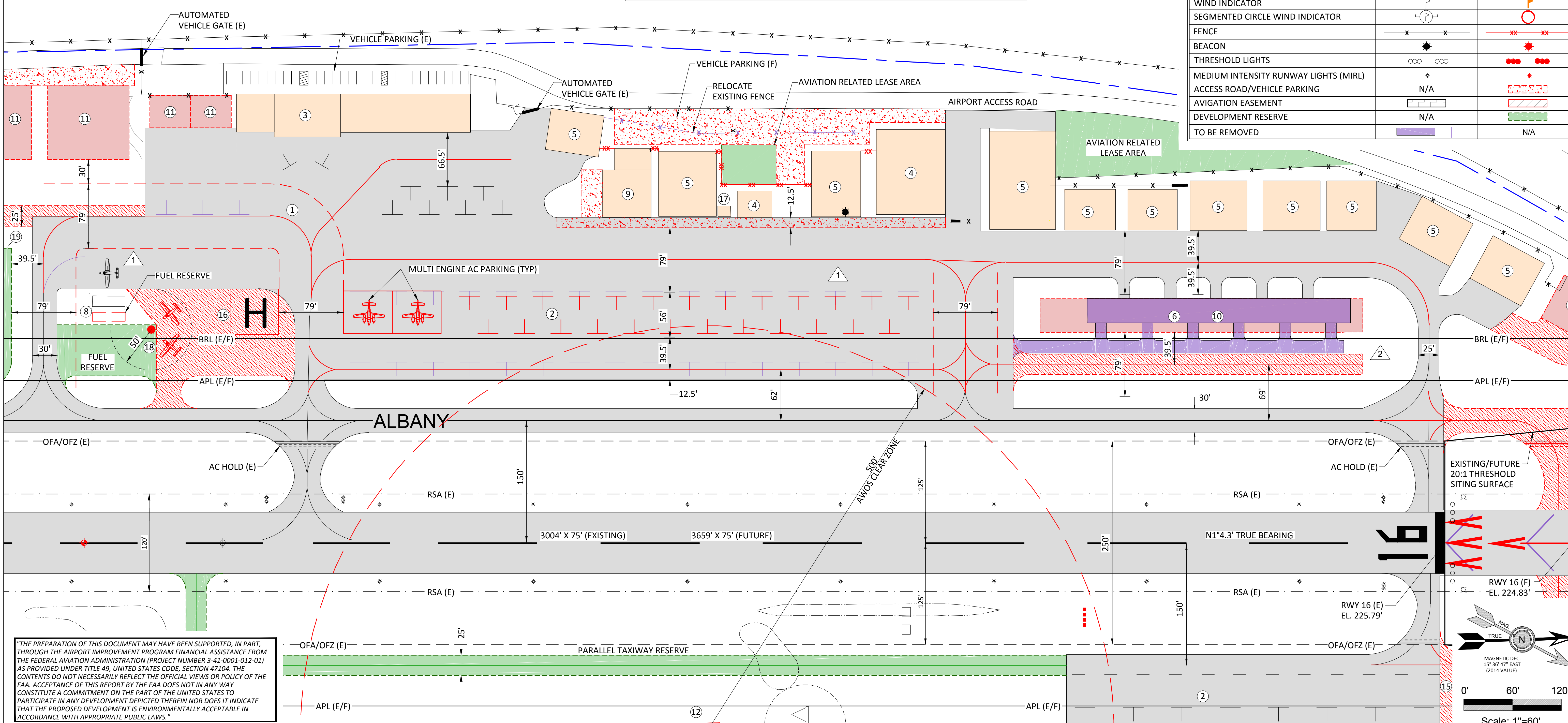
	DESCRIPTION		DESCRIPTION
1	TERMINAL / FBO APRON	11	CONVENTIONAL HANGAR (FUTURE)
2	SMALL AIRCRAFT TIEDOWN APRON (EXISTING)	12	AWOS (FUTURE)
3	FBO / HANGAR (CITY OWNED)	13	LINN COUNTY FAIR & EXPO CENTER
4	CITY OWNED CONVENTIONAL HANGAR (EXISTING)	14	AIRCRAFT APRON (EXISTING)
5	TENANT OWNED CONVENTIONAL HANGAR (EXISTING)	15	AIRCRAFT PARKING APRON (FUTURE)
6	CITY OWNED T-HANGAR (EXISTING)	16	HELICOPTER PARKING POSITION (FUTURE)
7	TENANT OWNED T-HANGAR (EXISTING)	17	AIRFIELD ELECTRICAL BUILDING
8	AVIATION FUEL STORAGE / SELF FUELING AREA	18	AIRCRAFT FUEL APRON (FUTURE)
9	CITY MAINTENANCE BUILDING	19	AERONAUTICAL USE RESERVE
10	T-HANGAR / EXECUTIVE HANGAR (FUTURE)		

NON STANDARD CONDITIONS

NO.	ITEM	DESCRIPTION	DISPOSITION
1	TAXILANE OFA	LESS THAN STANDARD CLEARANCE	RECONFIGURE APRON
2	TAXILANE OFA	LESS THAN STANDARD CLEARANCE	RELOCATE TAXILANE
3	TAXILANE OFA	LESS THAN STANDARD CLEARANCE	NONE
4	TAXILANE SAFETY AREA	NO TSA BEYOND BRIDGE EDGE	MODIFY / CLOSE
5	OFA/OFZ/RSA	AREA PROVIDED BEYOND RUNWAY ENDS LESS THAN ADG I STANDARD	DISPLACED THRESHOLDS AND DECLARED DISTANCES USED TO PROVIDE STANDARD DIMENSIONS BEYOND RUNWAY ENDS FOR SPECIFIC OPERATIONS

LEGEND

	EXISTING	FUTURE
BUILDINGS		
AIRFIELD PAVEMENT		
BUILDING RESTRICTION LINE (BRL)	BRL (E)	BRL (F)
AIRCRAFT PARKING LINE (APL)	APL (E)	APL (F)
AIRPORT PROPERTY LINE		
RUNWAY SAFETY AREA (RSA)		
OBJECT FREE AREA (OFA)		
OBSTACLE FREE ZONE (OFZ)		
TAXIWAY OBJECT FREE AREA (TOFA)		
RUNWAY PROTECTION ZONE (RPZ)		
GROUND CONTOURS	10'	SAME
AIRPORT REFERENCE POINT (ARP)		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
VISUAL GUIDANCE INDICATORS	(VASI)	(PAPI)
WIND INDICATOR		
SEGMENTED CIRCLE WIND INDICATOR		
FENCE		
BEACON		
THRESHOLD LIGHTS		
MEDIUM INTENSITY RUNWAY LIGHTS (MIRL)		
ACCESS ROAD/VEHICLE PARKING	N/A	
AVIGATION EASEMENT		
DEVELOPMENT RESERVE	N/A	
TO BE REMOVED		N/A



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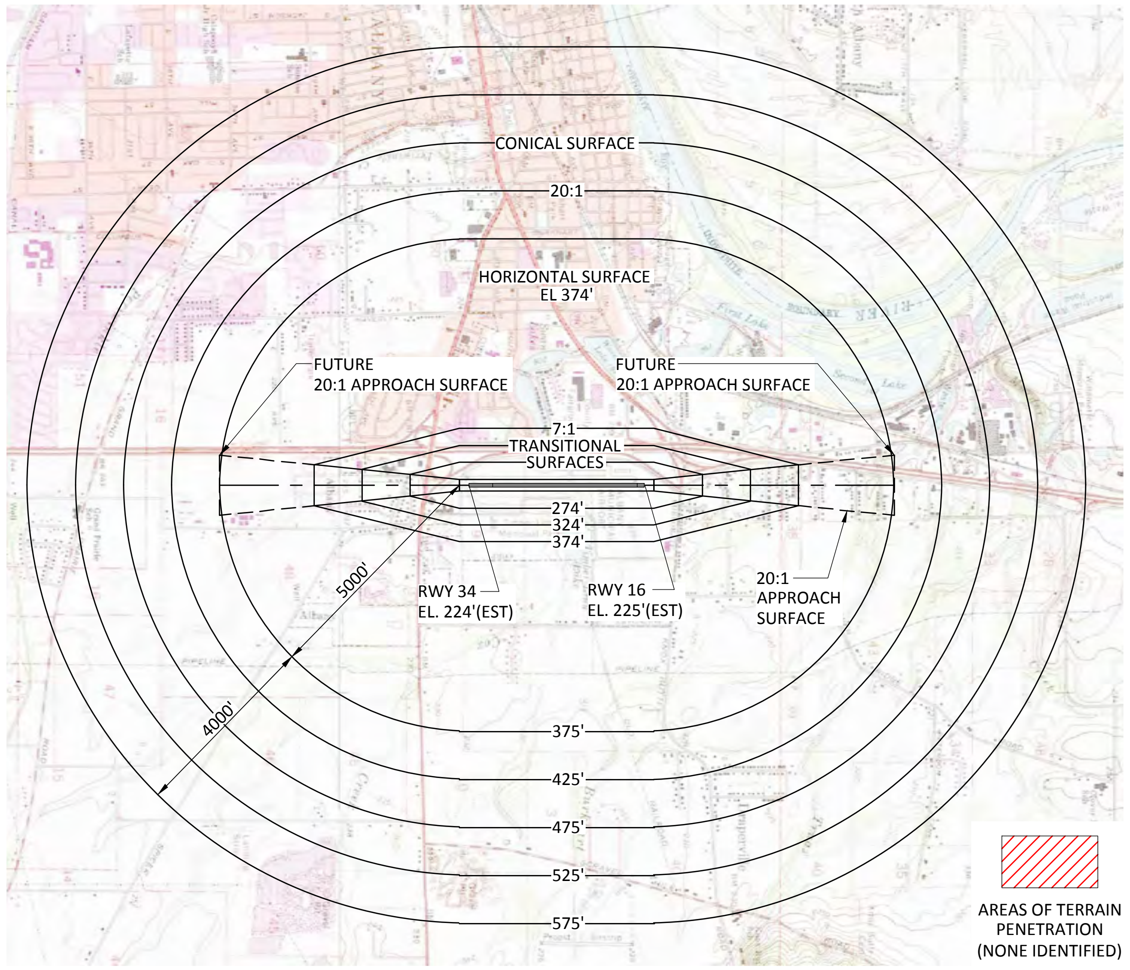
ALBANY MUNICIPAL AIRPORT

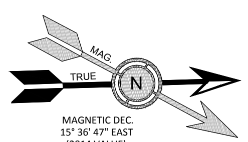
TERMINAL AREA PLAN

FIGURE NO.
-

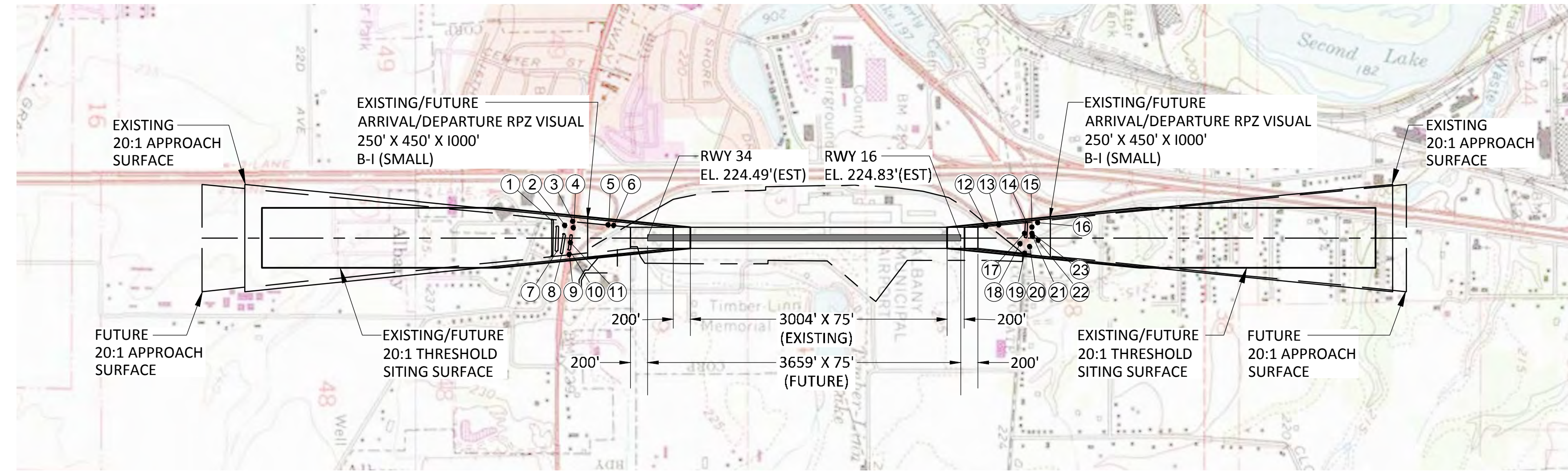
SHEET NO.
4 OF 12



FAR PART 77 PLAN VIEW

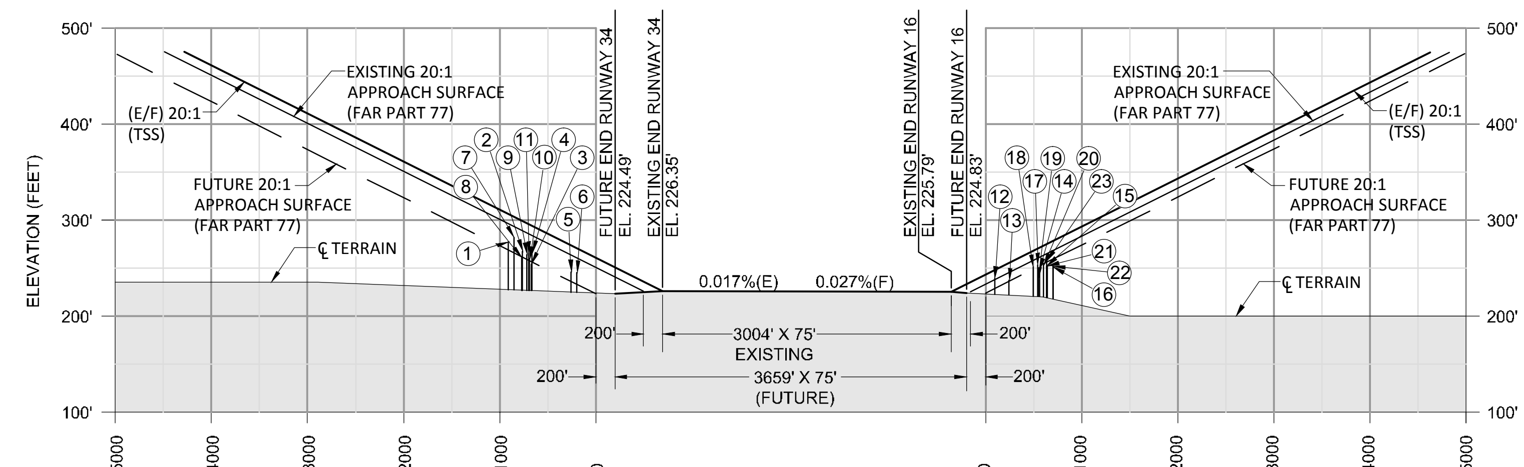


0' 2000' 4000'
Scale: 1"=2000'



RUNWAY 16-34 PLAN VIEW

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



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

RUNWAY 16-34 PROFILE VIEW

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

FUTURE RUNWAY TO BE CONFIGURED WITH DISPLACED THRESHOLDS AT BOTH ENDS. EXISTING RUNWAY THRESHOLD LOCATIONS TO BE MAINTAINED FOR OBSTRUCTION CLEARANCE (20:1). RUNWAY LENGTHS AVAILABLE FOR TAKEOFF AND LANDING WILL BE DETERMINED BY DECLARED DISTANCES (TO BE PUBLISHED IN A/FD), AND WILL BE LESS THAN FULL RUNWAY LENGTH LISTED.

RUNWAY 16/34

FAR PART 77 DIMENSIONAL STANDARDS

RUNWAY ULTIMATE LENGTH = 3659' (DECLARED DIST.)
RUNWAY TYPE = B-I (SMALL)
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. FUTURE FAR PART 77 APPROACH DEPICTED; EXISTING THRESHOLD LOCATIONS MAINTAINED TO PROVIDE APPROACH OBSTRUCTION CLEARANCE.

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OBSTRUCTION CHART

NO.	ITEM	PART 77 SURFACE	MSL ELEV (EST.)	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (ESTIMATED)	AIRPORT PROPERTY	DISPOSITION
1	POWER POLES/LINES	APPROACH (RWY 34)	277'±	0' - 217' L&R	1,112'	8.5'	NO	DISP. THRESHOLD/TSS
2	STREET/TRAFFIC LIGHT	APPROACH (RWY 34)	267'	145' L	963'	6'	NO	DISP. THRESHOLD/TSS
3	SE SANTIAM HWY	APPROACH (RWY 34)	254'	193' L	873'	NONE	NO	DISP. THRESHOLD/TSS
4	STREET/TRAFFIC LIGHT	APPROACH (RWY 34)	266'	117' L	863'	10'	NO	DISP. THRESHOLD/TSS
5	INTERSTATE 5 OFF-RAMP	APPROACH (RWY 34)	246'	151' L	457'	10'	NO	DISP. THRESHOLD/TSS
6	INTERSTATE 5 ON-RAMP	APPROACH (RWY 34)	245'	145' L	396'	12'	NO	DISP. THRESHOLD/TSS
7	TREES	APPROACH (RWY 34)	282'±	135' L - 159' R	1052' - 1062'	16.5'±	NO	DISP. THRESHOLD/TSS
8	TREES	APPROACH (RWY 34)	261'±	45' L - 187' R	973' - 1004'	NONE	NO	DISP. THRESHOLD/TSS
9	STREET LIGHT	APPROACH (RWY 34)	264'	194' R	915'	5'	NO	DISP. THRESHOLD/TSS
10	TREES	APPROACH (RWY 34)	260'±	33' L - 145' R	889' - 913'	2.5'	NO	DISP. THRESHOLD/TSS
11	STREET LIGHT	APPROACH (RWY 34)	265'	57' R	900'	7'	NO	DISP. THRESHOLD/TSS
12	AIRPORT ACCESS ROAD	APPROACH (RWY 16)	239'	135' R	296'	10'	YES	DISP. THRESHOLD/TSS

OBSTRUCTION CHART

NO.	ITEM	PART 77 SURFACE	MSL ELEV (EST.)	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (ESTIMATED)	AIRPORT PROPERTY	DISPOSITION
13	INTERSTATE 5 OFF-RAMP	APPROACH (RWY 16)	237'	150' R	444'	1'	NO	DISP. THRESHOLD/TSS
14	TREES	APPROACH (RWY 16)	248'±	0' - 179' R	759'	NONE	NO	DISP. THRESHOLD/TSS
15	STREET LIGHT	APPROACH (RWY 16)	252'	126' R	832'	NONE	NO	DISP. THRESHOLD/TSS
16	STREET LIGHT	APPROACH (RWY 16)	251'	177' R	899'	NONE	NO	DISP. THRESHOLD/TSS
17	STREET LIGHT	APPROACH (RWY 16)	253'	48' R	743'	2'	NO	DISP. THRESHOLD/TSS
18	STREET LIGHT	APPROACH (RWY 16)	251'	69' L	694'	2'	NO	DISP. THRESHOLD/TSS
19	E KNOX BUTTE ROAD	APPROACH (RWY 16)	238'	180' L	747'	NONE	NO	DISP. THRESHOLD/TSS
20	STREET LIGHT	APPROACH (RWY 16)	253'	104' L	804'	NONE	NO	DISP. THRESHOLD/TSS
21	STREET LIGHT	APPROACH (RWY 16)	252'	19' R	840'	NONE	NO	DISP. THRESHOLD/TSS
22	STREET LIGHT	APPROACH (RWY 16)	252'	29' L	903'	NONE	NO	DISP. THRESHOLD/TSS
23	TREE	APPROACH (RWY 16)	257'	53' R	835'	1'	NO	DISP. THRESHOLD/TSS

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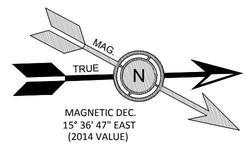
ALBANY MUNICIPAL AIRPORT

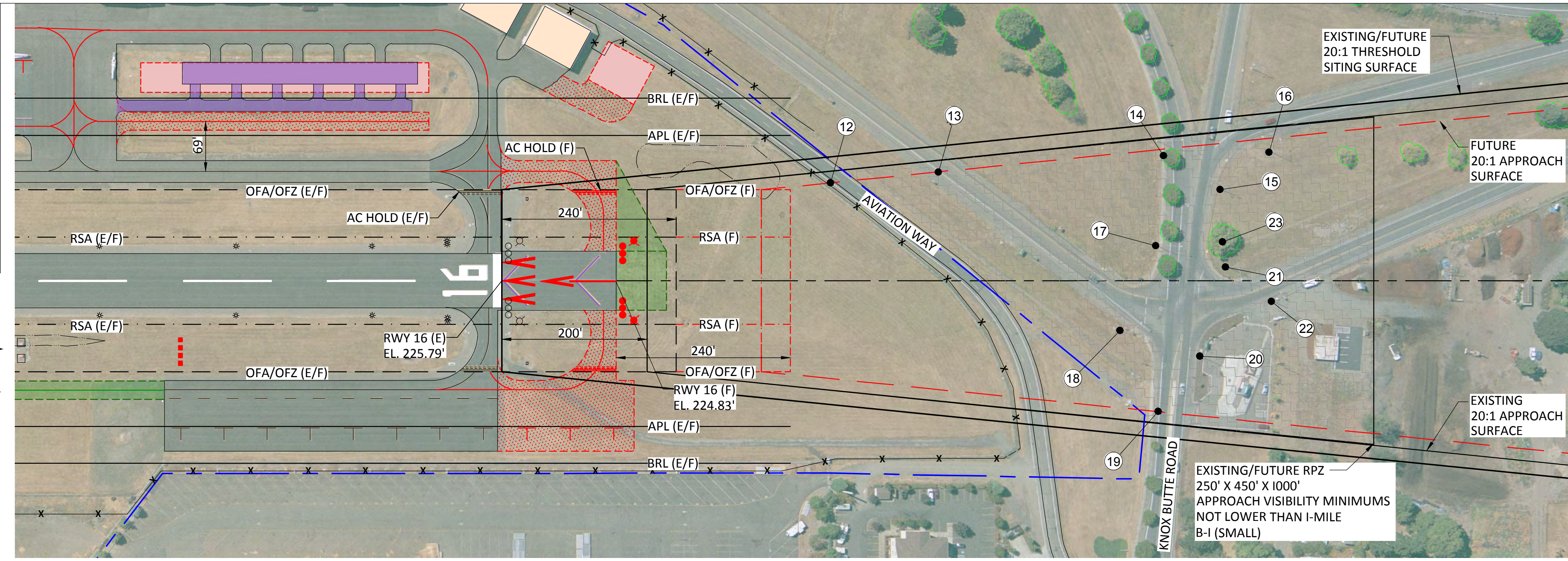
AIRPORT AIRSPACE PLAN (FAR PART 77)

FIGURE NO.
-

OBSTRUCTION CHART

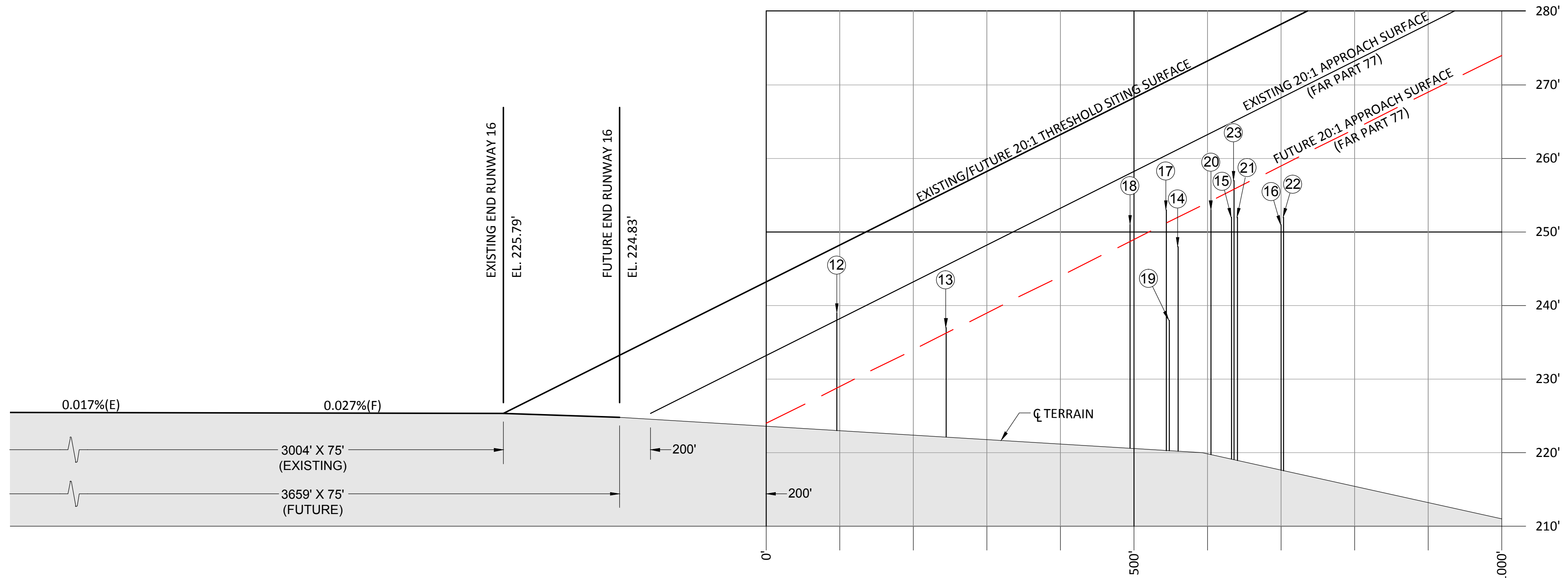
NO.	ITEM	PART 77 SURFACE	MSL ELEV (EST.)	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (ESTIMATED)	AIRPORT PROPERTY	DISPOSITION
12	AIRPORT ACCESS ROAD	APPROACH (RWY 16)	239'	135' R	296'	10'	YES	DISP. THRESHOLD/TSS
13	INTERSTATE 5 OFF-RAMP	APPROACH (RWY 16)	237'	150' R	444'	1'	NO	DISP. THRESHOLD/TSS
14	TREES	APPROACH (RWY 16)	248'±	0' - 179' R	759'	NONE	NO	DISP. THRESHOLD/TSS
15	STREET LIGHT	APPROACH (RWY 16)	252'	126' R	832'	NONE	NO	DISP. THRESHOLD/TSS
16	STREET LIGHT	APPROACH (RWY 16)	251'	177' R	899'	NONE	NO	DISP. THRESHOLD/TSS
17	STREET LIGHT	APPROACH (RWY 16)	253'	48' R	743'	2'	NO	DISP. THRESHOLD/TSS
18	STREET LIGHT	APPROACH (RWY 16)	251'	69' L	694'	2'	NO	DISP. THRESHOLD/TSS
19	E KNOX BUTTE ROAD	APPROACH (RWY 16)	238'	180' L	747'	NONE	NO	DISP. THRESHOLD/TSS
20	STREET LIGHT	APPROACH (RWY 16)	253'	104' L	804'	NONE	NO	DISP. THRESHOLD/TSS
21	STREET LIGHT	APPROACH (RWY 16)	252'	19' R	840'	NONE	NO	DISP. THRESHOLD/TSS
22	STREET LIGHT	APPROACH (RWY 16)	252'	29' L	903'	NONE	NO	DISP. THRESHOLD/TSS
23	TREE	APPROACH (RWY 16)	257'	53' R	835'	1'	NO	DISP. THRESHOLD/TSS





RUNWAY 16 PLAN VIEW

0' 100' 200'
Scale: 1"=100'



0' 10' 20'
Vertical Scale: 1"=10'

RUNWAY 16 PROFILE VIEW

0' 100' 200'
Horizontal Scale: 1"=100'

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ENGINEERING CORPORATION

BEND OFFICE
1020 SW EMKAY DRIVE #100
BEND, OR 97702
541.322.8962
541.382.2423 (FAX)
WWW.CENTURYWEST.COM

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DATE: OCTOBER 2014		PROJECT NO: 12431002.01	

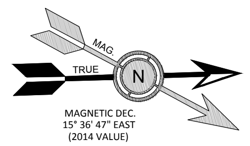
ALBANY MUNICIPAL AIRPORT

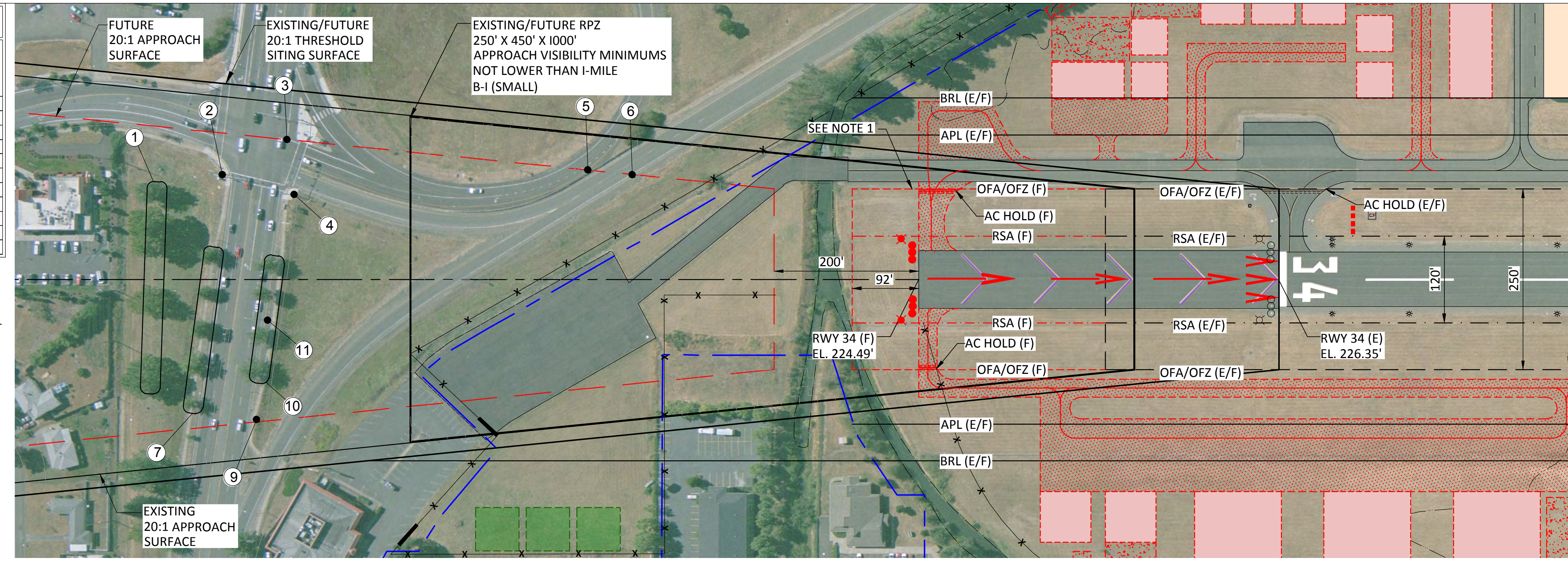
RUNWAY 16 RPZ AND INNER APPROACH PLAN AND PROFILE

FIGURE NO.
-

OBSTRUCTION CHART

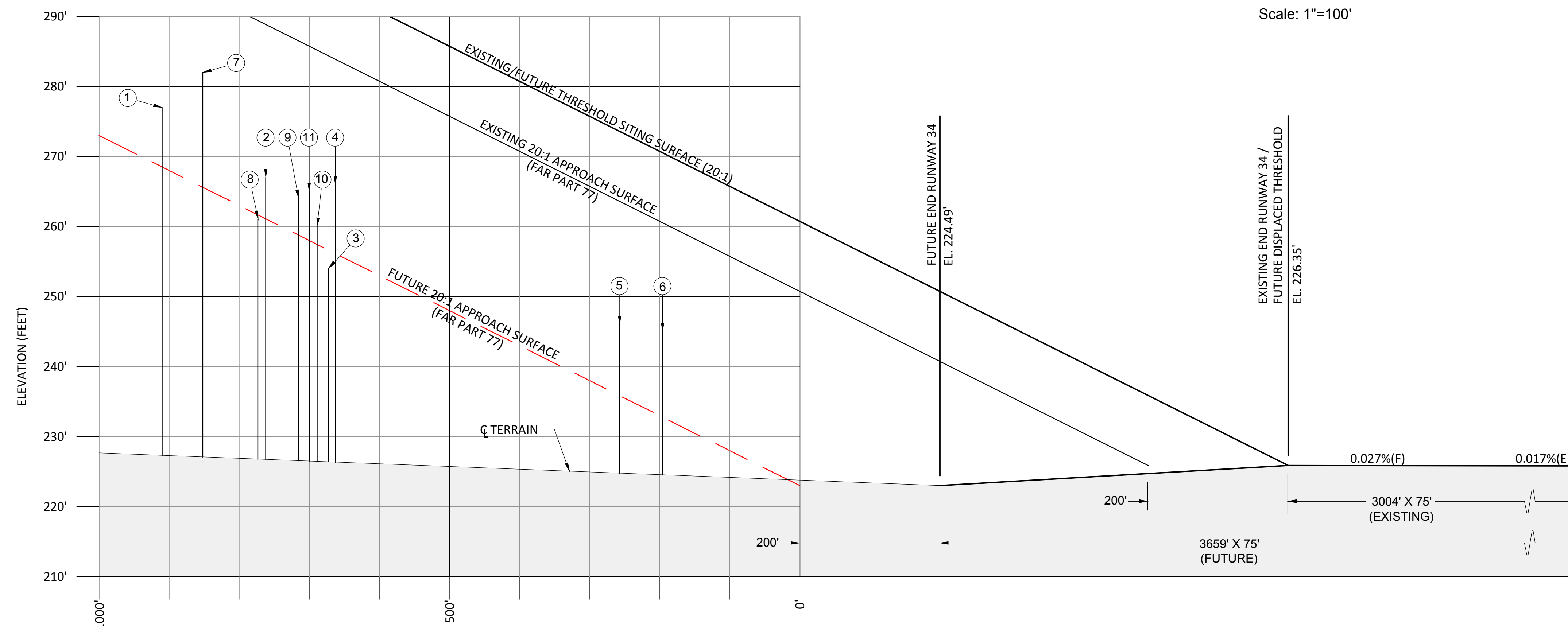
NO.	ITEM	PART 77 SURFACE	MSL ELEV (EST.)	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (ESTIMATED)	AIRPORT PROPERTY	DISPOSITION
1	POWER POLES/LINES	APPROACH (RWY 34)	277'±	0' - 217' L&R	1,112'	8.5'	NO	DISP. THRESHOLD/TSS
2	STREET/TRAFFIC LIGHT	APPROACH (RWY 34)	267'	145' L	963'	6'	NO	DISP. THRESHOLD/TSS
3	SE SANTIAM HWY	APPROACH (RWY 34)	254'	193' L	873'	NONE	NO	DISP. THRESHOLD/TSS
4	STREET/TRAFFIC LIGHT	APPROACH (RWY 34)	266'	117' L	863'	10'	NO	DISP. THRESHOLD/TSS
5	INTERSTATE 5 OFF-RAMP	APPROACH (RWY 34)	246'	151' L	457'	10'	NO	DISP. THRESHOLD/TSS
6	INTERSTATE 5 ON-RAMP	APPROACH (RWY 34)	245'	145' L	396'	12'	NO	DISP. THRESHOLD/TSS
7	TREES	APPROACH (RWY 34)	282'±	135' L - 159' R	1052' - 1062'	16.5'±	NO	DISP. THRESHOLD/TSS
8	TREES	APPROACH (RWY 34)	261'±	45' L - 187' R	973' - 1004'	NONE	NO	DISP. THRESHOLD/TSS
9	STREET LIGHT	APPROACH (RWY 34)	264'	194' R	915'	5'	NO	DISP. THRESHOLD/TSS
10	TREES	APPROACH (RWY 34)	260'±	33' L - 145' R	889' - 913'	2.5'	NO	DISP. THRESHOLD/TSS
11	STREET LIGHT	APPROACH (RWY 34)	265'	57' R	900'	7'	NO	DISP. THRESHOLD/TSS





RUNWAY 34 PLAN VIEW

0' 100' 200'
Scale: 1"=100'



RUNWAY 34 PROFILE VIEW

0' 10' 20'
Vertical Scale: 1"=10'

0' 100' 200'
Horizontal Scale: 1"=100'

NOTES:

1. THE PORTION OF THE RUNWAY SAFETY AREA (RSA), OBJECT FREE AREA (OFA), AND OBSTACLE FREE ZONE (OFZ) LOCATED ALONG THE SIDES OF THE RUNWAY, SOUTH OF THE RUNWAY 34 THRESHOLD (FUTURE DISPLACED THRESHOLD) IS AVAILABLE FOR TAKEOFF ON RUNWAY 34; ONLY 240' OF RSA AND OFA AND 200 FEET OF OFZ LOCATED SOUTH OF RUNWAY 34 THRESHOLD IS AVAILABLE FOR RUNWAY 16 TAKEOFF CALCULATIONS. THE SOUTHERN SECTION OF THE RSA BEYOND RUNWAY PAVEMENT IS LIMITED BY TERRAIN.

2. FUTURE DECLARED DISTANCES FOR TAKEOFF (TORA, TODA) ON BOTH RUNWAY ENDS ARE LIMITED BY THE CURRENT LOCATION OF THE DEPARTURE RPZ IN ORDER TO CONFORM TO FAA INTERIM GUIDANCE ON INCOMPATIBLE LAND USES WITHIN RPZ'S. A FUTURE CHANGE IN FAA GUIDANCE/RPZ POLICY MAY ALLOW CHANGES TO RPZ LOCATIONS AND AN INCREASE IN TAKEOFF DECLARED DISTANCES.

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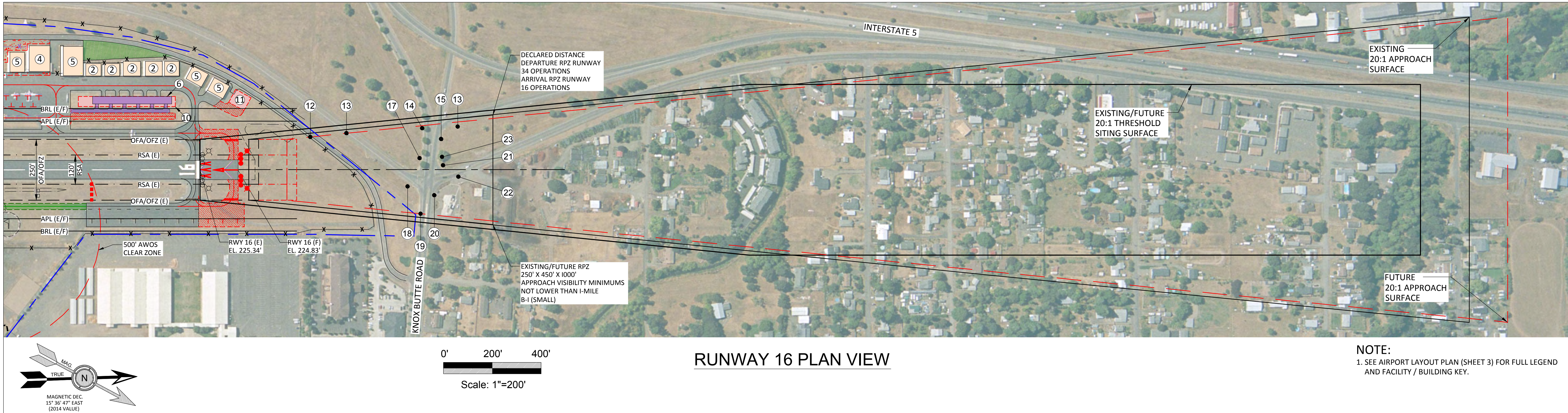
DM	JLS	WMR	AS SHOWN

DATE: OCTOBER 2014
PROJECT NO: 12431002.01

ALBANY MUNICIPAL AIRPORT

RUNWAY 34 RPZ AND INNER APPROACH PLAN AND PROFILE

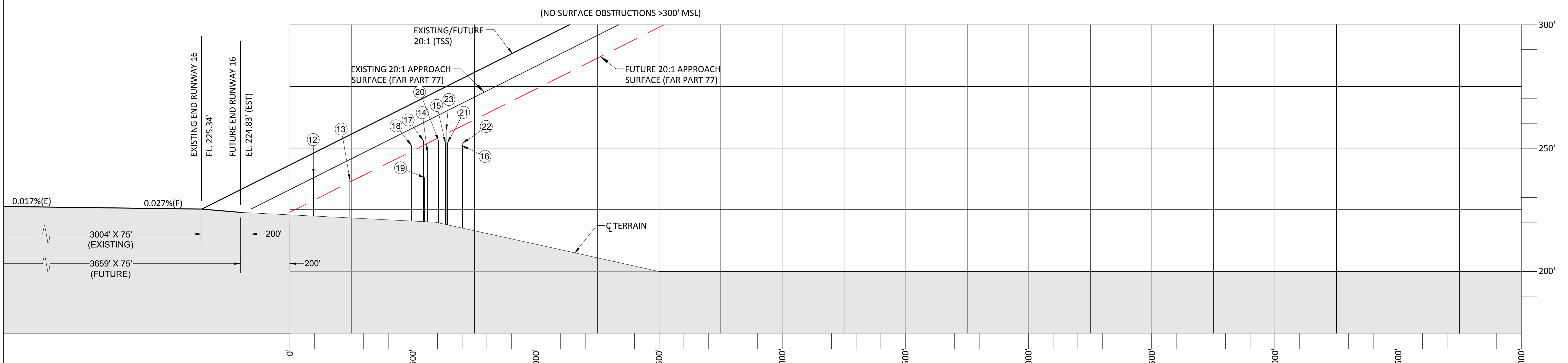
FIGURE NO.
-



RUNWAY 16 PLAN VIEW

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

NOTE:
1. SEE AIRPORT LAYOUT PLAN (SHEET 3) FOR FULL LEGEND AND FACILITY / BUILDING KEY.



RUNWAY 16 PROFILE VIEW

0' 10' 20'
Vertical Scale: 1"=10'

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

NOTES:
1. DISTANCES FOR NOTED OBSTRUCTIONS ARE BASED ON THE ULTIMATE RUNWAY CONFIGURATION. DIMENSIONS INCLUDE 200' DISTANCE FROM RUNWAY END TO BEGINNING OF APPROACH.
3. COMPLETE OBSTRUCTION CHART IS LOCATED ON THE AIRPORT LAYOUT PLAN (SHEET 3).

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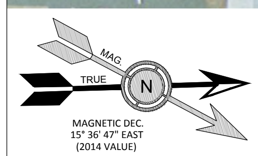
ALBANY MUNICIPAL AIRPORT

RUNWAY 16 APPROACH PLAN AND PROFILE

FIGURE NO. -

SHEET NO. 8 OF 12



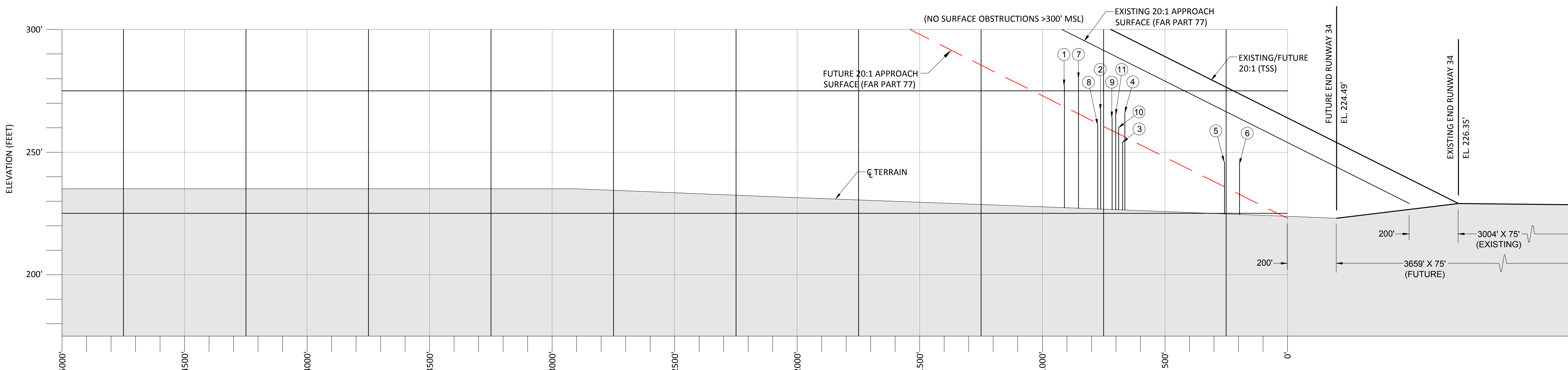
0' 200' 400'

Scale: 1"=200'

RUNWAY 34 PLAN VIEW

NOTE:

1. SEE AIRPORT LAYOUT PLAN (SHEET 3) FOR FULL LEGEND AND FACILITY / BUILDING KEY.



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0' 10' 20'

Vertical Scale: 1"=10'

RUNWAY 34 PROFILE VIEW

0' 200' 400'

Horizontal Scale: 1"=200'

NOTES:

1. DISTANCES FOR NOTED OBSTRUCTIONS ARE BASED ON THE ULTIMATE RUNWAY CONFIGURATION. DIMENSIONS INCLUDE 200' DISTANCE FROM RUNWAY END TO BEGINNING OF APPROACH.
3. COMPLETE OBSTRUCTION CHART IS LOCATED ON THE AIRPORT LAYOUT PLAN (SHEET 3).

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ALBANY MUNICIPAL AIRPORT

RUNWAY 34 APPROACH PLAN AND PROFILE

FIGURE NO.
-

SHEET NO.
9 OF 12

LEGEND

- RUNWAY PROTECTION ZONE
- APPROACH SURFACE
- AIRPORT PROPERTY LINE (EXISTING)
- FLIGHT TRACKS
- ALBANY MUNICIPAL AIRPORT HISTORIC DISTRICT
- ON AIRPORT DEVELOPMENT AREA BOUNDARY
- BUILDINGS (FUTURE)

CITY OF ALBANY ZONING

- LI — LIGHT INDUSTRIAL
- RC — REGIONAL COMMERCIAL

NOTES:

1. EXISTING RUNWAY THRESHOLDS TO BE MAINTAINED IN FUTURE RUNWAY CONFIGURATION (AS DISPLACED THRESHOLDS) W/ 20:1 APPROACH SLOPES (THRESHOLD SITING SURFACES).
2. EXISTING RUNWAY PROTECTION ZONES (RPZ) LOCATIONS WILL BE MAINTAINED FOR FUTURE RUNWAY CONFIGURATION. USE OF DECLARED DISTANCES (PER AC 150/5300-13A) WILL DETERMINE USEABLE RUNWAY LENGTHS FOR TAKEOFF AND LANDING (SEE SHEET 2 FOR DIMENSIONS).
3. AVIGATION EASEMENTS FOR EXISTING RPZ'S WILL REMAIN IN EFFECT FOR FUTURE RUNWAY CONFIGURATION.
4. HISTORIC OVERLAY DISTRICT DESIGNATED FOR PORTION OF THE AIRPORT, PER ALBANY DEVELOPMENT CODE (ARTICLE 7).
5. AIRPORT APPROACH DISTRICT ADOPTED FOR AIRPORT, PER ALBANY DEVELOPMENT CODE (SECTION 4.4).

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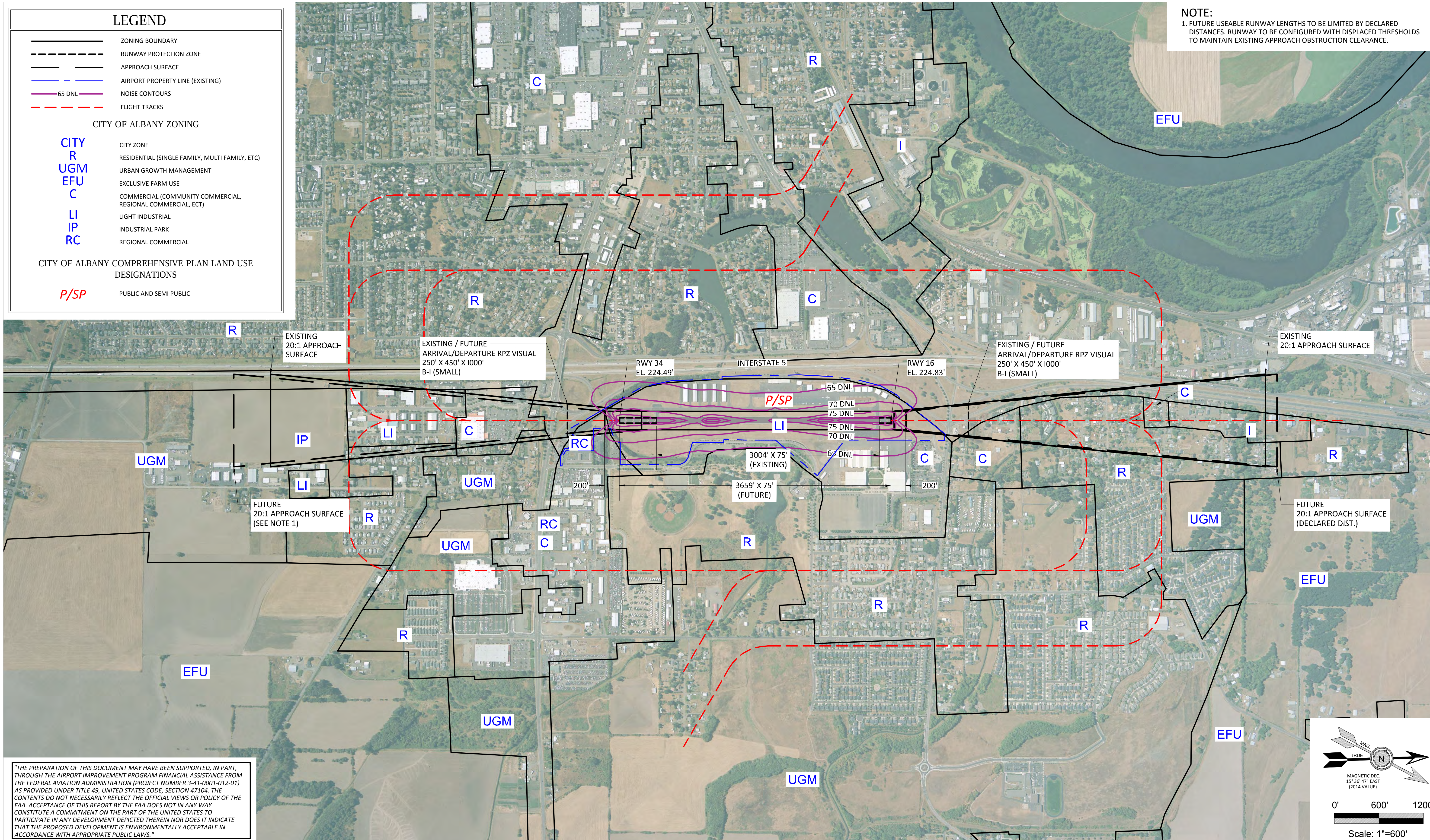
ALBANY MUNICIPAL AIRPORT

ON-AIRPORT LAND USE PLAN

FIGURE NO.
-

SHEET NO.
10 OF 12



LEGEND

- ZONING BOUNDARY
- RUNWAY PROTECTION ZONE
- APPROACH SURFACE
- AIRPORT PROPERTY LINE (EXISTING)
- 65 DNL — NOISE CONTOURS
- FLIGHT TRACKS

CITY OF ALBANY ZONING

CITY	CITY ZONE
R	RESIDENTIAL (SINGLE FAMILY, MULTI FAMILY, ETC)
UGM	URBAN GROWTH MANAGEMENT
EFU	EXCLUSIVE FARM USE
C	COMMERCIAL (COMMUNITY COMMERCIAL, REGIONAL COMMERCIAL, ECT)
LI	LIGHT INDUSTRIAL
IP	INDUSTRIAL PARK
RC	REGIONAL COMMERCIAL

CITY OF ALBANY COMPREHENSIVE PLAN LAND USE DESIGNATIONS

P/SP	PUBLIC AND SEMI PUBLIC

NOTE:
1. FUTURE USEABLE RUNWAY LENGTHS TO BE LIMITED BY DECLARED DISTANCES. RUNWAY TO BE CONFIGURED WITH DISPLACED THRESHOLDS TO MAINTAIN EXISTING APPROACH OBSTRUCTION CLEARANCE.

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ALBANY MUNICIPAL AIRPORT

OFF-AIRPORT LAND USE PLAN W/2032 NOISE CONTOURS

FIGURE NO.
-

LAND DATA TABLE (ON AIRPORT)

PARCEL	GRANTOR	ACRES	TAXLOT MAP ID #	INTEREST	FED. AGREEMENT	NOTES
1	CITY OF ALBANY	185.12	11S03W04D00100	FEE	N/A	
1A	CITY OF ALBANY	6.25	11S03W04D00100	FEE	N/A	PROPERTY LINE ADJUSTMENT TO CORRECT AIRPORT BOUNDARY NO CHANGE IN OWNERSHIP (CITY)
1B	MEYER CREST, LTD.	2.80	10S03W33DC07202	FEE	N/A	2.8 ACRE PARCEL DONATED TO CITY OF ALBANY (11/15/2010)

LAND DATA TABLE (OFF AIRPORT)

PARCEL	GRANTOR	ACRES	TAXLOT ID #	INTEREST	FED. AGREEMENT	NOTES
2	YANG WEIYU	1.21	11S03W09B00400	NONE	N/A	
3	VIRK HOTELS LLC	1.90	11S03W09B00201	NONE	N/A	
4	SERENITY LANE HEALTH SERVICES	1.61	11S03W09B00101	NONE	N/A	
5	BARNA RANDY	NA	11S03W04BA02300	NONE	N/A	
6	BARNA RANDY	NA	11S03W04BA0220	NONE	N/A	
7	BARNA WILLIAM E & FAYE I TR	NA	11S03W04BA02000	NONE	N/A	
8	BARNA RANDY	NA	11S03W04BA02100	NONE	N/A	

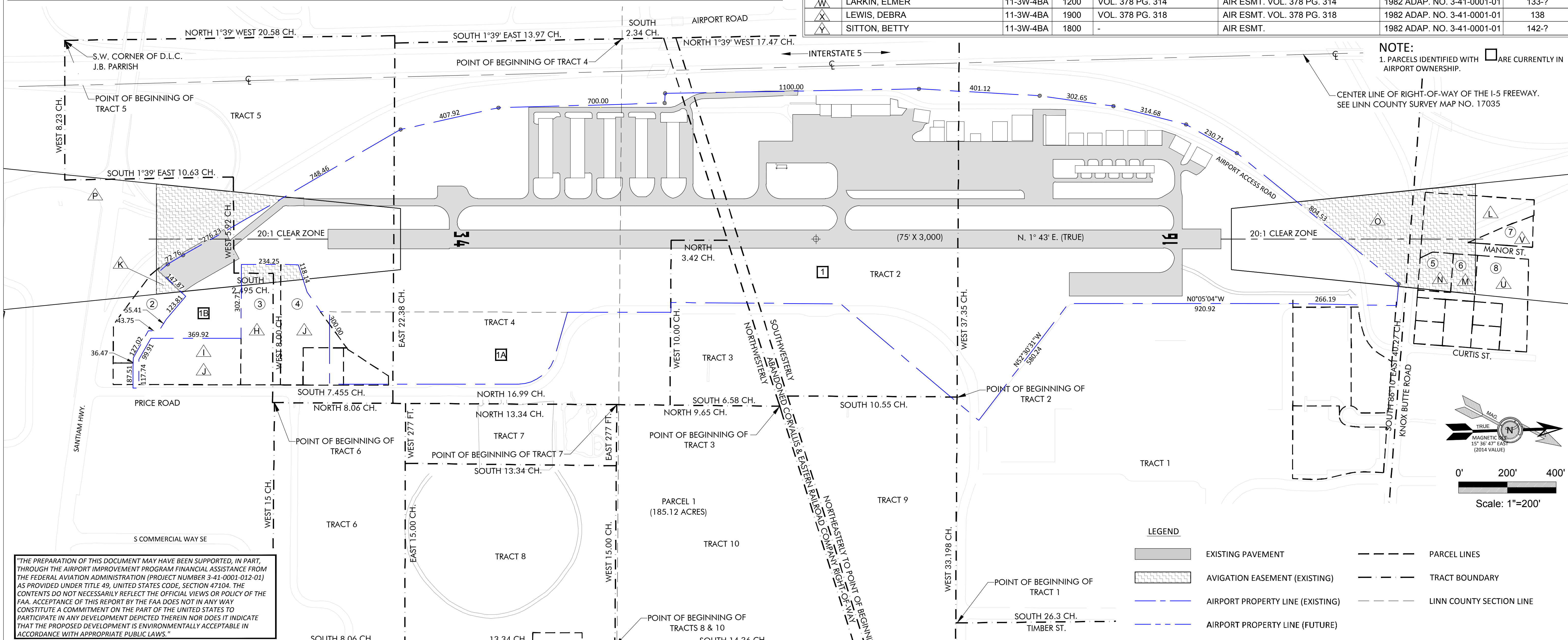
AVIGATION EASEMENTS

PARCEL	OWNER	COUNTY MAP NO.	TAX LOT NO.	RECORDING INFO.	INTEREST	FEDERAL AGREEMENTS	PAGE
G	OREGON STATE HWY. COMMISSION	11-3W-9B	101	BOOK 273 PG. 364	AIR ESMT. BOOK 257 PG. 398		83-84, 85-91

AVIGATION EASEMENTS

PARCEL	OWNER	COUNTY MAP NO.	TAX LOT NO.	RECORDING INFO.	INTEREST	FEDERAL AGREEMENTS	PAGE
H	OREGON STATE HWY. COMMISSION	11-3W-9B	201	BOOK 272 PG. 731	AIR ESMT. BOOK 280 PG. 387 AIR ESMT. BOOK 282 PG. 215	ADAP. NO. 9-35-001-6204	92, 93-94, 95-96
I	SWEPT WING MOTEL	11-3W-9B	200	BOOK 347 PG. 702	AIR ESMT. BOOK 280 PG. 391	ADAP. NO. 9-35-001-6204	97-99, 100
J	SWEPT WING MOTEL	11-3W-9B	202	BOOK 347 PG. 702	AIR ESMT. BOOK 280 PG. 391	ADAP. NO. 9-35-001-6204	97-99, 100
K	SWEPT WING MOTEL	11-3W-9B	301	BOOK 314 PG. 358	AIR ESMT. BOOK 280 PG. 392	ADAP. NO. 9-35-001-6204	101-102
L	OREGON STATE HWY. COMMISSION	11-3W-4BA	301	VOL. 125 PG. 540 & 541	AIR ESMT. BOOK 276 PG. 269,270,271	ADAP. NO. 9-35-001-6204	103-?, 105-?, 108
M	CLAYPOOL, VIOLET M.	11-3W-4BA	2200	MF 159-196	AIR ESMT. BOOK 280 PG. 389	ADAP NO. 9-35-001-6204	109, 110-?, 112-?
N	SHALIMAR PROPERTIES, INC.	11-3W-4BA	2300	VOL. 137 PG. 914	AIR ESMT. BOOK 275 PG. 623	ADAP NO. 9-35-001-6204	117-?, 120-?
O	OREGON STATE HWY. COMMISSION	11-3W-4BA	NONE	OREGON STATE HWY. COM.	AIR ESMT. VOL. 389, PG. 79-81	1982 ADAP. NO. 3-41-0001-01	147-?
P	OREGON STATE HWY. COMMISSION	11-3W-9B	NONE	OREGON STATE HWY. COM.	AIR ESMT. VOL. 389. PG. 90-92	1982 ADAP. NO. 3-41-0001-01	151-?
Q	PRICE, CLARK	11-3W-9A 11-3W-4D	-	BOOK 151 PG. 565	POWER EASEMENT	NONE	122
R	CITY OF ALBANY	11-3W-rD	NONE	NONE	ABANDONED RAILROAD EASEMENT	NONE	123-125
S	OREGON STATE HWY. COMMISSION	11-3W-9B	101	BOOK 273 PG. 364	FUTURE FEE TITLE PURCHASE	1982 ADAP. NO. 3-41-0001-01	83-84
T	OREGON STATE HWY. COMMISSION	11-3W-9B	201	BOOK 272 PG. 731	FUTURE FEE TITLE PURCHASE	1982 ADAP. NO. 3-41-0001-01	92
U	K.C. CONSTRUCTION	11-3W-4BA	2100	VOL. 299 PG. 386	AIR ESMT. VOL. 378 PG. 310	1982 ADAP. NO. 3-41-0001-01	127-?
V	TRIPP, RODNEY W.	11-3W-4BA	2000	VOL. 125 PG. 540	AIR ESMT.	1982 ADAP. NO.	132
W	LARKIN, ELMER	11-3W-4BA	1200	VOL. 378 PG. 314	AIR ESMT. VOL. 378 PG. 314	1982 ADAP. NO. 3-41-0001-01	133-?
X	LEWIS, DEBRA	11-3W-4BA	1900	VOL. 378 PG. 318	AIR ESMT. VOL. 378 PG. 318	1982 ADAP. NO. 3-41-0001-01	138
Y	SITTON, BETTY	11-3W-4BA	1800	-	AIR ESMT.	1982 ADAP. NO. 3-41-0001-01	142-?

NOTE:
1. PARCELS IDENTIFIED WITH ☐ ARE CURRENTLY IN AIRPORT OWNERSHIP.



"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 3-41-0001-012-01) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NO.	DATE	BY	APPR	REVISIONS

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

FEDERAL AVIATION ADMINISTRATION APPROVAL
APPROVAL DATE: ____
SIGNATURE

CITY OF ALBANY APPROVAL
APPROVAL DATE: ____
SIGNATURE

CENTURY WEST ENGINEERING CORPORATION
BEND OFFICE
1020 SW EMKAY DRIVE #100
BEND, OR 97702
541.322.8962
541.382.2423 (FAX)
WWW.CENTURYWEST.COM

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
DM	JLS	WMR	AS SHOWN
DATE: OCTOBER 2014		PROJECT NO: 12431002.01	

ALBANY MUNICIPAL AIRPORT

EXHIBIT "A" AIRPORT PROPERTY PLAN

FIGURE NO.
-

SHEET NO.
12 OF 12

Chapter 9 – Airport Land Use Compatability

Chapter 9 – Airport Land Use Compatibility

Introduction

This chapter describes land use associated with Albany Municipal Airport and its surroundings, land use controls and other issues related to airport compatibility and jurisdictional responsibilities. This chapter also describes federal regulations and state statutes with guidance for land use planning and zoning.

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 has a role in regulating on-airport land use through approval of the Airport Layout Plan (ALP) and airport sponsor compliance with FAA Airport Improvement Program (AIP) grant assurances, which include measures to maintain airport land use compatibility and to protect the aeronautical function of an airport by restricting the location of non-aviation land uses.

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 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" that is 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.

In cases where the airport sponsor is also the local land use authority, local land use actions are reviewed for compliance with the FAA grant assurances intended to protect airports from incompatible land uses.

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

FAR Part 150 (Airport Noise Compatibility Planning) provides guidance for land use compatibility around airports. The 1990 Airport Noise and Capacity Act (ANCA) defines 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 created statutes which provide standards and guidelines for local governments to use in order to create zoning ordinances to encourage compatible land uses around airports. *"The policy of the State of Oregon is to encourage and support the continued operation and vitality of Oregon's airports."* The laws and statues are provided by the "Airport Planning Rule" located in **Oregon Administrative Rules (OAR) Chapter 660, Division 13,** which implements **Oregon Revised Statutes (ORS) Chapter 836**. **ORS 836.600** through **836.630** promotes land use planning to reduce unnecessary risk to aircraft operations. Several key statutes related to airport land use planning are summarized below.

ORS 836.608-Airport operation as matter of state concern; local planning documents to recognize airport location, limitations on use and expansion of facility. This requires local governments to recognize airport locations within planning documents. It also establishes limitations on use and a process in which airports can add new land uses on their property.

ORS 836.610-Local government land use plans and regulations to accommodate airport zone and uses. This requires local governments to amend their land use regulations and comprehensive plans in accordance to 836.616 and 836.619.

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

ORS 836.623-Local compatibility and safety requirements more stringent than state requirements; criteria, water impoundments, report to federal agency and application to certain activities. This 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

The City of Albany has land use authority for Albany Municipal Airport and its immediate surroundings. The **Albany Development Code (Article 1 through 22)** establishes zoning standards within the City of Albany. In addition to surface zoning, the articles include two overlay zones that affect Albany Municipal Airport.

The airport is located in the northeast part of the city between Knox Butte Road and Santiam Highway, directly east of Interstate 5. As noted in the Inventory Chapter, three other jurisdictions are in the vicinity of the airport including the City of Millersburg to the northwest; Linn County to the north, east and south; and Benton County to the northwest. The City of Albany is encouraged to coordinate with the adjacent jurisdictions to ensure their land uses are compatible with the airport..

Comprehensive Plan

The Comprehensive Plan is a guidance document which expresses the way in which the city seeks to grow and develop. The Comprehensive Plan land use designation for Albany Municipal Airport's is **Public and Semi Public**, which recognizes and protects *"significant public facilities that provide transportation or other public service functions."* A small area of the airport (southeast corner) is designated **Commercial-General**. This land parcel was recently donated to the City, although the underlying comprehensive plan land use designation and zoning have not been changed to reflect public ownership and airport function. The City of Albany Comprehensive Plan Land Use Map is depicted in **Figure 9-1**.

The City of Albany Comprehensive Plan Chapter Five (Transportation), Goal 12 (Transportation) includes a vision, goals and policies that are reflected in the planning and recommendations of the airport master plan:

> **GOAL 12: TRANSPORTATION**
>
> **VISION**
>
> A safe, diversified, and efficient transportation system that serves the needs of anticipated growth while protecting and enhancing Albany's economy, neighborhood quality, and natural and built environments.

GOALS

1. Provide an efficient transportation system that provides for the local and regional movement of people and goods.

2. Provide a safe transportation system.

3. Provide a diversified transportation system that ensures mobility for all members of the community and provides alternatives to automobile travel.

4. Provide a transportation system that balances financial resources with community livability and economic vitality.

POLICIES

9. Maintain and support the Albany airport as a regional facility

12. Establish priorities and define the incremental steps needed for investment of ODOT and Federal revenues to address safety and major capacity problems on the State and Interstate transportation system.

Comprehensive Plan 5 - 5 January 2012

Zoning

The City of Albany Zoning Map is depicted in **Figure 9-2**. Albany Municipal Airport is zoned primarily **Light Industrial District (LI),** which is intended to accommodate a wide range of manufacturing, warehousing, processing and assembling businesses. The permitted uses and development standards in **LI** are consistent with commercial and industrial development. It is noted that the **LI** zoning does not include specific guidance on airport-specific development or land use. Historically, local officials have recognized development such as aircraft hangars, fuel systems, etc. , as airport-related without specific guidance provided by ordinance.

A small area located at the southeast corner of the airport is zoned **Regional Commercial (RC)**. **RC** zoning allows a wide range of retail sales and service uses, and is typically appropriate for developments that require large sites near Interstate 5 (I-5). Similar to the comprehensive plan land use designation noted earlier, the zoning for this part of the airport does not reflect its public ownership, airport function or potential use.

It is recommended that **RC** area be rezoned to be consistent with the zoning used for the overall airport. It is recognized that zoning is used as a tool to implement the vision, goals, and policies of the City's Comprehensive Plan. By law, zoning must be "consistent" with the Comprehensive Plan, so the rezoning must follow a change in (Comprehensive Plan) land use designation. The City of Albany should also consider creating airport-specific zoning that clearly defines permitted, conditional and prohibited uses appropriate with the normal operation and function of a general aviation airport.

Historic Overlay District

Article 7 of the **Albany Development Code (ADC)** defines the regulations established for historic overlay districts located in the City of Albany. The Historic Overlay District provides a means for the City to formally recognize and protect its historic and architectural resources. **Section 7.010** (Applicability) (1) lists Albany Municipal Airport as one of four National Register Historic Districts established within the City of Albany. ADC Figure 7-2, cited in Section 7.010, identifies the northern 2/3 of Albany Municipal Airport as a Historic District and notes its listing on the National Register of Historic Places. **Article 7** and ADC Figure 7-2 are included in **Appendix A.**

Although the intent of **Article 7** is to preserve the character of each district, the majority of the ordinance addresses residential or commercial structures (removal, alteration, or modification of existing landmark structures, new construction, etc.) within the City's Downtown Commercial, Monteith, and Hackleman districts. **Section 7.270** (New Construction Review Criteria) is limited to these districts and does not specifically address the airport**.** Several aircraft hangars have been constructed in the Historic Overlay District at the airport in recent years and there are no known issues with the compatibility of new construction.

There are four items identified as historic on the airport: large hangar #1, the steel tower for the rotating beacon, workshop hangar #2, and a section of a former tangential runway extending northeast from near the midpoint of the main runway. Any alteration or construction related to the four existing historic items requires historic review and approval.

<u>Airport Overlay Zone</u>

The City of Albany has established an Airport Overlay Zone **(Albany Development Code - Section 4.4)** entitled **"Airport Approach District"** to protect the public from excessive noise and air traffic from possible hazards during landing or takeoff. The overlay zone utilizes height restrictions to protect the FAR Part 77 navigable airspace associated with Runway 16/34, including the approach, transitional, horizontal and conical surfaces. The Airport Approach District also sets noise standards and prohibits anything that can cause interference to navigational aids and radio communications. See **Appendix F** for the complete text and supporting graphics contained in ADC Section 4.4. Section 4.4 is summarized below (note: references to Figure 6.1 and 6.2 relate to the graphics contained in the code):

(1) Visual Approach Area. Slopes 20 feet outward for each foot upward beginning at the ends of the primary surface (200 feet from the end of the pavement) and at the same elevation as the primary surface, and extending to a horizontal distance of 5,000 feet along the extended runway centerline.

(2) Transitional Areas. Slopes 7 feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation, which is <u>222</u> feet above mean sea level. In addition, there are height limits sloping 7 feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending to where they intersect the conical surface.

(3) Horizontal Area. One hundred fifty (150) feet above the airport elevation or at a height of 372 feet above mean sea level.

(4) Conical Area. Slopes 20 feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.

Note: Some specific elevations (underlined above) listed in the current code are obsolete and need to be updated to reflect the updated FAA- and City-Approved Airport Layout Plan.

Aircraft Noise

The City of Albany has developed "noise construction standards" **(Albany Development Code, Section 4.440)** to protect noise sensitive property such as residential areas; schools, churches, hospitals and libraries that are located within the 55-60 ldn area[1] in compliance with State of Oregon guidelines and regulations for airport noise (**Division 35, Noise Control Regulations, OAR 340-035-0045**). Developers are subject to provisions within Site Plan Review, which may include additional sound buffering as outlined in Article 2 of the City's development code.

Summary and Recommendations

The City of Albany has been proactive in creating overlay zoning to protect the airport from incompatible land uses. At this time, there are no known incompatible land uses or activities in the immediate vicinity of the airport. Maintaining effective land use controls in the vicinity of the airport will be crucial in protecting the airport and ensuring the long term aeronautical viability of the site. As noted earlier, the current zoning for the airport (light industrial and commercial districts) does not directly reflect the specific activities, operations, and facilities associated with airport operations. Creating airport-specific zoning for the entire airport is recommended to provide consistency in land use planning and development for users and staff.

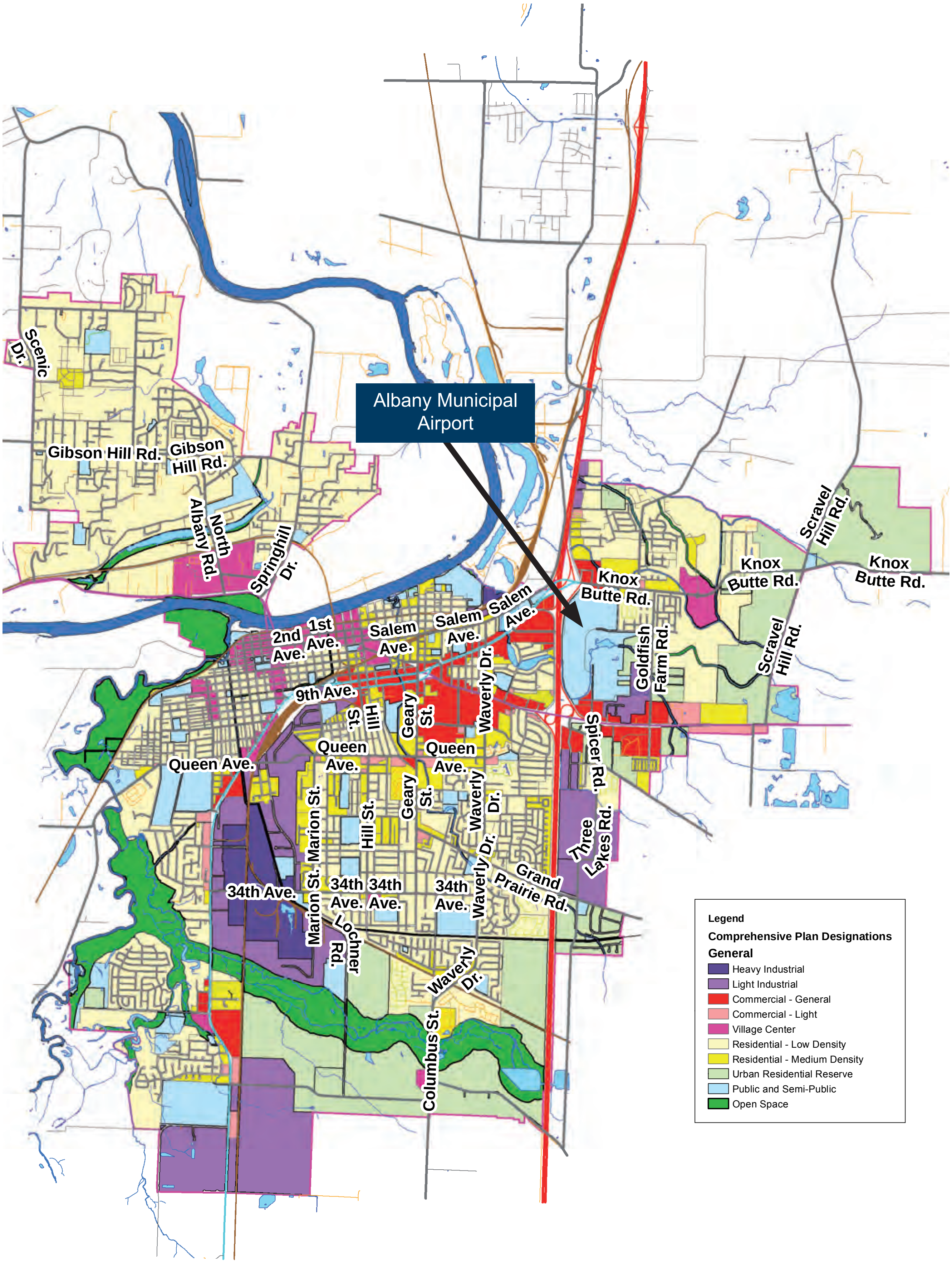
The following land use-related recommendations and actions are presented for City of Albany consideration:

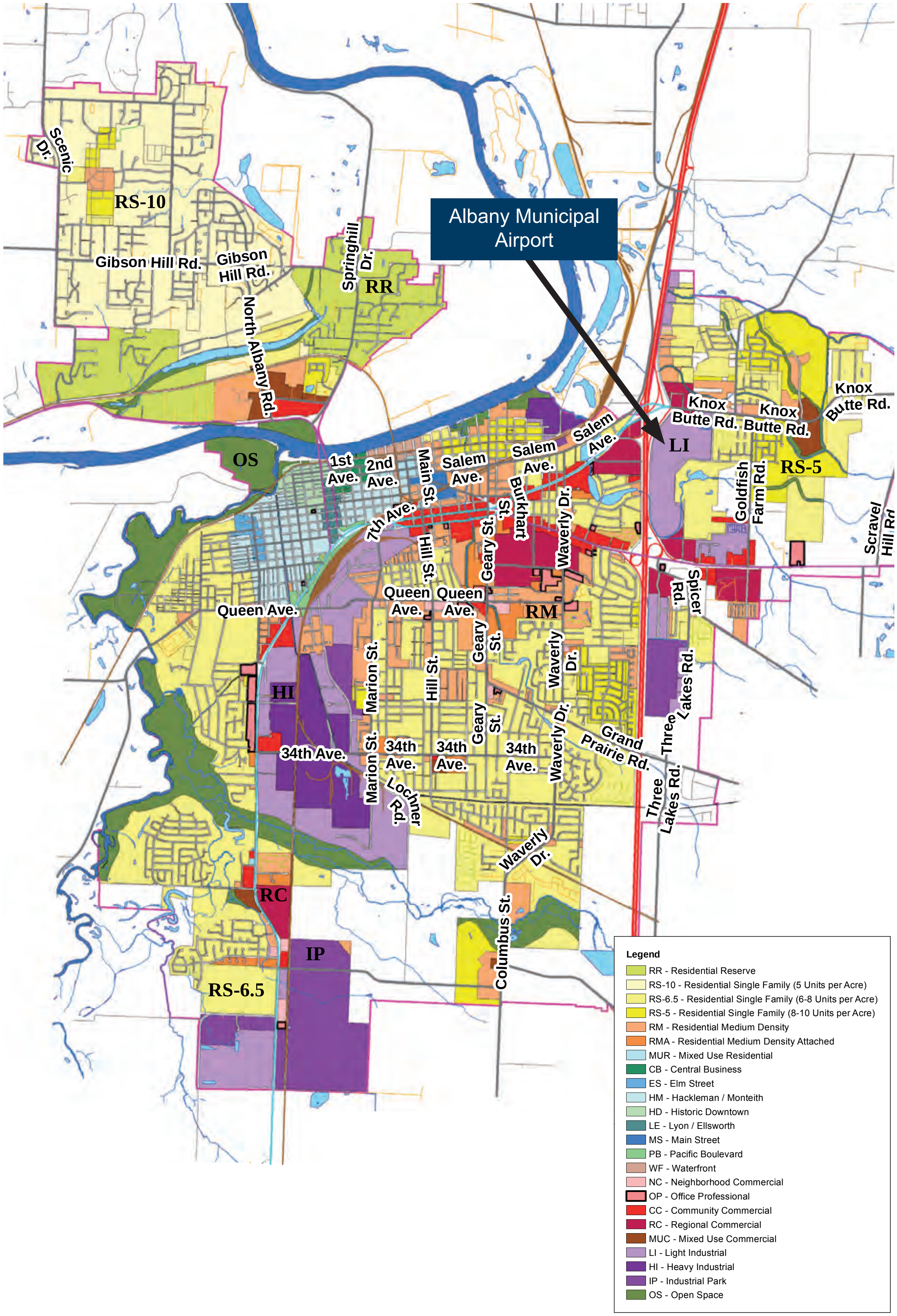
- Develop airport-specific zoning that identifies all outright permitted, conditional, and prohibited uses for the airport, consistent with the current comprehensive plan land use designation.
- Re-zone the existing "light industrial" and "commercial" zoned areas of the airport to a single airport-specific zone.

[1] Ldn is now commonly designated "DNL"

- Update current airport overlay zoning (Section 4.4, text and mapping) for consistency with current airport master plan and airport layout plan (changes in runway length, elevations, noise exposure, etc.) and with Oregon land use regulations.
- Consider separating Airport Approach Overlay District (Section 4.4) zoning from Article 4 – Commercial and Industrial Zoning and maintaining as its own Article. The overlay zone guidance is not limited to commercial and industrial zoning and broader awareness and application could be achieved if maintained as a separate Article.
- Conduct periodic review of comprehensive plan land use goals and policies for compliance with Oregon land use regulations and consistency with current airport master plan and airport layout plan.
- Coordinate with adjacent jurisdictions (Linn County, Benton County, and the City of Millersburg) to ensure that adequate measures are established to protect the FAR Part 77 airspace surfaces associated with Albany Municipal Airport, as depicted on the City of Albany and FAA-approved airport layout plan and airspace plan drawings, as amended.
- Consider joint adoption of common airport overlay zone ordinance language for all affected jurisdictions.

Note: In the event that airport-specific zoning is not developed in the near future, it is recommended that the City rezone the small area of **Regional Commercial** located near the southeast corner of the airport to **Light Industrial** to provide consistency for all City-owned airport land. It is anticipated that the rezone may first require a change in the comprehensive plan land use designation for the parcel to ensure consistency between the comprehensive plan and zoning.


Albany Municipal Airport
Scenic Dr.
Gibson Hill Rd.
Gibson Hill Rd.
North Albany Rd.
Springhill Dr.
2nd Ave.
1st Ave.
Salem Ave.
Salem Ave.
Salem Ave.
9th Ave.
Hill St.
Geary St.
Waverly Dr.
Queen Ave.
Queen Ave.
Queen Ave.
Knox Butte Rd.
Knox Butte Rd.
Knox Butte Rd.
Goldfish Farm Rd.
Scravel Hill Rd.
Scravel Hill Rd.
Spicer Rd.
Marion St.
Hill St.
Geary St.
Waverly Dr.
Three Lakes Rd.
34th Ave.
Marion St.
34th Ave.
34th Ave.
34th Ave.
Waverly Dr.
Grand Prairie Rd.
Lochner Rd.
Waverly Dr.
Columbus St.
Legend
Comprehensive Plan Designations
General
Heavy Industrial
Light Industrial
Commercial - General
Commercial - Light
Village Center
Residential - Low Density
Residential - Medium Density
Urban Residential Reserve
Public and Semi-Public
Open Space


Albany Municipal Airport
RS-10
RR
OS
HI
RC
IP
RS-6.5
RM
LI
RS-5
Scenic Dr.
Gibson Hill Rd.
Gibson Hill Rd.
North Albany Rd.
Springhill Dr.
1st Ave.
2nd Ave.
Main St.
Salem Ave.
Salem Ave.
Salem Ave.
7th Ave.
Hill St.
Geary St.
St. Burkhart
Waverly Dr.
Knox Butte Rd.
Knox Butte Rd.
Knox Butte Rd.
Goldfish Farm Rd.
Scravel Hill Rd
Spicer Rd.
Queen Ave.
Queen Ave.
Queen Ave.
Marion St.
Hill St.
Geary St.
Waverly Dr.
Three Lakes Rd.
34th Ave.
Marion St.
34th Ave.
34th Ave.
Geary St.
34th Ave.
Waverly Dr.
Grand Prairie Rd.
Three Lakes Rd.
Lochner Rd.
Waverly Dr.
Columbus St.
Legend
RR - Residential Reserve
RS-10 - Residential Single Family (5 Units per Acre)
RS-6.5 - Residential Single Family (6-8 Units per Acre)
RS-5 - Residential Single Family (8-10 Units per Acre)
RM - Residential Medium Density
RMA - Residential Medium Density Attached
MUR - Mixed Use Residential
CB - Central Business
ES - Elm Street
HM - Hackleman / Monteith
HD - Historic Downtown
LE - Lyon / Ellsworth
MS - Main Street
PB - Pacific Boulevard
WF - Waterfront
NC - Neighborhood Commercial
OP - Office Professional
CC - Community Commercial
RC - Regional Commercial
MUC - Mixed Use Commercial
LI - Light Industrial
HI - Heavy Industrial
IP - Industrial Park
OS - Open Space

Chapter 10 – FAA Compliance Review

Chapter 10 – FAA Compliance Review

Introduction

This chapter discusses the elements associated with the operation and management of Albany Municipal Airport, as a federally-obligated airport. The Federal Aviation Administration (FAA) encourages airport sponsors to establish and implement programs that promote sound operating practices and ongoing compliance with regulatory requirements. The FAA currently recommends that compliance be addressed during the airport planning process through the review of airport documents; plans, and other records, such as an approved ALP, Exhibit" A" Property Map, Airport Ordinance, Zoning Ordinance, Rules and Regulations, Minimum Standards, airport budgets, leases, easements, permits, and other documents.

City of Albany Compliance

The City of Albany maintains a high degree of control over the operation of Albany Municipal Airport. The City meets all applicable financial reporting and record keeping requirements and employs a variety of "best practices" including periodic review of market rates and fees; land appraisals, formal procurement and contracting practices, coordination with adjacent land owners (avigation easements), local government (land use planning, zoning), state government (airport overlay zoning, environmental agencies, etc.), and tribal government. There are no known compliance issues associated with airport development, tenant leases, airport land uses or other items.

FAA Compliance Overview

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

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

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

- Grant agreements issued under the Federal Airport Act of 1946, the Airport and Airway Development Act of 1970, and Airport lmprovement Act of 1982. Included in these agreement are the requirement for airport sponsors to comply with:
    - Grant Assurances
    - Advisory Circulars
    - Application commitments
    - FAR procedures and submittals
    - Special conditions
- Surplus airport property instruments of transfer
- Deeds of conveyance
- Commitments in environmental documents prepared in accordance with FAA requirements.
- Separate written requirements between a sponsor and the FAA.

Land use compliance and compatible land use planning is often a significant compliance issue for airports. Compliance and suggested best practices are discussed under the following subheadings in this chapter:

- Airport Compliance with Federal and State Grant Assurances
- Environmental Compliance
- Airport User Compliance
- Other Airport Operational Policies and Procedures

Airport Compliance with Grant Assurances

As a recipient of federal airport improvement grant funds, the City of Albany is contractually bound to various sponsor obligations referred to as "Grant Assurances", that have been put together by the FAA. These obligations, presented in detail in federal grants and to document the commitments made by the airport sponsor to fulfill the intent of the grantor (FAA) required in association with acceptance necessary of federal funding for airport improvements. Failure to comply with the grant assurances may result in a finding of noncompliance and/or forfeiture of future funding. Grant assurances and their associated requirements are to protect the significant investment made by the FAA and the city, to preserve and maintain the nation's airports as a valuable national transportation asset, as mandated by Congress.

FAA GRANT ASSURANCES

The FAA's Airport Compliance Program defines the interpretation, administration, and oversight of federal sponsor obligations contained in grant assurances. Currently **FAA Order 5190.6B,** Airport Compliance Manual, defines policies and procedures for the Airport Compliance Program. Although it is not regulatory or controlling with regard to airport sponsor conduct, it establishes the policies and procedures for FAA personnel to follow in carrying out the FAA's responsibilities for ensuring compliance by the sponsor.

Order 5190.6B states: the FAA Airport Compliance Program is, "*…designed to monitor and enforce obligations agreed to by airport sponsors in exchange for valuable benefits and rights granted by the United States in return for substantial direct grants of funds and for conveyances of federal property for airport purposes. The Airport Compliance Program is designed to protect the public interest in civil aviation. Grants and property conveyances are made in exchange for binding commitments (federal obligations) designed to ensure that the public interest in civil aviation will be served. The FAA bears the important responsibility of seeing that these commitments are met. This Order addresses the types of commitments, how they apply to airports and what FAA personnel are required to do to enforce them.*"

To better understand the intent of the FAA Compliance Program, it is important to understand the FAA's goals for a national airport system. The national airport system is currently known as the National Plan of Integrated Airport Systems (NPIAS), which has historic origins dating back to the 1946 Federal Airports Act. The airport system has evolved through several legislative updates in concert with changes in the organization and scope of the Federal Aviation Administration (FAA). The NPIAS was adopted as part of the Airport and Airway Development Act of 1982, replacing the National Airspace System Plan (NASP), created by earlier legislation. There are approximately 2,500 general aviation airports and 800 commercial service airports in the NPIAS.

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

- Airports should be safe and efficient, located at optimum sites, and be developed and maintained to appropriate standards.
- Airports should be operated efficiently both for aeronautical users and the government, relying primarily on user fees and placing minimal burden on the general revenues of the local, state, and federal governments.
- Airports should be flexible and expandable, able to meet increased demand and accommodate new aircraft types.
- Airports should be permanent, with assurance that they will remain open for aeronautical use over the long term

- Airports should be compatible with surrounding communities, maintaining a balance between the needs of aviation and the requirements of residents in neighboring areas.
- Airports should be developed in convert with improvements to the air traffic control system
- The airport system should support national objectives for defense, emergency readiness, and postal delivery
- The airport system should be extensive, providing as many people as possible with convenient access to air transportation, typically not more than 20 miles of travel to the nearest NPIAS airport
- The airport system should help air transportation contribute to a productive national economy and international competitiveness.

FAA AIP grant assurances are summarized and categorized in **Table 10-1**. While Sponsors should understand and comply with all grant assurances, there are several assurances that are common and recurring issues for airport sponsors throughout the country. These are summarized in more detail below. A complete description of current AIP grant assurances is provided in **Appendix G**. It is important to note that the assurances (and corresponding numbers) are applied to Non-Airport Sponsors Undertaking Noise Compatibility Program Projects and Planning Agency Sponsors. These can also be found in the Airport Improvement Program under Grant Assurances.

TABLE 10-1: SUMMARY OF FAA AIP GRANT ASSURANCES (AIRPORT SPONSOR ASSURANCES 3/2014)

GRANT ASSURANCE NO.	GENERAL AIRPORT	PROJECT PLANNING / DESIGN & CONTRACTING	AIRPORT OPERATIONS AND LAND USE	DAY TO DAY AIRPORT MANAGEMENT	PROJECT CONSTRUCTION	LEASES & FINANCIAL	OTHER
1. General Federal Requirements							
2. Responsibility and Authority of the Sponsor							
3. Sponsor Fund Availability							
4. Good Title							
5. Preserving Rights and Powers							
6. Consistency with Local Plans							
7. Consideration of Local Interest							
8. Consultation with Users							
9. Public Hearings							

GRANT ASSURANCE NO.	GENERAL AIRPORT	PROJECT PLANNING / DESIGN & CONTRACTING	AIRPORT OPERATIONS AND LAND USE	DAY TO DAY AIRPORT MANAGEMENT	PROJECT CONSTRUCTION	LEASES & FINANCIAL	OTHER
10. Metropolitan Planning Organization							
11. Pavement Preventative Maintenance							
12. Terminal Development Prerequisites							
13. Accounting System, Audit, and Record Keeping Requirements							
14. Minimum Wage Rates							
15. Veteran's Preference							
16. Conformity to Plans and Specifications							
17. Construction Inspection and Approval							
18. Planning Projects							
19. Operations and Maintenance							
20. Hazard Removal and Mitigation							
21. Compatible Land Use							
22. Economic Nondiscrimination							
23. Exclusive Rights							
24. Fee and Rental Structure							

GRANT ASSURANCE NO.	GENERAL AIRPORT	PROJECT PLANNING / DESIGN & CONTRACTING	AIRPORT OPERATIONS AND LAND USE	DAY TO DAY AIRPORT MANAGEMENT	PROJECT CONSTRUCTION	LEASES & FINANCIAL	OTHER
25. Airport Revenues							
26. Reports and Inspections							
27. Use by Government Aircraft							
28. Land for Federal Facilities							
29. Airport Layout Plans							
30. Civil Rights							
31. Disposal of Land							
32. Engineering and Design Services							
33. Foreign Market Restrictions							
34. Policies, Standards and Specifications							
35. Relocation and Real Property Acquisition							
36. Access by Intercity Bus							
37. Disadvantaged Business Enterprises							
38. Hangar Construction							
39. Competitive Access							

As the airport sponsor, the City of Albany is responsible for the direct control and operation of Albany Municipal Airport. Familiarity with, proper monitoring and implementation of sponsor obligations and FAA grant assurances in particular, is the key to maintaining compliance. FAA Order 5190.6B and ongoing communication with the FAA Northwest Mountain Region Compliance Office are both excellent resources for the City when addressing policy and compliance.

DURATION

The terms, conditions and assurance of a grant agreement with the FAA remain in effect for the useful life of a development project, which is typically 20 years from the receipt of the last grant. However, terms, conditions and assurances associated with land purchased with federal funds do not expire.

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

Project Planning/Design and Contracting

Sponsor Fund Availability (Assurance # 3)

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

Consistency with Local Plans (Assurance #6)

All projects must be consistent with city and county comprehensive plans, transportation plans, zoning ordinances development code, and hazard mitigation plans. The airport sponsor and planners should all familiarize themselves with local planning documents before a project is considered and ensure that all projects follow local plans and ordinances.

In addition to understanding local plans, airport sponsors should be proactive in order to prevent noncompliance with this assurance. The airport sponsor should assist in the development of local plans that incorporate the airport and consider its unique aviation related needs. Sponsor efforts should include the development of goals, policies and implementation strategies to protect the airport as part of local plans and ordinances.

Accounting System Audit and Record Keeping (Assurance# 13)

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

General Airport

Good title (Assurance #4)

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

Preserving Rights and Powers (Assurance #5)

No actions are allowed which might take away any rights or powers from the sponsor which are necessary for the sponsor to perform or fulfill any condition set forth by the assurance included as part of the grant agreement. If there is an action taken or activity permitted that might hinder any of those rights or powers it should be discontinued. An example of an action which can adversely affect the rights and powers of the airport is a Through-the-Fence (TTF) activity. TTF activities allow access to airport facilities from off-airport users. In many instances, the airport sponsor cannot control the activities of those operating off the airport resulting in less sponsor control. This loss of control can potentially have an adverse impact to airport users. For example, TTF activities many times do not pay the same rates and charges as on-airport users, resulting in an unfair competitive advantage for business/users located off-airport versus those on-airport.

Airport Layout Plan (ALP) (Assurance #29)

The airport should at all times keep an up-to-date ALP which should include on it both current and future boundaries, facilities/structures, and the location of any non-aviation areas and existing improvements. No changes should be made at the airport to hinder the safety of operations; also no changes should be made to the airport that is not in conformity with the ALP. Any changes of this nature could adversely affect the safety, utility or efficiency of the airport. lf any changes are made to the airport without authorization the alteration must be changed back to their original condition or the airport will have to bear all cost associated with moving or changing the alteration to an acceptable design or location. Additionally no federal participation will occur for improvement projects not shown on an approved ALP.

Disposal of Land (Assurance #31)

Land purchased with the financial participation of an FAA Grant cannot be sold or disposed of by the airport sponsor at their sole discretion. Disposal of such lands are subject to FAA approval and a definitive process established by the FAA. If airport land is no longer considered necessary for airport purposes, and the sale is authorized by the FAA, the land must be sold at fair market value. Proceeds from the sale of the land must either be repaid to the FAA or reinvested in to another eligible airport improvement or noise compatibility project. Land disposal requirements typically arise when a community is building a new airport and the land on which the airport was located is sold with the proceeds used to offset costs of the new airport. In general, land purchased with FAA funds is rarely sold by a sponsor.

Airport Operations and Land Use

Pavement Preventative Maintenance (Assurance #11)

Since January 1995, the FAA has mandated that it will only give a grant for airport pavement replacement or reconstruction projects if an effective airport pavement maintenance-management program is in place. The program should identify the maintenance of all pavements funded with federal financial assistance. The report provides a pavement condition index (PCl) rating (0 to 100) for various section of aprons, runways, taxiways, and a score for overall airport pavements.

Operations and Maintenance (Assurance #19)

All federally funded airport facilities must operate at all times in a safe and serviceable manner. The airport sponsor should not allow for any activities which inhibit or prevent this. The airport sponsor must always promptly mark and light any hazards on the airport, and promptly issue Notices to Airmen (NOTAMs) to advise of any conditions which could affect safe aeronautical use. Exceptions to this assurance include when temporary weather conditions make it unreasonable to maintain the airport. Further, this assurance does not require the airport sponsor to repair conditions which have happened because of a situation beyond the control of the sponsor.

Compatible Land Use (Assurance #21)

Land uses around an airport should be planned and implemented in a manner which ensures surrounding development and activities are compatible with the airport. To ensure compatibility, the sponsor is expected to take appropriate action, to the extent reasonable, including the adoption of zoning laws to guide land use in the vicinity of airports under their jurisdiction. Incompatible land use around airports represents one of the greatest threats to the future viability of airports.

Day to Day Airport Management

Economic Non-Discrimination (Assurance #22)

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

- All FBOs on the airport should be subject to the same rate fees, rentals and other charges.
- All persons, firms or corporations operating aircraft can work on their own aircraft with their own employees.
- If the airport sponsor at any time exercises the rights and privileges of this assurance they will be under all of the same conditions as any other airport user would be.
- The sponsor can establish fair conditions which need to be met by all airport users to make the airport safer and more efficient.

The sponsor can prohibit any type, kind or class of aeronautical activity if it is for the safety of the airport. An example of an activity which may be considered for prohibition is sky diving. It is important to point out that the FAA will review such prohibitions and will make the final determination as to whether or not a particular activity type is deemed unsafe at the airport based on current operational dynamics.

Exclusive Rights (Assurance #23)

Exclusive Rights at an airport is often a complicated subject usually specific to individual airport situations. The assurance states the sponsor "will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public..." There are exceptions to this rule. If the airport sponsor can prove that permitting a similar business would be unreasonably costly, impractical or result in a safety concern, the sponsor may consider granting an exclusive right. To deny a business opportunity because of safety, the sponsor must demonstrate how that particular business will compromise safety at the airport. Exclusive rights are very often found in airport relationships with fixed base operations (FBO) but exclusive rights can also be established with any other business at the airport which could assist in the operation of an aircraft at the airport. If an unapproved exclusive rights agreement exists it must be dissolved before a future federal grant is awarded to the airport.

If a sponsor is contemplating denial of a business use at the airport, it is strongly encouraged that they contact their FAA ADO in order to ensure that they have all necessary information and that denial of access is not going to be seen as unjust discrimination. For more in depth information on exclusive rights reference Advisory Circular 150/5190-6, "Exclusive Rights at Federally Obligated Airports."

<u>Leases and Financial</u>

Fee and Rental Structure (Assurance #24)

Simply put, the fee and rental structure at the airport must be implemented with the goal of generating enough revenue from airport related fees and rents to become self-sufficient in funding day to day operational needs. The airport sponsor should routinely monitor its fee and rental structure to ensure reasonable fees are being charged to meet this goal. Common fees charged by airports include fuel flowage, tie-down, and landing fees and hangar rent.

Airport Revenue (Assurance #25)

All airport revenue and local taxes on aviation fuel should be used toward the operating costs of the airport, the local airport system, or other local facilities which are owned by the same owner of the airport which will directly impact air transportation passengers or property or for noise mitigation on or off airport property. In other words, revenue generated by airport activities must be used to support the continued operation and maintenance of the airport. Use of airport revenue to support or subsidize other non-aviation activities or functions of the sponsor is not allowed and is considered revenue diversion. Revenue diversion is a significant compliance issue subject to cause scrutiny by the FAA.

Other FAA Compliance Requirements

OTHER FEDERAL CONTRACTING AND PROCUREMENT DOCUMENTS

When an airport sponsor accepts an FAA Airport improvement Program (AIP) grant, they agree to adhere to all applicable federal contracting and procurement requirements. Advisory circulars are required for use in AIP funded projects. Included in each grant request is a federal funding checklist that identifies the requirements an airport should consider before accepting the grant. The following items are noted in the checklist:

- ALPs should be up to date
- Exhibit A Property Map may need to be updated if acquiring additional property
- Land Inventory may need to be updated if you have recently acquired land with federal assistance
- Airports must hold good title to the airport landing area
- Appropriate signage and markings must be in place
- RPZ and approach surface deficiencies must be identified and steps to address deficiencies must be noted
- RSAs must meet FAA standards if planning a runway project
- DBE program goals must be met on projects more than $250,000
- Procedures should be in place to handle bid protests
- Open AIP grant projects need to be identified
- Project closeout form must be submitted within 90 days of work completion
- A “Certification of Economic Justification” must be included for routine pavement maintenance projects
- A “Revenue Generating Facility Eligibility Evaluation” must be completed for hangar constructing or fueling facilities
- A “Reimbursable Agreement” and “Non-Fed Coordination” must be completed for navigational aid projects
- A “Relocation Plan” must be completed if a project requires residences or businesses to be relocated

SPECIAL CONDITIONS

In addition to the standard grant assurances discussed above, the state or the FAA may require "Special Conditions" to individual grants which supplement or expand the standard grant assurances. Special Conditions are unique to an individual airport and can be project or administrative in nature. Airport sponsors need to be aware of such conditions that may be applied to their airport.

MULTIJURISDICTIONAL CHALLENGES

In some instances, airports are jointly owned and operated by more than one airport sponsor. In other instances, airports may be located within multiple jurisdictions. While the official airport sponsor is ultimately responsible for adherence with the grant assurance, the actions, or inactions, of surrounding jurisdictions can and do impact the airport sponsor's ability in meeting its sponsor obligations. This is particularly true with land use compatibility issues around airports. As a result, it is important in either circumstance that all jurisdictions affected by the airport understand the operational needs and complexities of having an airport within its jurisdiction. Mutual agreements addressing airport operational or land use protection needs, or other cooperative measures, are recommended by all jurisdictions to both protect the functionality of the airport as well as the safety and well-being of airport user and neighbors.

Appendix A

ARTICLE 7
HISTORIC OVERLAY DISTRICT

7.000 Overview. The regulations of the Historic Overlay District supplement the regulations of the underlying zoning district. The historic overlay district provides a means for the City to formally recognize and protect its historic and architectural resources. Recognition of historical landmarks helps preserve a part of the heritage of the City. When the regulations and permitted uses of a zoning district conflict with those of the historic overlay district, the more restrictive standards apply.

The following list is a summary of the major headings in this article.

- Designation, Re-Rating or Removal of Historic Landmarks and Districts
- Historic Review of Exterior Alterations
- Historic Review of Substitute Materials
- Historic Review of New Construction
- Historic Review of Demolitions or Relocations [Ord. 5463, 9/13/00]

7.010 Applicability. This article is applied:

(1) To properties in the Downtown, Hackleman, Monteith or Albany Municipal Airport National Register Historic Districts as identified in Figure 7-1 and 7-2.

(2) To all other structures and sites that appear on the City's adopted Local Historic Inventory, including individually designated National Register Historic Landmarks. [Ord. 5463, 9/13/00]

7.015 Expiration of Historic Review Approval. See Article 1, Section 1.080 (2). [Ord. 5720, 08/12/2009]

7.020 Definitions. As used in this Article, the following words and phrases shall have the following meanings:

Demolition: The intentional destruction of all or part of a building or structure.

Exterior Alteration: Any physical changes to the exterior of an existing structure; generally excludes maintenance work such as painting and repairs.

Historic Contributing: A building or structure originally constructed before 1946 that retains and exhibits sufficient integrity (materials, design, and setting) to convey a sense of history. These properties strengthen the historic character of the district. [Ord. 5488, 7/11/01]

Historic Integrity: A measure of authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period in comparison with its unaltered state; for example, a historic building of high integrity has few alterations or ones that can be easily reversed.

Historic Non-contributing: A building or structure originally constructed before 1946 that retains but does not exhibit sufficient historic features to convey a sense of history. These properties do not strengthen the historic character of the district in their current condition. [Ord. 5488, 7/11/01]

Landmark: All designated historic buildings or structures on the Local Historic Inventory are considered landmarks. A landmark is either a historic contributing building, site, structure or object within a historic district, is listed individually on the National Register of Historic Places, or is on the Local Historic Inventory but located outside a historic district.

Landmarks Advisory Commission: The Mayor appoints the Commission to make advisory recommendations about historic districts, conservation districts, buildings and sites. The Commission has the authority to recommend rules and regulations for adoption; compile and maintain a list of all historic buildings, sites and objects; conduct an educational program on historic properties within its jurisdiction; make recommendations about the designation of particular historic buildings and sites; and recommend removal from any list of designated historic buildings and sites any property it finds no longer worthy of such designation. [Ord. 5488, 7/11/01]

Local Historic Inventory: A list of historic properties that have been determined significant by the Landmarks Advisory Commission and City Council for either their architecture or history based on the criteria of the National Register. It includes properties located within the listed National Register historic districts and buildings, sites, structures, objects and districts located outside of the listed National Register Districts.

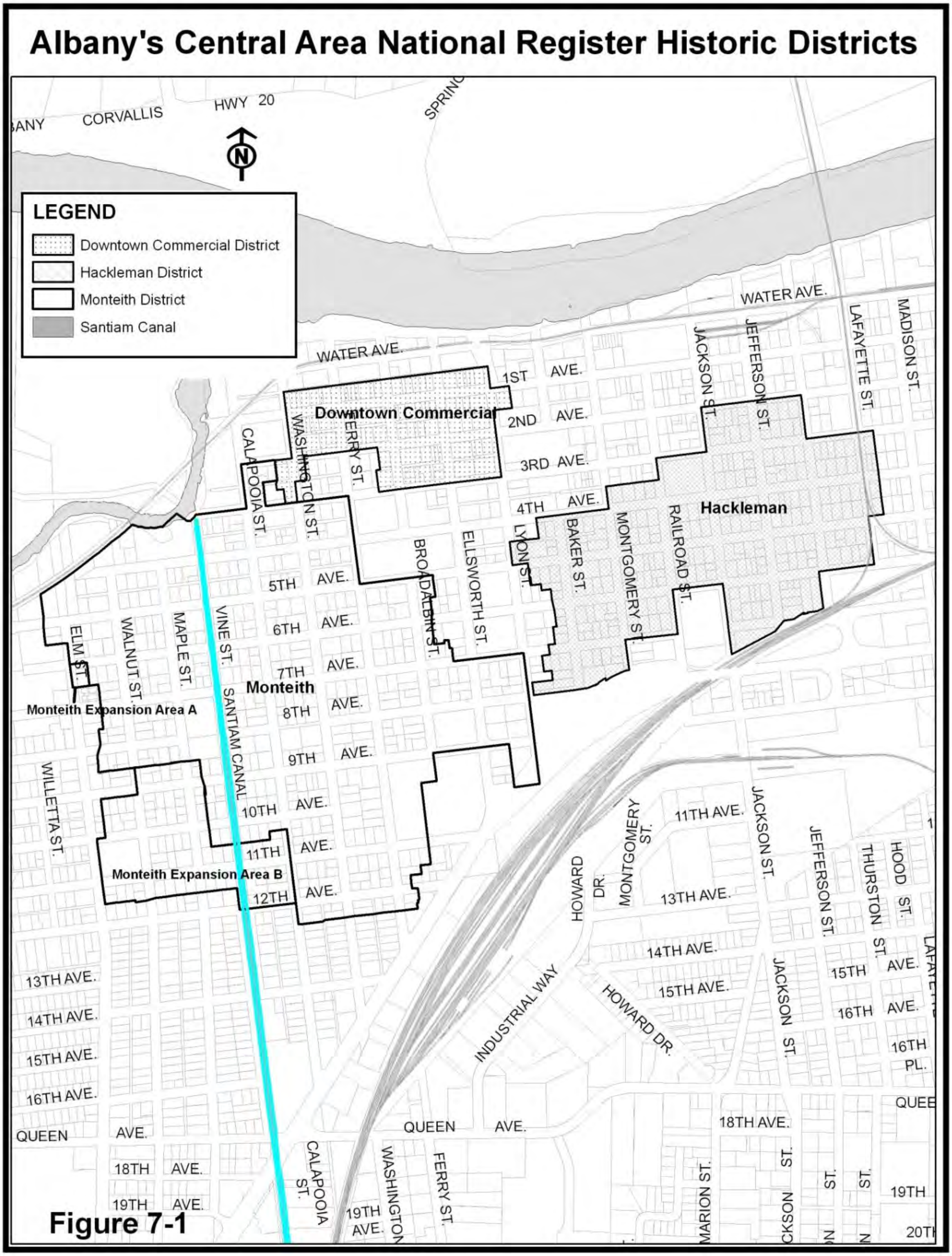
National Register of Historic Places: The nation's official list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, and culture. In Albany, this includes all properties within the National Register Historic District boundaries and properties listed individually outside of designated historic districts.

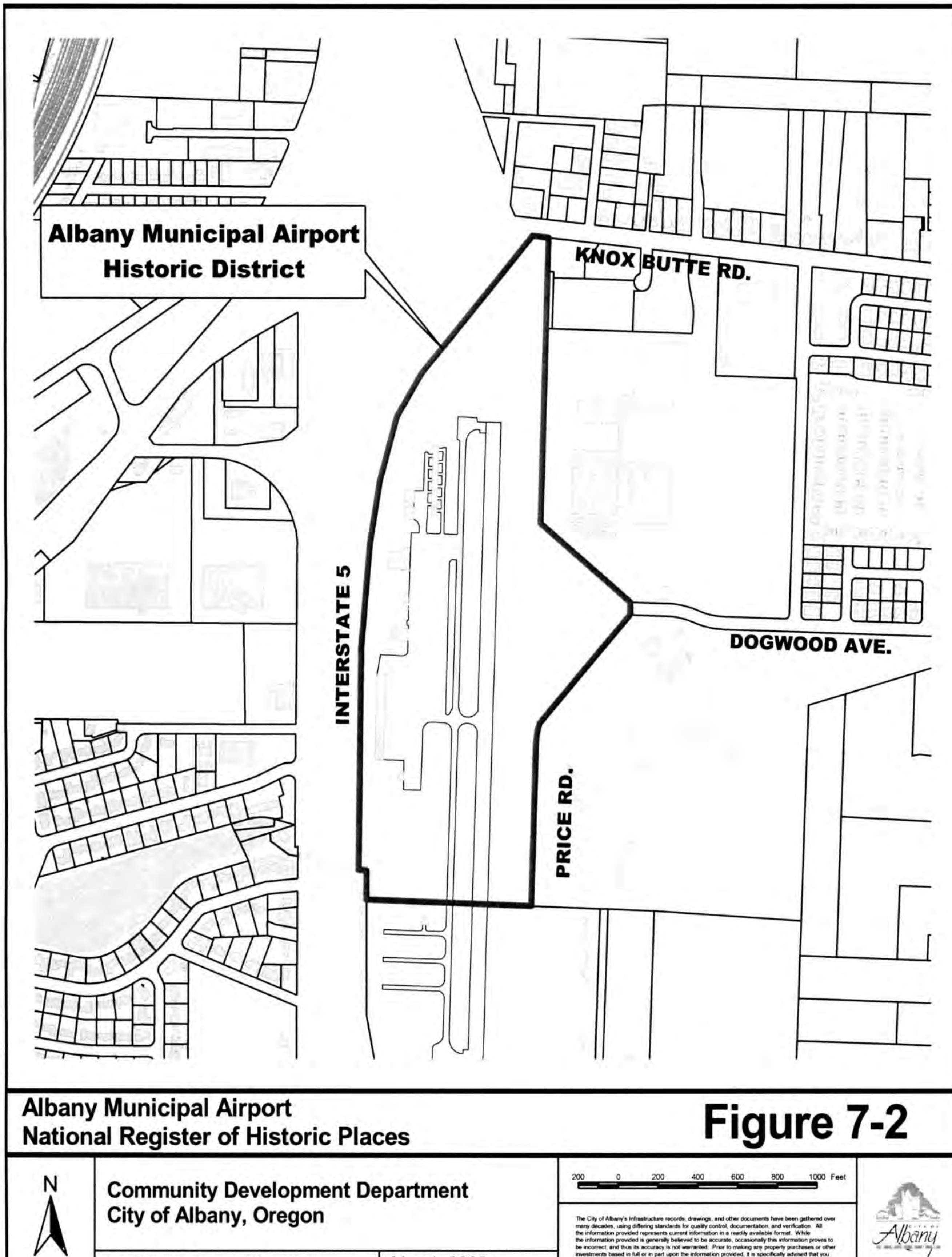
Non-contributing: A building or structure that was originally constructed after 1945, outside the period of significance. [Ord. 5488, 7/11/01]

Period of Significance: The span of time when a property or district attained its significance that meets the National Register criteria.

State Historic Preservation Office: Each State has a designated State Historic Preservation Office (SHPO) to help the Federal government administer provisions of the National Historic Preservation Act. The SHPO is aided by a professional staff and review board.

Substitute Materials: Materials made from different sources than the original materials. For example: If wood were the original material for siding, window or trim, material other than wood would be a substitute material. (Examples of substitute materials are plastic; vinyl; aluminum, and concrete.) [Ord. 5463, 9/13/00]


Albany's Central Area National Register Historic Districts
LEGEND
Downtown Commercial District
Hackleman District
Monteith District
Santiam Canal
Downtown Commercial
Hackleman
Monteith
Monteith Expansion Area A
Monteith Expansion Area B
WATER AVE.
1ST AVE.
2ND AVE.
3RD AVE.
4TH AVE.
5TH AVE.
6TH AVE.
7TH AVE.
8TH AVE.
9TH AVE.
10TH AVE.
11TH AVE.
12TH AVE.
13TH AVE.
14TH AVE.
15TH AVE.
16TH AVE.
QUEEN AVE.
18TH AVE.
19TH AVE.
SANTIAM CANAL
CALAPOOIA ST.
WASHINGTON ST.
FERRY ST.
BROADALBIN ST.
ELLSWORTH ST.
LYON ST.
BAKER ST.
MONTGOMERY ST.
RAILROAD ST.
JACKSON ST.
JEFFERSON ST.
LAFAYETTE ST.
MADISON ST.
VINE ST.
MAPLE ST.
WALNUT ST.
ELM ST.
WILLETTA ST.
HOWARD DR.
INDUSTRIAL WAY
THURSTON ST.
HOOD ST.
MARION ST.
16TH PL.
CORVALLIS
HWY 20
N
Figure 7-1



Albany Municipal Airport
National Register of Historic Places

Figure 7-2

Community Development Department
City of Albany, Oregon

peteb d:\av_projects_3\ag_historic\airport.apr

May 1, 2000

The City of Albany's infrastructure records, drawings, and other documents have been gathered over many decades, using differing standards for quality control, documentation, and verification. All the information provided represents current information in a readily available format. While the information provided is generally believed to be accurate, occasionally this information proves to be incorrect, and thus its accuracy is not warranted. Prior to making any property purchases or other investments based in full or in part upon the information provided, it is specifically advised that you independently field verify the information contained within our records.

DESIGNATION, RE-RATING OR REMOVAL OF HISTORIC LANDMARKS AND DISTRICTS

7.030 Purpose. The designation of historic landmarks allows the City to formally recognize, rate and protect its historic and architectural resources. Properties listed on the National Register of Historic Places are eligible for automatic listing on the Local Historic Inventory. The Local Historic Inventory identifies buildings, sites, structures, objects and districts of historical importance or architectural significance that are considered exemplary of their time and style. The regulation of designated and rated historic landmarks provides a means to review proposed changes and encourage the preservation of historical or architectural values. Periodically it may be necessary to re-rate or remove the designation of a historic landmark to reflect changing conditions, community values or needs. [Ord. 5463, 9/13/00]

7.035 Initiation. The process for designating or removing a landmark or historic district may be initiated by the City Council, the Landmarks Advisory Commission, or by any other interested person. Initiations by the Landmarks Advisory Commission are made without prejudice towards the outcome. At the time of initiation, the Community Development Director shall provide the property owner and applicant with information regarding the benefits and obligations of designation. No historic resource shall be designated as a landmark without the written consent of the owner, or in the case of multiple ownership, a majority of the owners. Removal of properties from the National Register of Historic Places requires review and approval by the State Historic Preservation Office and State Advisory Committee. [Ord. 5463, 9/13/00]

7.040 Procedure.

(1) ***Designation***. Requests for designations of historic landmarks and districts are reviewed through the Type IV legislative or quasi-judicial procedure. The process is legislative when it affects a large number of persons or properties. The Landmarks Advisory Commission replaces the Planning Commission as the initial review body. The City Council makes the final determination of historic designation.

(2) ***Amendment to Existing Historic Districts***. Changes or additions to the period of significance statement, property rating structure, or boundaries of an existing historic district shall be reviewed under the Type IV legislative process. The Landmarks Advisory Commission replaces the Planning Commission as the initial review body. The City Council reviews and adopts any amendments to the historic districts.

(3) ***Local Historic Inventory Removal***. Only landmarks outside the National Register Historic Districts that are not listed on the National Register of Historic Places individually are eligible for removal from the Local Historic Inventory. The Director may delete any demolished or removed historic structure outside the historic districts from the Local Historic Inventory through the Type I procedure. In the event a National Register building or structure is demolished or moved, an application shall be made to the State Historic Preservation Office to remove and/or redesignate the property from the National Register.

(4) ***Individual Property Re-Rating***. The Landmarks Advisory Commission shall review requests for re-rating of individual properties. [Ord. 5463, 9/13/00]

7.050 Application Contents. An application for designation of a landmark must include the following information:

(1) A written description of the boundaries of the proposed district or the location of the proposed landmark or property to be evaluated.

(2) A map illustrating the boundaries of the proposed district or the location of the proposed landmark or the property to be evaluated.

(3) A statement explaining the following:

(a) The reason(s) why the proposed district, landmark or property should be designated.
(b) The reason(s) why the proposed boundaries of the proposed district are appropriate for designation.
(c) The potential impact, if any, that designation of the proposed district or landmark would have on the owners, surrounding residents or other property owners in the area.

7.060 Submission of Application. Applications must be submitted at least 35 days in advance of the next regularly scheduled public meeting of the Landmarks Advisory Commission unless waived by the Director when legal notice can otherwise be achieved. All documents or evidence relied upon by the applicant shall be submitted to the Planning Division and made available to the public at least 20 days prior to the public hearing (10 days before the first evidentiary hearing if two or more evidentiary hearings are required). If additional documents, evidence or written materials are provided in support of a quasi-judicial application less than 20 days (10 days before the first evidentiary hearing if two or more evidentiary hearings are required) prior to the public hearing, any party shall be entitled to a continuance of the hearing. Such a continuance shall not be subject to the limitations of ORS 227.178.

7.070 Designation Review Criteria. In addition to being at least fifty years of age, the review bodies must find that one of the following criteria has been met in order to approve a proposed landmark or district:

(1) The proposed landmark or district has historic significance because:

(a) There is an association with the life or activities of a person, group, organization, or institution that has made a significant contribution to the city, county, state, or nation;
(b) There is an association with an event that has made a significant contribution to the city, county, state, or nation;
(c) There is an association with broad patterns of political, economic, or industrial history in the city, county, state, or nation;
(d) Existing land use surrounding the resource contributes to the integrity of the historic period represented; or
(e) The resource contributes to the continuity or historic character of the street, neighborhood, and/or community.

(2) The proposed landmark or district has architectural significance because:

(a) It is an example of a particular architectural style, building type and/or convention;
(b) It has a high quality of composition, detailing and/or craftsmanship;
(c) It is an example of a particular material and/or method of construction;
(d) The resource retains its original design features, materials and/or character;
(e) It is the only remaining, or one of a few remaining resources of a particular style, building type, design, material, or method of construction; or
(f) It is a visual landmark.

(3) The proposed landmark or district is listed on the National Register of Historic Places. [Ord. 5463, 9/13/00]

7.080 Re-Rating or Removal Review Criteria. The review body must find that one of the following criteria is met in order to approve a re-rating or remove a landmark from the Local Historic Inventory:

(1) The inventory was in error.

(2) Additional research has uncovered an association with a person, group, organization, institution or events that have made a significant contribution to the city, county, state or nation or additional research has been compiled regarding the architectural significance of a structure or style.

(3) Alterations to the structure have caused it to more closely approximate the historical character, appearance, or material composition of the original structure.

(4) Alterations to the structure have removed distinguishing features or otherwise altered the exterior such that the existing rating is no longer justified.

(5) The reasons for designating the historic landmark no longer apply. [Ord. 5463, 9/13/00]

7.090 Decision. All decisions, whether to approve or deny the request, must specify the basis for the decision. [Ord. 5463, 9/13/00]

HISTORIC REVIEW OF EXTERIOR ALTERATIONS GENERALLY

7.100 Purpose. The purpose of reviewing alterations to historic landmarks is to encourage the preservation of characteristics that led to their designation as historic landmarks. Review is required for exterior alterations or additions to buildings or structures classified as historic contributing and historic non-contributing within the historic districts, and to landmarks outside the districts. [Ord. 5463, 9/13/00]

7.110 Exemptions from Review. Historic review is not required for buildings or structures originally constructed after 1945 or for changes to paint color to any home or structure. [Ord. 5463, 9/13/00, Ord. 5488, 7/11/01]

7.120 Procedure. A request for an exterior alteration is reviewed and processed by either the Community Development Director or the Landmarks Advisory Commission. The Landmarks Advisory Commission replaces the Hearings Board or Planning Commission as the review body.

Any exterior or interior alteration to buildings participating in Oregon's Special Assessment of Historic Property Program will also require review and approval by the State Historic Preservation Office.

(1) The Director will approve residential alteration requests if one of the following criteria is met:

(a) There is no change in historic character, appearance or material composition from the existing structure.
(b) The proposed alteration materially duplicates the affected exterior building features as determined from an early photograph, original building plans, or other evidence of original building features.
(c) The proposed alteration is not visible from the street.

(2) For all other requests, the Landmarks Advisory Commission will review and process the alteration proposal. The applicant and adjoining property owners within 100 feet will receive notification of the Landmarks Advisory Commission public hearing on the proposal. The Commission will accept written and verbal testimony on the proposal. For buildings on the Special Assessment of Historic Property Program, the Landmarks Advisory Commission decision will be forwarded to the State Historic Preservation Office. [Ord. 5463, 9/13/00]

7.130 Relationship to Other Land Use Reviews. Projects that require historic review may also require other land use reviews. If other reviews are required, the review procedures may be handled concurrently. [Ord. 5463, 9/13/00]

7.140 Application Contents. Every application for an exterior alteration approval shall include information (e.g. drawings, photographs) which clearly shows the intended alteration and resulting appearance change of the structure. [Ord. 5463, 9/13/00]

7.150 Exterior Alteration Review Criteria. For applications other than for the use of substitute materials, the review body must find that one of the following criteria has been met in order to approve an alteration request: [Ord. 5488, 7/11/01]

(1) The proposed alteration will cause the structure to more closely approximate the historical character, appearance or material composition of the original structure than the existing structure, or

(2) The proposed alteration is compatible with the historic characteristics of the area and with the existing structure in massing, size, scale, materials and architectural features.

The review criteria for the use of substitute siding, windows and trim shall be as found in ADC 7.170-7.225. [Ord. 5488, 7/11/01]

The review body will use the Secretary of the Interior's Standards of Rehabilitation (listed below) as guidelines in determining whether the proposed alteration meets the review criteria. [Ord. 5463, 9/13/00]

7.160 The Secretary of the Interior's Standards for Rehabilitation. The following standards are to be applied to rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

(1) A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

(2) The historic character of a property shall be retained and preserved. The removal of historic material or alteration of features and spaces that characterize a property shall be avoided.

(3) Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

(4) Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

(5) Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

(6) Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

(7) Chemical or physical treatments, such as sandblasting, that cause damage to historic material shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

(8) Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

(9) New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

(10) New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired. [Ord. 5463, 9/13/00]

7.165 Decisions/Appeals. All decisions must specify the basis for the decision. Landmarks Advisory Commission decisions may be appealed to the Albany City Council. Decisions of the Community Development Director may be appealed to the Landmarks Advisory Commission. [Ord. 5463, 9/13/00, Ord. 5488, 7/11/01]

HISTORIC REVIEW OF SUBSTITUTE MATERIALS USED FOR SIDING, WINDOWS & TRIM

7.170 Purpose. The purpose of reviewing the use of substitute materials is to encourage the preservation of characteristics and materials of the historic architectural style. Review is required for the application of substitute materials for siding, windows and trim on buildings or structures originally constructed before 1946 and on the Local Historic Inventory. If these sections (7.170-7.225) conflict with other provisions of the Code relative to substitute materials to be used for siding, windows and trim, this section will control. [Ord. 5463, 9/13/00, Ord. 5488, 7/11/01]

7.180 Procedure. Review of a request for the use of substitute materials is reviewed and processed by the Landmarks Advisory Commission. The Landmarks Advisory Commission replaces the Hearings Board or Planning Commission as the review body.

The applicant and adjoining property owners within 100 feet will receive notification of the Landmarks Advisory Commission meeting on the proposal. The Commission shall accept written and verbal testimony on the proposal.

The use of substitute materials on buildings participating in Oregon's Special Assessment of Historic Property Program will also require review and approval by the State Historic Preservation Office. The Landmarks Advisory Commission decision will be forwarded to the State Historic Preservation Office. [Ord. 5463, 9/13/00]

7.185 Relationship to Other Land Use Reviews. Projects that require an historic review may also require other land use reviews. If other reviews are required, the review procedures may be handled concurrently. [Ord. 5463, 9/13/00]

7.190 Application Contents. Applications for the use of substitute materials for historic contributing and historic non-contributing structures and for Landmarks must include information (e.g. photographs) that clearly shows the current condition of the area intended to be altered. The types of substitute materials and proposed dimensions must be described. The application must also include the proposed methods of application of substitute materials and preservation of the original materials and architectural elements. The City may require a pest and dry rot inspection if necessary, and a report made and prepared by an entity whose primary business is pest and dry rot inspection or repair. The report must assess the condition of the structure. [Ord. 5463, 9/13/00, Ord. 5488, 7/11/01]

7.200 Eligibility for the Use of Substitute Materials. The City of Albany interprets the Secretary of Interior's Standards for Rehabilitation on compatibility to allow substitute siding and windows only under the following conditions:

(1) The building or structure is rated historic non-contributing OR, in the case of historic contributing buildings or structures, the existing siding, windows or trim is so deteriorated or damaged that it cannot be repaired and finding materials that would match the original siding, windows or trim is cost prohibitive. [Ord 5488, 7/11/01]

Any application for the use of substitute siding, windows and/or trim will be decided on a case-by-case basis. The prior existence of substitute siding and/or trim on the historic buildings on the Local Historic Inventory will not be considered a factor in determining any application for further use of said materials. [Ord. 5463, 9/13/00]

7.210 Design and Application Criteria for Substitute Materials. For buildings or structures rated historic contributing or historic non-contributing, the application for the use of substitute materials on siding, windows or trim must follow these guidelines:

(1) The proposed substitute materials must approximate in placement, profile, size, proportion, and general appearance the existing siding, windows or trim.

(2) Substitute siding, windows and trim must be installed in a manner that maximizes the ability of a future property owner to remove the substitute materials and restore the structure to its original condition using traditional materials.

(3) The proposed material must be finished in a color appropriate to the age and style of the house, and the character of both the streetscape and the overall district. The proposed siding or trim must not be grained to resemble wood.

(4) The proposed siding, siding, windows or trim must not damage, destroy, or otherwise affect decorative or character-defining features of the building. Unusual examples of historic siding, windows and/or trim may not be covered or replaced with substitute materials.

(5) The covering of existing historic wood window or door trim with substitute trim will not be allowed if the historic trim can be reasonably repaired. Repairs may be made with fiberglass or epoxy materials to bring the surface to the original profile, which can then be finished, like the original material.

(6) Substitute siding or trim may not be applied over historic brick, stone, stucco, or other masonry surfaces;

For the application of substitute siding and trim only:

(7) The supporting framing that may be rotted or otherwise found unfit for continued support shall be replaced in kind with new material.

(8) The interior surface of the exterior wall shall receive a vapor barrier to prevent vapor transmission from the interior spaces.

(9) Walls to receive the proposed siding shall be insulated and ventilated from the exterior to eliminate any interior condensation that may occur.

(10) Sheathing of an adequate nature shall be applied to support the proposed siding material with the determination of adequacy to be at the discretion of the planning staff.

(11) The proposed siding shall be placed in the same direction as the historic siding.

(12) The new trim shall be applied so as to discourage moisture infiltration and deterioration.

(13) The distance between the new trim and the new siding shall match the distance between the historic trim and the historic siding.

(14) A good faith effort shall be made to sell or donate any remaining historic material for architectural salvage to an appropriate business or non-profit organization that has an interest in historic building materials. [Ord. 5463, 9/13/00, Ord. 5488, 7/11/01]

7.220 Conditions of Approval. In approving an alteration request, the Landmarks Advisory Commission may attach conditions that are appropriate for the promotion and/or preservation of the historic or architectural integrity of the district, building or site. All conditions must relate to a review criterion. [Ord. 5463, 9/13/00]

7.225 Decisions/Appeals. All decisions shall specify the basis for the decision. Landmarks Advisory Commission decisions may be appealed to the Albany City Council. Decisions of the Community Development Director may be appealed to the Landmarks Advisory Commission. [Ord. 5463, 9/13/00, Ord. 5488, 7/11/01]

HISTORIC REVIEW OF NEW CONSTRUCTION

7.230 Purpose. The purpose of reviewing the exterior design of new construction within an historic district is to ensure that new structures over 100 square feet are compatible with the character of that district.

7.240 Procedure. The Community Development Director will review and decide on applications for new construction. At the Director's discretion, an application may be referred to the Landmarks Advisory Commission for a decision.

New construction (additions) to buildings participating in Oregon's Special Assessment of Historic Property Program will also require review and approval by the State Historic Preservation Office.

(1) For all requests, the applicant and adjoining property owners within 100 feet will receive notification during the 14-day comment period before the City decision. [Ord. 5463, 9/13/00, Ord. 5488, 7/11/01]

7.250 Relationship to Other Planning Reviews. Projects which require a historic review may also require other land use reviews. If other reviews are required, the review procedures may be handled concurrently.

7.260 Application Contents. Any application for new construction design approval must include the following information:

(1) A site plan showing the location of the structure on the site, setbacks, building dimensions, the location of driveways and landscape areas, and the general location of structures on adjacent lots.

(2) Elevations sufficient in detail to show the general scale, bulk building materials, and architectural elements of the structure. [Ord. 5463, 9/13/00]

7.270 New Construction Review Criteria. The Community Development Director or the Landmarks Advisory Commission must find that the request meets the following applicable criteria in order to approve the new construction request:

(1) Within the Monteith and Hackleman Districts:

(a) The development maintains any unifying development patterns such as sidewalk and street tree location, setbacks, building coverage, and orientation to the street.
(b) The structure is of similar size and scale of surrounding buildings, and as much as possible reflects the craftsmanship of those buildings.
(c) Building materials are reflective of and complementary to existing buildings within the district.

(2) Within the Downtown District:

(a) The development maintains the horizontal elements of adjacent buildings. (These horizontal elements can include an alignment of window frames, roof lines, facades and clear distinction between first floors and upper floors.)
(b) The development maintains other historic patterns, such as the horizontal/vertical pattern of upper story windows and the pattern of entrances along the street.
(c) Building materials are reflective of and complementary to existing historic buildings within the district.
(d) Lot coverage, setbacks, and building orientation to the street are consistent with the surrounding development patterns.
(e) The development maintains the pedestrian scale and orientation of the downtown district. [Ord. 5463, 9/13/00]

7.280 Decisions/Appeals. All decisions shall specify the basis for the decision. Landmarks Advisory Commission decisions may be appealed to the Albany City Council. Decisions of the Community Development Director may be appealed to the Landmarks Advisory Commission. [Ord. 5488, 7/11/01]

HISTORIC REVIEW OF DEMOLITIONS OR RELOCATIONS

7.300 Purpose. The purpose of reviewing demolition/relocation requests involving a historic landmark is to explore all possible alternatives for preservation. Demolition of historic landmarks is an extreme and final measure. [Ord. 5463, 9/13/00]

7.310 Procedure. Demolition/Moving permits will be processed in accordance with the following:

(1) The Building Official shall issue a permit for relocation or demolition if any of the following conditions exist:

(a) The building or structure is designated non-contributing within an historic district,
(b) The building or structure has been damaged in excess of 70% of its previous value in a fire, flood, wind, or other Act of God, or vandalism.

(2) Those requests not meeting Building Official approval conditions shall be reviewed by the Landmarks Advisory Commission. The application shall be submitted at least 35 days in advance of the next regularly scheduled public hearing/meeting of the Landmarks Advisory, unless waived by the Director when adequate notice can otherwise be achieved. [Ord. 5463, 9/13/00]

7.320 Application Contents. An application for the demolition or relocation of a rated structure must contain the following information:

(1) A description of the previous and existing uses of the structure and the intended future use of the property.

(2) A drawing showing the location of the building on the property and any other buildings on the property.

(3) The overall height of the building and the general type of construction.

(4) A written statement addressing the review criteria and providing findings of fact in support of the request. [Ord. 5463, 9/13/00]

7.330 Review Criteria. The Landmarks Advisory Commission must find that the demolition or relocation request meets the following applicable criteria:

(1) No prudent or feasible alternative exists, or

(2) The building or structure is deteriorated beyond repair and cannot be economically rehabilitated on the site to provide a reasonable income or residential environment compared to other structures in the general area, or

(3) There is a demonstrated public need for the new use that outweighs any public benefit that might be gained by preserving the subject buildings on the site.

(4) The proposed development, if any, is compatible with the surrounding area considering such factors as location, use, bulk, landscaping, and exterior design.

(5) If the building or structure is proposed to be moved, moving to a site within the same historic district is preferred to moving it outside the district. [Ord. 5463, 9/13/00]

7.340 In approving an application for the demolition of a Landmark on the Local Historic Inventory, the Commission may impose the following conditions:

(1) Photographic, video or drawn recordation of the property to be demolished be submitted to the City, and/or

(2) Salvage and curation of significant elements, and/or

(3) Other reasonable mitigation measures. [Ord. 5463, 9/13/00]

7.350 No provision in this ordinance shall be construed to prevent the alteration, demolition, or relocation of all or part of a Landmark on the Local Historic Inventory if the Building Official certifies that such action is required for public safety. [Ord. 5463, 9/13/00]

7.360 Decisions/Appeals. Following a public hearing, the Landmarks Advisory Commission may either approve the request or invoke a stay to the demolition. During the stay, the Landmarks Advisory Commission will notify the owner of potential rehabilitation programs and benefits and encourage public or private acquisition and restoration of the landmark. The length of the stay will be no more than 365 days from the date a complete application was received by the City. All decisions to approve, approve with conditions, or stay shall specify the basis for the decision. Decisions of the Landmarks Advisory Commission can be appealed to the City Council. [Ord. 5463, 9/13/00]

Appendix B

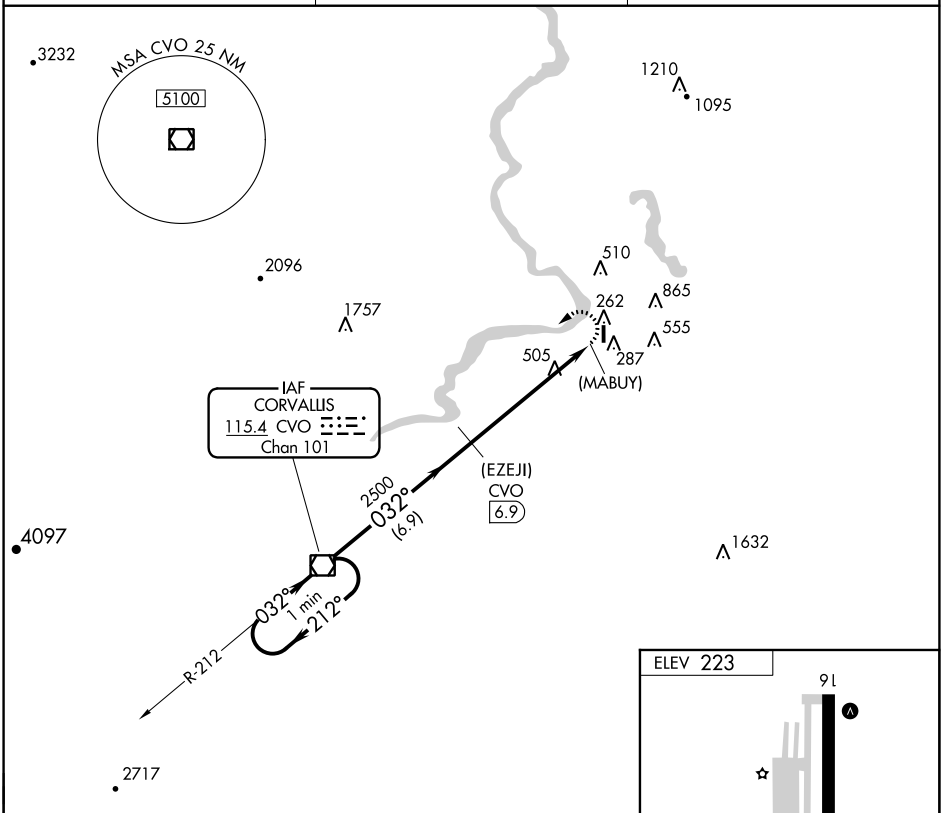
VOR/DME or GPS-A
ALBANY MUNI (S12)

VOR/DME CVO	APP CRS	Rwy ldg	N/A
115.4 Chan **101**	**032°**	TDZE	**N/A**
		Apt Elev	**223**

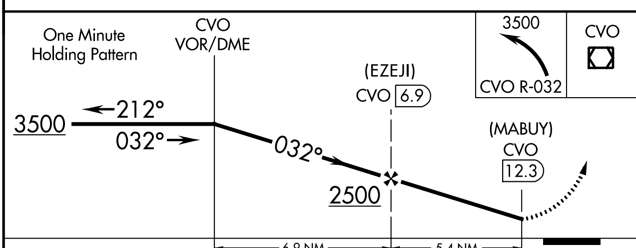
Use Corvallis altimeter setting.

MISSED APPROACH: Climbing left turn to 3500 via CVO R-032 to CVO VOR/DME and hold.

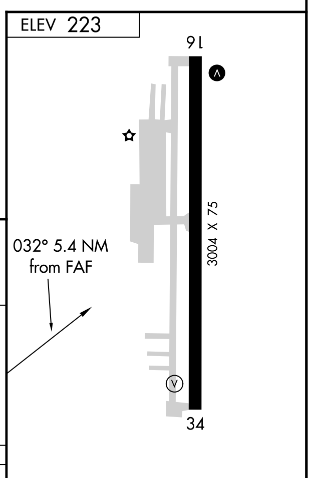
CORVALLIS AWOS-3	CASCADE APP CON ★	UNICOM
135.775	**127.5 348.7**	**122.8** (CTAF) Ⓛ



NoPT for arrivals on CVO VOR/DME airways radials 154 clockwise to 177.



CATEGORY	A	B	C	D
CIRCLING	940-1 714 (800-1)		NA	



MIRL Rwy 16-34 Ⓛ
REIL Rwys 16 and 34 Ⓛ

NW-1, 18 SEP 2014 to 16 OCT 2014

NW-1, 18 SEP 2014 to 16 OCT 2014

INSTRUMENT APPROACH PROCEDURE CHARTS

IFR ALTERNATE AIRPORT MINIMUMS

Standard alternate minimums for non-precision approaches and approaches with vertical guidance [NDB, VOR, LOC, TACAN, LDA, SDF, VOR/DME, ASR, RNAV (GPS) or RNAV (RNP)] are 800-2. Standard alternate minimums for precision approaches (ILS, PAR, or GLS) are 600-2. Airports within this geographical area that require alternate minimums other than standard or alternate minimums with restrictions are listed below. NA - means alternate minimums are not authorized due to unmonitored facility, absence of weather reporting service, or lack of adequate navigation coverage. Civil pilots see FAR 91. IFR Alternate Minimums: Ceiling and Visibility Minimums not applicable to USA/USN/USAF. Pilots must review the IFR Alternate Minimums Notes for alternate airfield suitability.

NAME ALTERNATE MINIMUMS

ALBANY, OR
ALBANY MUNI (S12) .... **VOR/DME or GPS-A**
NA except for operators with approved weather reporting service.

ARLINGTON, WA
ARLINGTON MUNI (AWO) .... **RNAV (GPS) Rwy 34**
NA when local weather not available.
Category D, 800-2½.

ASTORIA, OR
ASTORIA RGNL (AST)....................... **RNAV (GPS) Rwy 8**[1][3]
RNAV (GPS) Rwy 26[1][2]
VOR Rwy 8[3]
[1]NA when local weather not available.
[2]Categories A, B, 900-2; Category C, 900-2¾; Category D, 900-3.
[3]Category C, 800-2¼; Category D, 900-3.

AURORA, OR
AURORA STATE (UAO) .... **LOC Rwy 17**[1]
RNAV (GPS) Rwy 17[2][3]
RNAV (GPS) Rwy 35[2]
[1]Category D, 800-2¼.
[2]NA when local weather not available.
[3]Categories A, B, 900-2; Category C, 900-2½; Category D, 900-2¾.

BAKER, MT
BAKER MUNI (BHK) .... **NDB Rwy 13**[1]
NDB Rwy 31[2]
[1]Categories A, B, 1100-2; Categories C, D, 1100-3.
[2]Categories A, B, 1000-2; Category C, 1000-2¾; Category D, 1000-3.

NAME ALTERNATE MINIMUMS

BAKER CITY, OR
BAKER CITY MUNI (BKE) .... **RNAV (GPS) Rwy 13**[2]
VOR-A[1][3]
VOR/DME Rwy 13[2][4]
[1]NA when local weather not available.
[2]Category D, 900-2¾.
[3]Categories A, B, 1900-2; Categories C, D, 1900-3.
[4]NA when control zone not in effect.

BELLINGHAM, WA
BELLINGHAM INTL (BLI) ....**ILS or LOC Rwy 16**[1]
RNAV (GPS) Y Rwy 16[2]
RNAV (GPS) Y Rwy 34[2]
NA when local weather not available.
[1]ILS, Category C, 800-2; Category D, 1000-3; LOC, Category D, 1000-3.
[2]Category D, 1000-3

BEND, OR
BEND MUNI (BDN)........ **RNAV (GPS) Y Rwy 16**
VOR/DME Rwy 16
Category D, 1200-3.
NA when local weather not available.

BIG PINEY, WY
MILEY MEMORIAL FIELD (BPI)..................................... **VOR Rwy 31**
Category D, 800-2¼.

BILLINGS, MT
BILLINGS LOGAN INTL (BIL) ....**ILS or LOC Rwy 10L**[2]
NDB Rwy 10L[1]
[1]Category D, 800-2¼.
[2]ILS, Categories A, B, 800-2, Categories C, D, 800-2½. LOC, Categories C, D, 800-2½

IFR TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

Civil Airports and Selected Military Airports

ALL USERS: Airports that have Departure Procedures (DPs) designed specifically to assist pilots in avoiding obstacles during the climb to the minimum enroute altitude, and/or airports that have civil IFR takeoff minimums other than standard, are listed below. Takeoff Minimums and Departure Procedures apply to all runways unless otherwise specified. Altitudes, unless otherwise indicated, are minimum altitudes in MSL.

DPs specifically designed for obstacle avoidance are referred to as Obstacle Departure Procedures (ODPs) and are textually described below, or published separately as a graphic procedure. If the ODP is published as a graphic procedure, its name will be listed below, and it can be found in either this volume (civil), or the applicable military volume, as appropriate. Users will recognize graphic obstacle DPs by the term "(OBSTACLE)" included in the procedure title; e.g., TETON TWO (OBSTACLE). If not specifically assigned an ODP, SID, or radar vector as part of an IFR clearance, an ODP may be required to be flown for obstacle clearance, even though not specifically stated in the IFR clearance. When doing so in this manner, ATC should be informed when the ODP being used contains a specified route to be flown, restrictions before turning, and/or altitude restrictions.

Some ODPs, which are established solely for obstacle avoidance, require a climb in visual conditions to cross the airport, a fix, or a NAVAID in a specified direction, at or above a specified altitude. These procedures are called Visual Climb Over Airport (VCOA). To ensure safe and efficient operations, the pilot must verbally request approval from ATC to fly the VCOA when requesting their IFR clearance.

At some locations where an ODP has been established, a diverse vector area (DVA) may be created to allow radar vectors to be used in lieu of an ODP. DVA information will state that headings will be as assigned by ATC and climb gradients, when applicable, will be published immediately following the specified departure procedure.

Graphic DPs designed by ATC to standardize traffic flows, ensure aircraft separation and enhance capacity are referred to as "Standard Instrument Departures (SIDs)". SIDs also provide obstacle clearance and are published under the appropriate airport section. ATC clearance must be received prior to flying a SID.

CIVIL USERS NOTE: Title 14 Code of Federal Regulations Part 91 prescribes standard takeoff rules and establishes takeoff minimums for certain operators as follows: (1) Aircraft having two engines or less - one statute mile. (2) Aircraft having more than two engines - one-half statute mile. These standard minima apply in the absence of any different minima listed below.

MILITARY USERS NOTE: Civil (nonstandard) takeoff minima are published below. For military takeoff minima, refer to appropriate service directives.

NAME TAKEOFF MINIMUMS

AFTON, WY

AFTON MUNI (AFO)
AMDT 1 06271 (FAA)

DEPARTURE PROCEDURE: **Rwy 16,** Use LUNDI DEPARTURE. **Rwy 34,** use AFTON DEPARTURE.

ALBANY, OR

ALBANY MUNI (S12)
AMDT 2A 11237 (FAA)

DEPARTURE PROCEDURE: **Rwy 16,** turn right. **Rwy 34**, turn left.
All aircraft climb direct CVO VOR/DME and continue climb in CVO VOR/DME holding pattern, (East, right turns, 261° inbound) to cross CVO VOR/DME at or above 3400.

NOTE: **Rwy 34,** light poles 860' from DER, 69' right of centerline, 40' AGL/262' MSL. Light poles 906' from DER, 15' left of centerline, 41' AGL/262' MSL.

NAME TAKEOFF MINIMUMS

ANACONDA, MT

BOWMAN FIELD (3U3)
AMDT 1 07186 (FAA)

TAKEOFF MINIMUMS: **Rwy 4,** std. w/ min. climb of 417' per NM to 9000, or 2800-3 for climb in visual conditions. **Rwy 17,** std. w/ min. climb of 321' per NM to 10200, or 2800-3 for climb in visual conditions. **Rwy 22,** NA-obstacles. **Rwy 35,** std. w/ min. climb of 369' per NM to 9100, or 2800-3 for climb in visual conditions.

DEPARTURE PROCEDURE: **Rwys 4, 35,** climbing right turn to 10200 via heading 130° and CPN VOR/DME R-340 to CPN VOR/DME, continue climb-in-hold to 10200 (north, left turn, 166° inbound), or for climb in visual conditions, cross Bowman Field Airport at or above 7700 then proceed via CPN R-309 to CPN VOR/DME, continue climb-in-hold to 10200 (north, left turn, 166° inbound). **Rwy 17,** climbing left turn to 10200 via heading 100° and CPN VOR/DME R-335 to CPN VOR/DME, continue climb-in-hold to 10200 (north, left turn, 166° inbound), or for climb in visual conditions, cross Bowman Field Airport at or above 7700 then proceed via CPN R-309 to CPN VOR/DME, continue climb-in-hold to 10200 (north, left turn, 166° inbound).

NOTE: **Rwy 17,** multiple trees beginning 865' from DER, 243' left of centerline, up to 70' AGL/5097' MSL. Rod on hangar 570' from DER, 278' left of centerline, 54' AGL/5054' MSL. Multiple trees beginning 787' from DER, 165' right of centerline, up to 70' AGL/5098' MSL. Multiple transmission lines beginning 4602' from DER, 1664' right of centerline, 80' AGL/5159' MSL. **Rwy 35,** multiple transmission lines beginning 2242' from DER, 964' left of centerline, up to 80' AGL/5159' MSL.

Appendix C

APP CRS	Rwy ldg	---
161°	TDZE	226
	Apt Elev	226

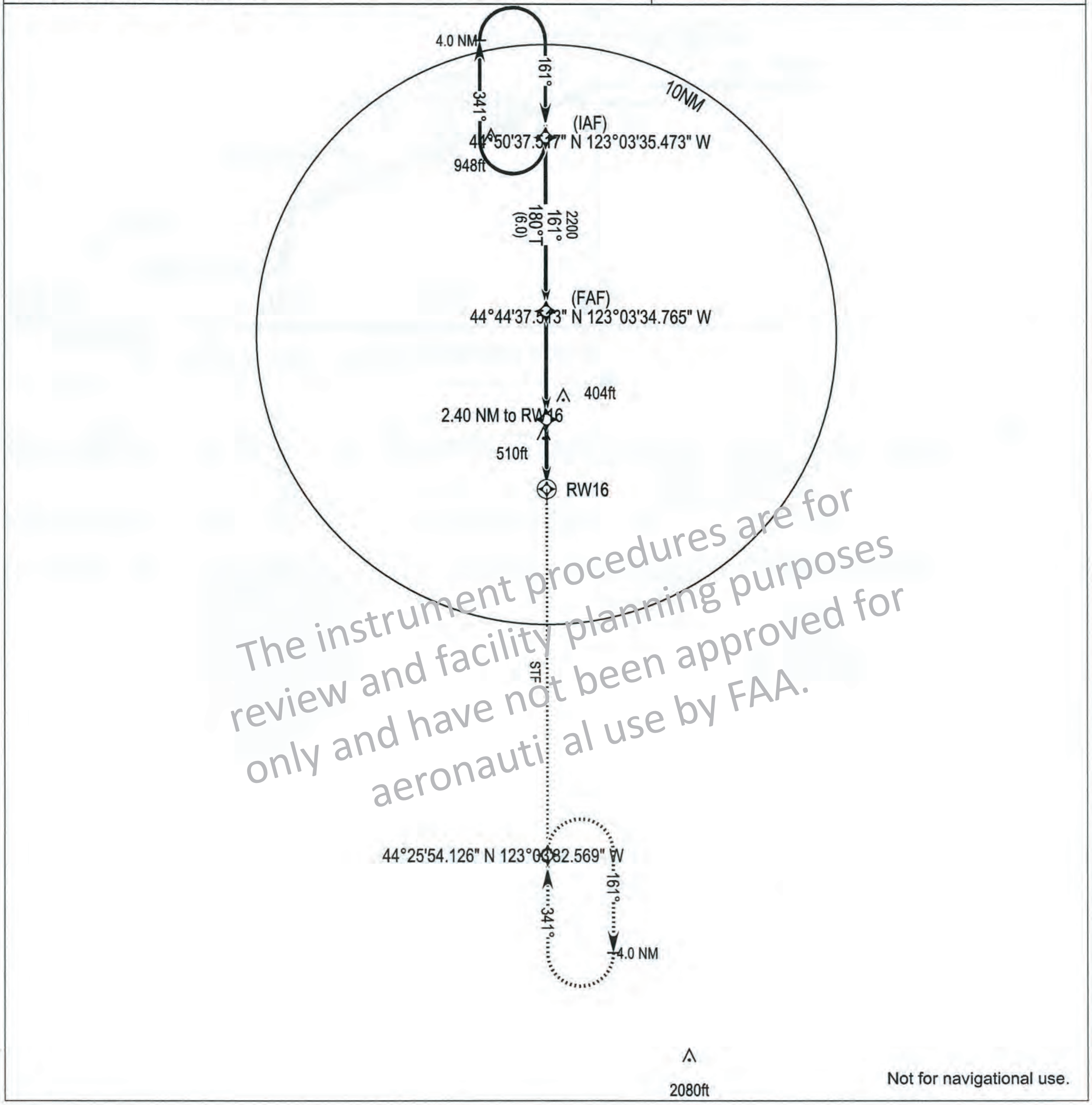
RNAV (GPS)-B

ALBANY MUNI (KS12)

NA

When CORVALLIS altimeter source not received, use Mcnary Fld altimeter setting LNAV Visibility Reduction by Helicopters NA DME/DME RNP-0.3 NA.

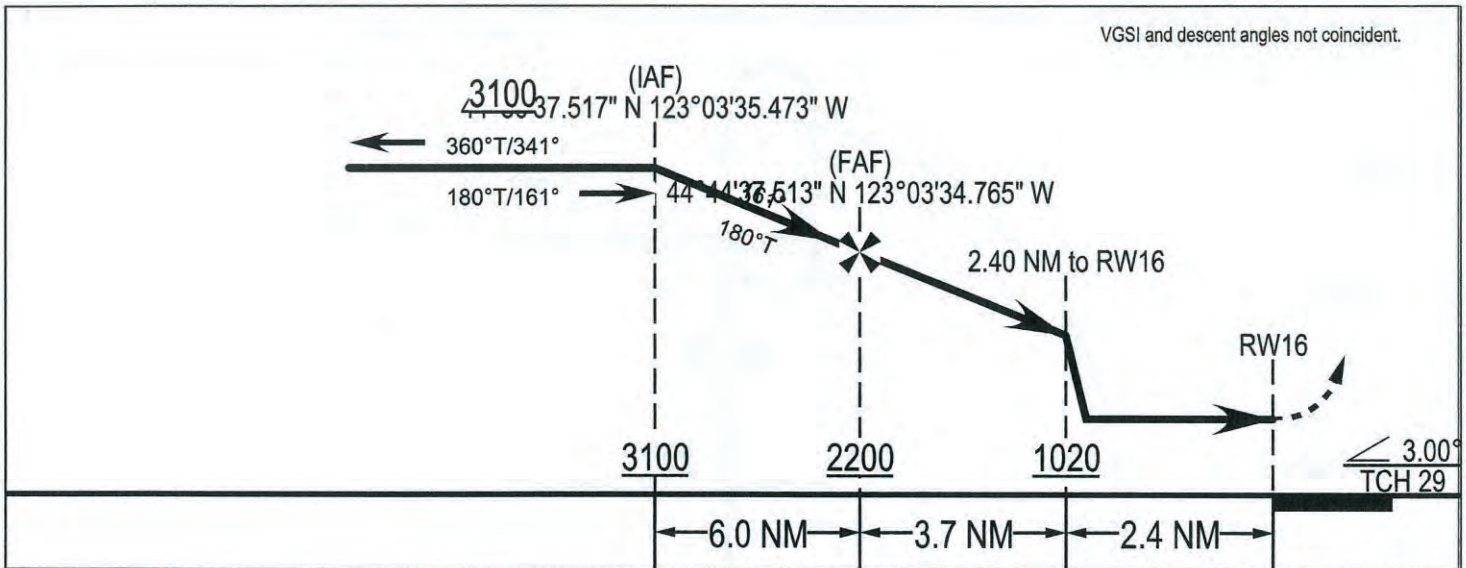
MISSED APPROACH: Climb to 3300 to 44°25'54.126" N 123°03'32.569" W and hold



Not for navigational use.

RNAV (GPS)-B

ALBANY MUNI (KS12)



CATEGORY	A	B	C	D	E
LNAV	860-1 635 (700-1)		NA		
Circling	860-1 634 (700-1)		NA		
Mcnary Fld					

FIX NAME	FIX LOCATION
	4450.625 N / 12303.59 W
IF/IAF	4450.625 N / 12303.59 W
PFAF	4444.625 N / 12303.58 W
2.40 NM to the next point.	4440.920 N / 12303.57 W
1.42 NM to the next point.	4439.937 N / 12303.57 W
	4444.625 N / 12303.58 W
RW16	4438.516 N / 12303.57 W
	4425.902 N / 12303.54 W

APP CRS	Rwy ldg	---
341°	TDZE	226
	Apt Elev	226

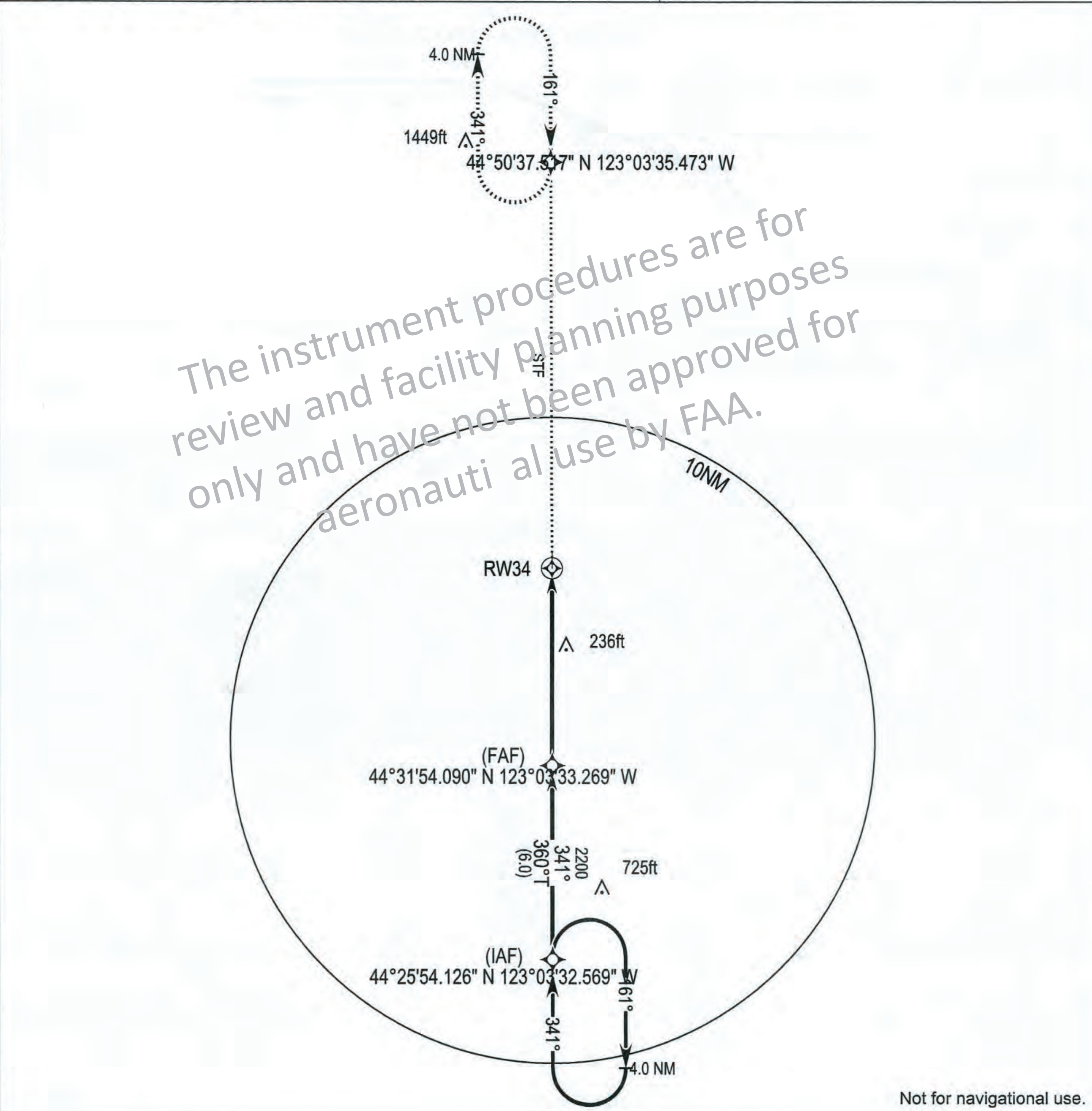
RNAV (GPS)-C

ALBANY MUNI (KS12)

NA

LNAV Visibility Reduction by Helicopters NA When CORVALLIS altimeter setting is not received use Mcnary Fld altimeter setting: increase all MDAs 20 ft DME/DME RNP-0.3 NA.

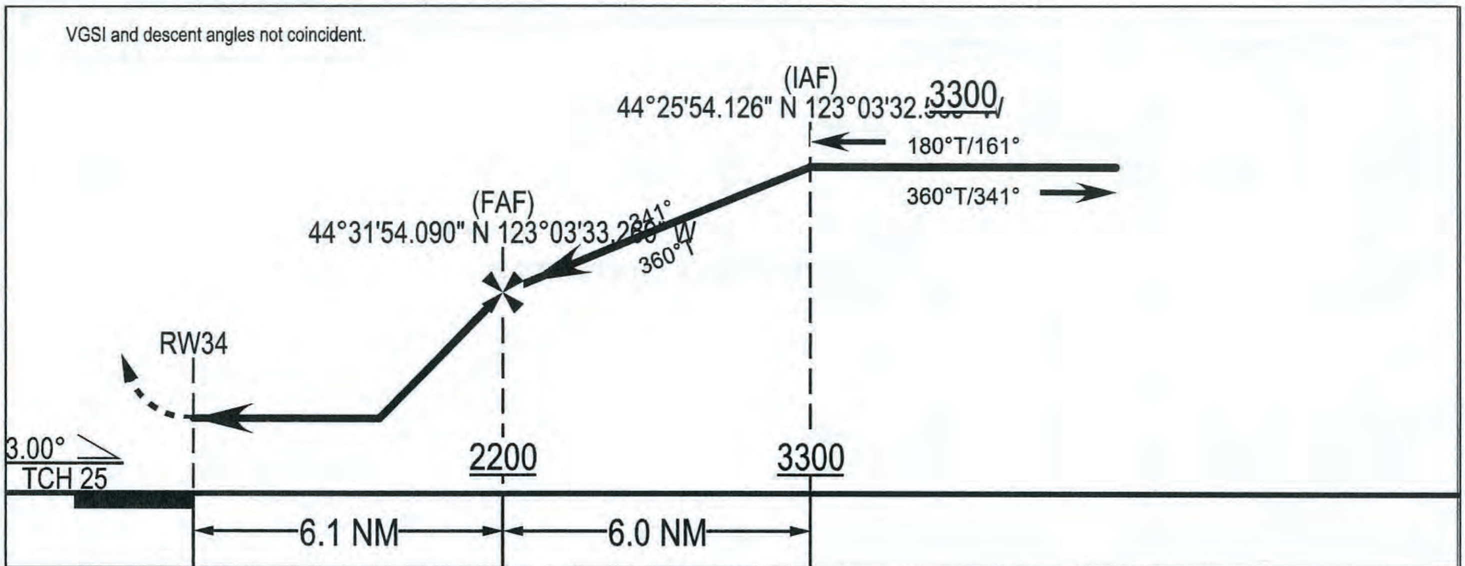
MISSED APPROACH: Climb to 3100 to 44°50'37.517" N 123°03'35.473" W and hold



Not for navigational use.

RNAV (GPS)-C

ALBANY MUNI (KS12)



CATEGORY	A	B	C	D	E
LNAV	840-1 614 (700-1)		NA		
Circling	840-1 614 (700-1)		NA		
Mcnary Fld					

FIX NAME	FIX LOCATION
	4425.902 N / 12303.54 W
IF/IAF	4425.902 N / 12303.54 W
PFAF	4431.901 N / 12303.55 W
1.38 NM to the next point.	4436.639 N / 12303.56 W
	4431.901 N / 12303.55 W
RW34	4438.022 N / 12303.57 W
	4450.625 N / 12303.59 W

Appendix D

Memorandum

To: Matt Rogers, P.E., Century West Engineering

From: Susan Cunningham, ESA Vigil-Agrimis

Date: December 2, 2013

Subject: Albany Airport – Master Plan Project Environmental Conditions Inventory Technical Memorandum Response to Comments Received

The following table lists comments received on November 22, 2013, from Chris Bailey, City of Albany, on the Environmental Conditions Inventory Technical Memorandum prepared for the Albany Airport Master Plan Update. The Technical Memorandum has been changed to reflect the comments and response to comments addressed below.

Comment Received	**Response**
On page 3, the paragraph right above Table 2 is confusing. I think the sentences are out of order.	Sentences were out of order. This has been corrected.
Does this memo say that the Airport's SWPCP needs to be updated as part of the current Airport Master Plan work? We just updated it in the last year or so as part of the 1200-Z permit renewal. If we need to do that, please let us know so we can get our environmental services staff started on that.	The memo did not mean to imply that the SWPCP needs to be updated. I did not know when the SWPCP was last renewed. The statement in the tech memo was to be cautionary if the Master Plan update would trigger the need for an update to the SWPCP.
They also say we need to do a biological assessment of downstream water quality to determine the effects the airport runoff may have on listed species. That seems to be a pretty far-reaching requirement, and one that has potential pitfalls – the primary one being how to parse out the airport's impacts from all other properties that drain into the creek.	The current direction of National Marine Fisheries Service (NMFS) is very conservative regarding downstream water quality effects. Again it was meant to be a cautionary note that it is very likely that a change in stormwater management or addition for new impervious surface could result in the need for a Biological Assessment. NMFS does have direction out on how to assess this type of impact.
Do you know what the legal requirement is for a biological assessment?	Listed threatened and endangered species are protected under the Endangered Species Act. So any project that could harm or harass a listed species needs to be evaluated or assessed. The most common trigger for a Biological Assessment is a federal action (either a project funded with federal dollars or a federal permit such as a Section 404 Permit to place fill into wetlands).

Memorandum

To: Matt Rogers, P.E., Century West Engineering

From: Susan Cunningham and Maureen Raad, ESA Vigil-Agrimis

Date: November 20, 2013, revised December 2, 2013

Subject: Albany Airport – Master Plan Project Environmental Conditions Inventory

The Albany Airport (Airport) is located east of Interstate 5 (I-5), between the Highway 99 (HWY 99E) connector and the Santiam Highway (HWY 20) interchanges. The Airport is in the Albany city limits in Linn County, Oregon. The Airport is within the City of Albany City Limits. The legal location of the Airport is Township 11 South, Range 3 West, and section 4, Willamette Meridian.

The purpose of this memorandum is to summarize the findings of the environmental conditions inventory and identify any environmental regulations that would need to be addressed prior to construction of the proposed airport improvements in the master plan. A site reconnaissance was conducted on October 30, 2013. The temperature was in the mid 50's (Fahrenheit degrees), and there had been no measurable rainfall the night before. The purpose of this reconnaissance was to examine potential habitat for incompatible land use, parks and recreation, wetland resources, stormwater runoff, and listed threatened and endangered species.

Findings are summarized in this memo and on the Attached figure.

Land Use and Parks and Recreation

The Airport is inside the Albany City Limits and is zoned Light Industrial. The land to the east is zoned RS-6.5 Single Family Residential (6-8 Units per Acre). The property to the north and south are zoned Regional Commercial. The proposed master plan improvements on the Airport are compatible with the Light Industrial zoning.

Timber Linn Park is located east of the Airport. Portions of this Park are on Airport property. The Park is a 4(f) resource[1]. This law provides for the protection of publicly-owned parks, recreation areas, and wildlife and waterfowl refuges of national, state, or local significance, and public or private historic sites of national, state, or local significance. Projects requiring the use of Section 4(f) resources will not be approved by the FAA unless there is no prudent and feasible alternative to the use of such land, and such projects include all possible planning to minimize harm resulting from the use. If portions of the Park will be used or modified, a Section 4(f) evaluation maybe required.

[1] Section 4(f) resources are lands protected under Section 4(f) of the Department of Transportation Act of 1966 (recodified at 49 U.S.C. § 303(c)), i.e. publicly-owned parks, recreation areas, and wildlife and waterfowl refuges of national, state, or local significance, and public or private historic sites of national, state, or local significance.

Wetlands and other waters of the U.S.

Local wetland inventory (LWI) data was obtained from the Oregon Department of State Lands (DSL) website on October 24, 3013. The LWI shows 7 wetlands and 1 creek (Cox Creek) as occurring on the Airport Property. Only Cox Creek (identified as COX-9 on the LWI) was determined to be a locally significant wetland. This means that development activities that affect Cox Creek would be subject to the City's Article 6 Natural Resource Districts (Article 6.280).

In addition, the Linn County Soil Survey was reviewed to see if there are any hydric soils mapped to occur on the Airport property. The only hydric soils mapped are in the location of Cox Creek.

Potential jurisdictional wetlands were observed during the field reconnaissance. These generally coincided with areas indicated as wetland resources on the LWI. Wetlands generally seem to be associated with stormwater runoff pathways or shallow depressions.

Cox Creek historically crossed the Airport but was ditched around the Airport probably when it was initially constructed. The creek now enters the Airport from Timber Linn Park under Price Road SE. It then passes around runway end 34 and exits the Airport passing under the taxiway.

Wetlands and water bodies are under the jurisdiction of both the State of Oregon Department of State Lands (DSL) and the US Army Corps of Engineers (Corps). Several of the swales identified as potential wetlands seem to be associated with stormwater drainage system and could have been man-made. Man-made ditches or swales created in wetlands are jurisdictional. Ditches created in uplands are jurisdictional if they meet both of the following:

- Have a free and open connection to a waterway: A "free and open connection" means a connection by any means, including but not limited to culverts, to or between natural waters that allows the interchange of surface flow at bankfull stage or OHW, or at or below HMT between tidal waterways.
- Contain food *and* game fish: Because the list of food fish includes almost any fish (there is no list available), and the ditch must have both to be jurisdictional, the game fish list (ORS 496.009) is used to establish jurisdiction. Ditches created from upland that have fish screens are generally not jurisdictional.

Cox Creek has been identified as a locally significant water and is under the jurisdiction of the City of Albany, DSL, and the Corps. Most of the ditches and swales do not seem to meet the jurisdictional criteria. However, wetland and swales/ditches will need to be delineated prior to construction of the preferred alternative elements to determine the extent and jurisdiction of the resources.

Stormwater Runoff

Stormwater runoff patterns were observed during the field reconnaissance to assess whether the proposed actions might affect water quality or geomorphology in receiving waterways. Cox Creek is the only receiving water on the Airport. Runoff flows directly to Cox Creek at the south end of the Airport and is also conveyed to a piped stormwater system that exits the Airport in two locations. The southern system connects to Cox Creek and the Airport property boundary where Cox Creek Passes below I-5. The northern system exits the Airport property northwest of runway end 16 at the property boundary at Aviation Way SE.

Stormwater discharges at the Airport are regulated under a NPDES 1200-Z Permit (Department of Environmental Quality General Permit). The City will need to update its Stormwater Pollution Control Plan (SWPCP) for the airport to reflect new development and ensure consistency with NPDES Permit requirements (http://www.deq.state.or.us/wq/sisdata/facilityID.asp?facilityidreq=107000).

The City of Albany's Public Works Department has also published Stormwater Management Engineering Standards. New development at the airport may also be subject to these local standards. The existing stormwater management plan would need to be updated to include the proposed master plan improvements.

State and Federal Sensitive, Threatened and Endangered Species

Species lists were obtained from the US Fish and Wildlife Service (USFWS) website and from the NOAA Fisheries website on November 5, 2013. Species listed by the State of Oregon under the State Endangered Species Act that could occur in Linn County are listed in **Table 2.** Species listed under the Federal Endangered Species Act (ESA) addressed in this Memorandum are displayed in **Table 3**. The Oregon Biodiversity Information Center (ORBIC) database was also queried to obtain records of known sensitive, threatened and endangered plant and animal species within a 2 mile radius of the airport (ORBIC October 28, 2013).

There are no known listed species occurrences or no designated Critical Habitat for any species on the Airport property. Because of the timing of the field visit, the presence or absence of listed plant species could not be confirmed. It is recommended that a field visit be conducted during the blooming season (generally May-July) to confirm absence of listed plant species.

Drainage from the Airport is discharged directly Cox Creek. There is a presumed fish passage barrier at SE Salem Avenue and Waverly Lake (about a mile downstream from the Airport), so no listed fish can access Cox Creek on the Airport property. However, when the SWPCP is updated, a Biological Assessment may need to be completed to determine the downstream water quality and the effects to Oregon Chub, Upper Willamette River Chinook, and Willamette River steelhead.

Table 2. Oregon State ESA Listed Species That Have Potential to Occur in Linn County, Oregon

Species Common Name (*Scientific Name*)	State status	Actual Occurrence in Action Area
Willamette Valley daisy *(Erigeron decumbens)*	Endangered.	None. Potential habitat
Bradshaw's dessert parsley *(Lomatium bradshawii)*	Endangered	None. Potential habitat.
Nelson's checker-mallow *(Sidalcea nelsoniana)*	Threatened	None. Potential habitat.
Kincaid's lupine *(Lupinus sulphureus ssp. Kincaidii)*	Threatened.	None. Potential habitat.
Wayside aster *(Eucephalus vialis)*	Threatened	None. No potential habitat
White-topped aster *(Sericocarpus rigidus)*	Threatened	None. Potential habitat

Table 3. ESA Species Listed by the USFWS and NOAA Fisheries Species Lists That Have Potential to Occur in Linn County, Oregon

Species Common Name (*Scientific Name*)	Federal Endangered Species Act Status (i.e., Endangered, Threatened, Proposed, Candidate)	Actual Occurrence in Action Area
Northern spotted owl *(Strix occidentalis caurina)*	Threatened. Critical habitat has been designated for this species, but not within the project area	None. No potential habitat.
Streaked horned lark *(Eremophila alpestris strigata)*	Proposed. Critical habitat has been proposed for this species, but not within the project area.	None. No potential habitat.
Fender's blue butterfly *(Icaria icariodes fender)*	Endangered. Critical habitat has been designated for this species, but not within the project area.	None. Potential habitat.
Willamette Valley daisy *(Erigeron decumbens)*	Endangered. Critical habitat has been designated for this species, but not within the project area.	None. Potential habitat.
Bradshaw's dessert parsley *(Lomatium bradshawii)*	Endangered	None. Potential habitat.
Nelson's checker-mallow *(Sidalcea nelsoniana)*	Threatened	None. Potential habitat.
Kincaid's lupine *(Lupinus sulphureus ssp. Kincaidii)*	Threatened. Critical habitat has been designated for this species, but not within the project area.	None. Potential habitat.
Golden paintbrush *(Castilleja levisecta)*	Threatened.	None. Potential habitat.
Oregon spotted frog (*Rana pretiosa*)	Proposed Threatened	None. Potential habitat
Oregon chub (*Oregonichthys crameri*)	Threatened. Critical habitat has been designated for this species, but not within the project area	None. No potential habitat on-site, but downstream water quality effects need to assessed.
Bull trout *(Salvelinus confluentus)*	Threatened. Critical habitat has been designated for this species, but not within the project area	None. No potential habitat.
Upper Willamette River Chinook salmon – Spring Run (*Oncorhynchus tshawytscha*)	Threatened. Critical habitat has been designated for this species, but not within the project area	None. No potential habitat on-site, but downstream water quality effects need to assessed.
Upper Willamette River steelhead – Winter Run (*Oncorhynchus mykiss*)	Threatened. Critical habitat has been designated for this species, but not within the project area	None. No potential habitat on-site, but downstream water quality effects need to assessed.

Plants

Willamette Valley daisy inhabits Willamette Valley prairie habitats. There is suitable habitat for the Willamette Valley daisy at the airport in the open fields. There are recent or historic sightings of Willamette Valley daisy within a 2 mile radius of the airport. Additional field reconnaissance is recommended during the blooming season to determine if this species is present at the Airport.

Bradshaw's dessert parsley inhabits Willamette Valley prairie habitats. There is suitable habitat for the Bradshaw's dessert parsley at the airport in the open fields. There are no recent or historic sightings of Bradshaw's dessert parsley within a 2 mile radius of the airport. Additional field reconnaissance is recommended during the blooming season to determine if this species is present at the Airport.

Nelson's checker-mallow inhabits Willamette Valley prairie habitats. There is suitable habitat for the Nelson's checker-mallow at the airport in the open fields. There are no recent or historic sightings of Nelson's checker-mallow within a 2 mile radius of the airport. Additional field reconnaissance is recommended during the blooming season to determine if this species is present at the Airport.

Kincaid's lupine inhabits Willamette Valley prairie habitats. There is suitable habitat for the Kincaid's lupine at the airport in the open fields. There are no recent or historic sightings of Kincaid's lupine within a 2 mile radius of the airport. Additional field reconnaissance is recommended during the blooming season to determine if this species is present at the Airport.

Golden paintbrush inhabits Willamette Valley prairie habitats. There is suitable habitat for the Golden paintbrush at the airport in the open fields. There are no recent or historic sightings of Golden paintbrush within a 2 mile radius of the airport. Additional field reconnaissance is recommended during the blooming season to determine if this species is present at the Airport.

Wayside aster inhabits dense coniferous forests and open deciduous woodlands. There is no suitable habitat for the Wayside aster at the Airport. There are no recent or historic sightings of Wayside aster within a 2 mile radius of the airport. The project will have no effect on the Wayside aster.

White-topped aster occurs in open, grassy, seasonally moist prairie and savannah habitats similar to those at the Airport. There are no recent or historic sightings of Golden paintbrush within a 2 mile radius of the airport. Additional field reconnaissance is recommended during the blooming season to determine if this species is present at the Airport.

Birds

Northern spotted owls are known to occur in the Willamette Valley bioregion, but require old growth forests for nesting, roosting, foraging and dispersal. The Airport and surrounding areas do not contain suitable habitat. There are no recent or historic sights of northern spotted owls within a 2 mile radius of the airport. The project will have no effect on the northern spotted owl.

819 SE Morrison Street, Suite 310, Portland, Oregon 97214 • 503-274-2010 • 503-274-2024 fax • www.vigil-agrimis.com

Streaked horned lark are known to occur in the Willamette Valley bioregion in open grassland habitat similar to that at the Airport. There are no recent or historic sights of northern streaked horned lark within a 2 mile radius of the airport. Cat Brown at USFWS was contacted on October 30, 2013, to discuss the likely occurrence of this species at the Airport. Although the open fields to provide suitable habitat, she confirmed that no larks are present at the Airport. She attributes the lack of larks to less than ideal habitat conditions caused by the amount and noise generated by I-5 and the close proximity of warehouse and other development. The project will have no effect on the streaked horned lark.

Invertebrates

Fender's blue butterfly inhabits Willamette Valley prairie habitats. There are no recent or historic sightings of Fender's blue butterfly within a 2 mile radius of the airport. This species is associated with other listed Willamette Valley plants. Additional field reconnaissance is recommended during the blooming season to determine if suitable habitat is present at the Airport.

Amphibians

Oregon spotted frog inhabits waters and associated vegetated shorelines of ponds, springs, marshes, and slow-flowing streams. There is suitable habitat for the spotted frog at the airport along Cox Creek. There are no recent or historic sightings of Oregon spotted frogs within a 2 mile radius of the airport.

Fish

Oregon chub salmon inhabit the mainstem of the Willamette River and its confluence with Cox Creek. There is a fish passage barrier at SE Salem Road and Waverly Lake about a mile downstream of the Airport so Oregon chub cannot access the Airport. However, drainage from the airport is discharged directly to the creek. When the stormwater management plan is updated for the Master Plan, a Biological Assessment should be completed to determine the downstream water quality and the effects to Oregon chub.

Bull trout inhabit cold-water in relatively pristine stream and lake habitats. Cox Creek does not provide suitable habitat for bull trout because it has been highly altered and includes several lakes where water temperatures are likely higher. The project will not effect on bull trout.

Upper Willamette River Chinook salmon inhabit the mainstem Willamette River and its confluence with Cox Creek. There is a fish passage barrier at SE Salem Road and Waverly Lake about a mile downstream of the Airport so Chinook salmon cannot access the Airport. When the stormwater management plan is updated for the Master Plan, a Biological Assessment should be completed to determine the downstream water quality and the effects to Upper Willamette River Chinook salmon.

Upper Willamette River steelhead inhabit the mainstem Willamette River and its confluence with Cox Creek. There is a fish passage barrier at SE Salem Road and Waverly Lake about a mile downstream of the Airport so steelhead cannot access the Airport. When the stormwater management plan is updated for the Master Plan, a Biological Assessment should be completed to determine the downstream water quality and the effects Willamette River steelhead.

Essential Fish Habitat

Under Section 305 of the Magnuson-Stevens Act, federal agencies that authorize fund or undertake any action that may adversely affect any essential fish habitat (EFH) are required to consult with NOAA Fisheries to receive recommendations on measures necessary to conserve or enhance EFH. Statutorily defined, EFH is those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. EFH is designated on the basis of information indicating that certain aquatic habitats or conditions are necessary to sustain the fishery.

There is not essential fish habitat on the airport property. Chinook salmon, Steelhead, and chub are not able to access the Cox Creek above the Cox Creek dam. However, EFH designations end at a presumed fish passage barrier at SE Salem Avenue and Waverly Lake. Cox Creek runs through the Airport about a mile upstream of this barrier. Drainage from the Airport is discharged directly to the creek.


ALBANY AIRPORT
Field Recon. 10-31-13
Legend
Cox Creek
Ditch/Swale
Culvert
inlet
Possible wetland
N
0'
200'
400'
Scale: 1"=200'
16
34
Timber-Linn Lake
Swan Lake
Cox Creek

R. 3 W.
N
W
E
S
SEC 33
SEC 34
SEC 35
T. 10 S.
T. 11 S.
BURKHART CREEK WATERSHED
TRUAX CREEK WATERSHED
BURKHART CREEK WATERSHED
COX CREEK WATERSHED
SEC 4
SEC 3
SEC 2
Waters of the State
NOT- Waters of the State
NO SD
COX CREEK WATERSHED
PERIWINKLE CREEK WATERSHED
SEC 9
SEC 10
SEC 11
SEC 16
SEC 15
SEC 21
R. 3 W.
East I-5
Local Wetlands
Inventory
Albany
June 30, 1997
APPROVED WETLANDS INVENTORY
Oregon Division of State Lands
Meets Local Wetlands Inventory standards
Date 9/97 Approved by J. Morlan
Street
Parcel
Waterway
Sample Points
Watershed Boundary
Wetland Sub-Unit Boundary
BUR-1A Wetland Code
f Agricultural Wetland Modifier
Wetland
Wetland
Waters of the State
Properties requiring offsite survey
Project Boundary
WETLAND INVENTORY IS SUBJECT TO CHANGE
This map is for planning purposes only. It has been adopted by the City of Albany and approved by the Oregon Division of State Lands. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions. Mapped wetland boundaries are accurate to within 25 feet, however, there may be unmapped wetlands subject to regulation. In all cases, actual field conditions determine wetland boundaries.
For additional information, including wetland determination data forms, wetland assessment summary sheets, and significant wetlands assessment sheets, see the report prepared by Pacific Habitat Services, Inc., entitled "City of Albany Local Wetlands Inventory East of I-5", on file in the office of the Albany Community Development Department, 333 Broadalbin St. SE, Albany Oregon.
The City of Albany's Infrastructure records, drawings, and other documents have been gathered over many decades, using differing standards for quality control, documentation, and verification. All the information provided represents current information in a readily available format. While the information provided is generally believed to be accurate, occasionally this information proves to be incorrect, and thus its accuracy is not warranted. Prior to making any property purchases or other investments based in full or in part upon the information provided, it is specifically advise that you independently field verify the information contained within our records.
400 0 400 800 1200 1600 Feet
Scale: 1" = 400'
Geographic Information Services (541) 917-7676
Albany Community Development Department (541) 917-7550
Albany
PROJECT: /data/wetland/east_i5/wetland.apr

Frequently Asked Questions About Local Wetlands Inventories

Your city has just begun a local wetlands inventory (LWI) as the first step in a required wetland planning process. The city has hired a wetland consulting firm to conduct the technical parts of the LWI. City staff, citizens, and wetland scientists from the consulting firm and the Division of State Lands (DSL) will all have a role in the inventory process. This fact sheet will help answer questions you might have about this process, the products and their uses.

What is a Local Wetlands Inventory?

A LWI is a systematic survey of an area (usually a city) to locate, map and describe the wetlands. The inventory is prepared using information sources such as aerial photos and soils maps and by conducting field observations. Where needed and where property access is permitted, the wetland scientists collect data on the vegetation and soils to confirm that an area is or is not a wetland. The final LWI consists of a set of maps that show the location of wetlands and streams, and descriptive information about the wetlands and the main functions they provide. Functions that are evaluated include wildlife habitat quality, contribution to fish habitat or water quality improvement, and floodwater retention capability.

Why is the LWI being conducted?

The main reason is that cities are required by the statewide land use planning law to include protection for "significant wetlands" in their comprehensive plan. The LWI and functional assessment of wetlands is the information-gathering step needed as the foundation for the remaining wetland planning steps. Once the LWI is completed, the city will identify the significant wetlands and work with citizens to develop appropriate ordinances that apply to those wetlands.

How will the community benefit from the LWI?

The LWI provides the information the city needs to incorporate wetlands and streams into the comprehensive plan for the community. For example, the LWI helps the city incorporate wetlands into planning for parks and greenbelts. It also provides information on each wetland's ability to improve water quality or reduce flooding—both of which are important to stormwater management planning. These wetland functions would be difficult and expensive to replace by other means. Also, advance knowledge about wetland locations helps reduce costs and conflicts when planning new infrastructure such as streets and water and sewer lines.

What about landowners? Is there any benefit for them?

Problems frequently occur when a landowner or developer is unaware that a parcel contains wetlands. When the LWI is completed, the city will notify all landowners who have wetlands mapped on their property. Information about the presence of wetlands reduces the uncertainty that can slow down real estate transactions and development plans. A person wishing to develop a site that contains a mapped wetland will know in advance to design the project to avoid the wetland and to allow sufficient time to obtain any necessary wetland fill permits.

If I don't allow property access, will my land be left off the wetlands map?

The entire planning area will be covered by the LWI. If you choose to deny property access to the wetland consultants, they will not go on your property. For those areas where access is denied, the wetland information will be compiled from the aerial photos, soils maps and observations from nearby roads. This information is generally adequate, but may be less accurate than for field-verified sites.

Oregon Division of State Lands
775 Summer Street NE
Salem, Oregon 97310
(503) 378-3805

Wetlands Program
April 1999

If a wetland is missed by the LWI is it still regulated?
Yes, the state and federal regulations apply to all wetlands regardless of whether or not they are mapped on the LWI. The consultants will attempt to include on the LWI all wetlands that are at least ½ acre in size.

Can I comment on the wetland map before it is adopted by the city?
Local knowledge is important to making the LWI as accurate as possible, so public comment is encouraged. The city will host a public meeting when the draft LWI is ready for review. Watch your local newspaper for an announcement or contact the planning department to be sure you are notified of the meeting date.

How accurate is the LWI map?
The LWI is developed according to standards adopted by DSL. The standards help to ensure accurate and complete maps, but perfection is not possible. Every attempt is made to map wetlands correctly on parcels and to map wetland boundaries to an accuracy of at least 25 feet. There may be areas where the boundary is less accurate, especially on large tracts with few geographic reference points, and areas where property access was denied. Keep in mind that the primary purposes of the LWI are to provide information for long-range planning by the city and to alert landowners to the probable wetlands on their property.

I heard that I might still need to hire a wetland consultant to delineate the wetland on my property before I can develop the site. Why?
Because the LWI maps the approximate wetland boundary and may miss small wetlands, much more detailed field work is usually needed prior to site development. It's important to know and mark on the ground the precise wetland boundary of areas subject to state and federal permit requirements prior to site alteration. The wetland consultant will not only provide the detailed delineation, but can assist in preparing a fill permit application and mitigation plan for any wetland impacts that cannot be avoided.

What exactly is a wetland?
Wetlands mapped on the LWI meet state and federal wetland criteria. In general terms, wetlands are areas that are subject to long periods of inundation or saturation that create an oxygen deficit in the soil. As a result, they are characterized by plant species called "hydrophytes" that are adapted to these saturated soil conditions. Most wetlands are seasonal—they are very wet for several months but dry out in the summer and fall. Also, some wetlands are disturbed in a way that obscures one or more of the wetland criteria. For example, some wetlands are regularly farmed or grazed and may be planted to species that tolerate wet conditions (like ryegrass) or "worked" later in the Spring than adjacent non-wetland fields. If not maintained, wetland vegetation will return.

Are wetlands the same as floodplains?
No. Many wetlands do occur in floodplains but they are not the same. A floodplain can be expected to flood following heavy rains and snowmelt. However, many floodplain areas are not flooded long enough or often enough to meet the wetland criteria described above.

What about riparian areas?
Riparian areas are the vegetated corridors along streams. Although they perform many of the same functions as wetlands, they do not necessarily meet wetland criteria. Many riparian areas have coarse, well drained soils that do not remain saturated for prolonged time periods. Because riparian areas are so important to the health of streams, to fish and to water quality, cities are required to map and provide protection for riparian areas as well as for wetlands. Frequently, the riparian inventory is conducted at the same time as the wetland inventory.

Appendix E

```
INM 7.0c SCENARIO RUN INPUT REPORT  17-Sep-13 12:54

STUDY: C:\PROGRAM FILES (X86)\INM7.0C\ALBANY 2012\
  Created     : 20-Aug-13 09:02
  Units       : English
  Airport     : S12
  Description :
    Your description

SCENARIO: EXISTING
  Created      : 20-Aug-13 09:13
  Description  :
  Last Run     : 29-Aug-13 08:46
  Run Duration :  000:00:04

STUDY AIRPORT
  Latitude    : 44.637815 deg
  Longitude   : 123.059449 deg
  Elevation   : 225.9 ft


CASES RUN:

CASENAME: ALBANY
  Temperature : 58.2 F
  Pressure    : 29.92 in-Hg
  AverageWind : 8.0 kt
  ChangeNPD   : No

STUDY RUNWAYS
  16
    Latitude  : 44.641935 deg
    Longitude : 123.059456 deg
    Xcoord    : 0.0003 nmi
    Ycoord    : 0.2472 nmi
    Elevation : 225.3 ft
    OtherEnd  : 34
    Length    : 3004 ft
    Gradient  : 0.02 %
    TkoThresh : 0 ft
    AppThresh : 0 ft

CASENAME: ALBANY
    RwyWind   : 8.0 kt

CASENAME: ALBANY
    RwyWind   : 8.0 kt
  34
    Latitude  : 44.633695 deg
    Longitude : 123.059440 deg
    Xcoord    : -0.0004 nmi
    Ycoord    : -0.2472 nmi
    Elevation : 225.9 ft
    OtherEnd  : 16
    Length    : 3004 ft
    Gradient  : -0.02 %
    TkoThresh : 0 ft
    AppThresh : 0 ft

CASENAME: ALBANY
    RwyWind   : 8.0 kt

STUDY HELIPADS
  200
    Latitude  : 44.638102 deg
    Longitude : 123.058872 deg
    Xcoord    : -0.0248 nmi
    Ycoord    : 0.0172 nmi

--------------------------------------------------------------------

STUDY TRACKS
  RwyId-OpType-TrkId
    Sub  PctSub   TrkType   Delta(ft)
  16-APP-20
    0   100.00   Vectors        0.0
  16-APP-21
    0   100.00   Vectors        0.0
  16-DEP-1
    0   100.00   Vectors        0.0
  16-DEP-2
```

```
  0   100.00   Vectors        0.0
16-DEP-3
  0   100.00   Vectors        0.0
16-TGO-50
  0   100.00   Vectors        0.0
200-APP-503
  0   100.00   Vectors        0.0
200-APP-504
  0   100.00   Vectors      180.0
200-DEP-501
  0   100.00   Vectors        0.0
200-DEP-502
  0   100.00   Vectors      180.0
34-APP-22
  0   100.00   Vectors        0.0
34-APP-23
  0   100.00   Vectors        0.0
34-DEP-4
  0   100.00   Vectors        0.0
34-DEP-5
  0   100.00   Vectors        0.0
34-DEP-6
  0   100.00   Vectors        0.0
34-TGO-51
  0   100.00   Vectors        0.0

STUDY TRACK DETAIL
 RwyId-OpType-TrkId-SubTrk
    #  SegType       Dist/Angle      Radius(nmi)
 16-APP-20-0
    1  Straight       0.2000 nmi
    2  Right-Turn      60.0000 deg      0.1000
    3  Straight       0.7730 nmi
    4  Left-Turn      90.0000 deg      0.1000
    5  Straight       0.3000 nmi
    6  Left-Turn      90.0000 deg      0.1000
    7  Straight       0.5258 nmi
 16-APP-21-0
    1  Straight       0.2000 nmi
    2  Right-Turn      60.0000 deg      0.1000
    3  Straight       0.5805 nmi
    4  Left-Turn      90.0000 deg      0.1000
    5  Straight       0.1333 nmi
    6  Left-Turn      90.0000 deg      0.1000
    7  Straight       0.3327 nmi
 16-DEP-1-0
    1  Straight       1.0763 nmi
    2  Right-Turn      90.0000 deg      0.1000
    3  Straight       0.3000 nmi
    4  Right-Turn      90.0000 deg      0.1000
    5  Straight       0.8292 nmi
    6  Left-Turn      60.0000 deg      0.1000
    7  Straight       0.2000 nmi
 16-DEP-2-0
    1  Straight       0.8277 nmi
    2  Right-Turn      90.0000 deg      0.1000
    3  Straight       0.1333 nmi
    4  Right-Turn      90.0000 deg      0.1000
    5  Straight       0.5805 nmi
    6  Left-Turn      60.0000 deg      0.1000
    7  Straight       0.2000 nmi
 16-DEP-3-0
    1  Straight       1.4944 nmi
 16-TGO-50-0
    1  Straight       1.0763 nmi
    2  Right-Turn      90.0000 deg      0.1000
    3  Straight       0.1333 nmi
    4  Right-Turn      90.0000 deg      0.1000
    5  Straight       1.6022 nmi
    6  Right-Turn      90.0000 deg      0.1000
    7  Straight       0.1333 nmi
    8  Right-Turn      90.0000 deg      0.1000
    9  Straight       0.5258 nmi
 200-APP-503-0
    1  Straight       1.5000 nmi
 200-APP-504-0
    1  Straight       1.5000 nmi
 200-DEP-501-0
    1  Straight       1.5000 nmi
 200-DEP-502-0
    1  Straight       1.5000 nmi
 34-APP-22-0
```

```
      1  Straight        0.2000 nmi
      2  Right-Turn       60.0000 deg       0.1000
      3  Straight        0.8291 nmi
      4  Left-Turn       90.0000 deg       0.1000
      5  Straight        0.3000 nmi
      6  Left-Turn       90.0000 deg       0.1000
      7  Straight        0.5820 nmi
   34-APP-23-0
      1  Straight        0.2000 nmi
      2  Right-Turn       60.0000 deg       0.1000
      3  Straight        0.5805 nmi
      4  Left-Turn       90.0000 deg       0.1000
      5  Straight        0.1333 nmi
      6  Left-Turn       90.0000 deg       0.1000
      7  Straight        0.3333 nmi
   34-DEP-4-0
      1  Straight        1.0202 nmi
      2  Right-Turn       90.0000 deg       0.1000
      3  Straight        0.3000 nmi
      4  Right-Turn       90.0000 deg       0.1000
      5  Straight        0.7730 nmi
      6  Left-Turn       60.0000 deg       0.1000
      7  Straight        0.2000 nmi
   34-DEP-5-0
      1  Straight        0.8277 nmi
      2  Right-Turn       90.0000 deg       0.1000
      3  Straight        0.1333 nmi
      4  Right-Turn       90.0000 deg       0.1000
      5  Straight        0.5805 nmi
      6  Left-Turn       60.0000 deg       0.1000
      7  Straight        0.2000 nmi
   34-DEP-6-0
      1  Straight        1.4944 nmi
   34-TGO-51-0
      1  Straight        1.0202 nmi
      2  Right-Turn       90.0000 deg       0.1000
      3  Straight        0.1333 nmi
      4  Right-Turn       90.0000 deg       0.1000
      5  Straight        1.6022 nmi
      6  Right-Turn       90.0000 deg       0.1000
      7  Straight        0.1333 nmi
      8  Right-Turn       90.0000 deg       0.1000
      9  Straight        0.5819 nmi
```

AIRCRAFT GROUP ASSIGNMENTS

STUDY AIRPLANES
   BEC58P   Standard data
   CNA208   Standard data
   CNA500   Standard data
   GASEPF   Standard data
   GASEPV   Standard data

STUDY SUBSTITUTION AIRPLANES
   CNA501   Standard data

USER-DEFINED NOISE CURVES

USER-DEFINED METRICS

USER-DEFINED PROFILE IDENTIFIERS

USER-DEFINED PROCEDURAL PROFILES

USER-DEFINED FIXED-POINT PROFILES

USER-DEFINED FLAP COEFFICIENTS

USER-DEFINED JET THRUST COEFFICIENTS

USER-DEFINED PROP THRUST COEFFICIENTS

USER-DEFINED GENERAL THRUST COEFFICIENTS

STUDY MILITARY AIRPLANES

USER-DEFINED MILITARY NOISE CURVES

USER-DEFINED MILITARY PROFILE IDENTIFIERS

USER-DEFINED MILITARY FIXED-POINT PROFILES

STUDY HELICOPTERS
H500D Standard data

USER-DEFINED HELICOPTER PROFILE IDENTIFIERS

USER-DEFINED HELICOPTER PROCEDURAL PROFILES

USER-DEFINED HELICOPTER NOISE CURVES

USER-DEFINED HELICOPTER DIRECTIVITY

CASE FLIGHT OPERATIONS - [ALBANY]

Acft	Op	Profile	Stg	Rwy	Track	Sub	Group	Day	Evening	Night
BEC58P	APP	STANDARD	1	16	20	0	---	0.2099	0.0000	0.0087
BEC58P	APP	STANDARD	1	34	22	0	---	0.4789	0.0000	0.0200
BEC58P	DEP	STANDARD	1	16	1	0	---	0.1049	0.0000	0.0044
BEC58P	DEP	STANDARD	1	16	3	0	---	0.1049	0.0000	0.0044
BEC58P	DEP	STANDARD	1	34	4	0	---	0.1575	0.0000	0.0066
BEC58P	DEP	STANDARD	1	34	6	0	---	0.1575	0.0000	0.0066
CNA208	APP	STANDARD	1	16	20	0	---	0.0252	0.0000	0.0010
CNA208	APP	STANDARD	1	34	22	0	---	0.0378	0.0000	0.0016
CNA208	DEP	STANDARD	1	16	1	0	---	0.0126	0.0000	0.0005
CNA208	DEP	STANDARD	1	16	3	0	---	0.0126	0.0000	0.0005
CNA208	DEP	STANDARD	1	34	4	0	---	0.0189	0.0000	0.0008
CNA208	DEP	STANDARD	1	34	6	0	---	0.0189	0.0000	0.0008
CNA500	APP	STANDARD	1	16	20	0	---	0.0840	0.0000	0.0035
CNA500	APP	STANDARD	1	34	22	0	---	0.1260	0.0000	0.0053
CNA500	DEP	STANDARD	1	16	1	0	---	0.0420	0.0000	0.0017
CNA500	DEP	STANDARD	1	16	3	0	---	0.0420	0.0000	0.0017
CNA500	DEP	STANDARD	1	34	4	0	---	0.0630	0.0000	0.0026
CNA500	DEP	STANDARD	1	34	6	0	---	0.0630	0.0000	0.0026
GASEPF	APP	STANDARD	1	16	21	0	---	4.8452	0.0000	0.2019
GASEPF	APP	STANDARD	1	34	23	0	---	7.2755	0.0000	0.3031
GASEPF	DEP	STANDARD	1	16	2	0	---	2.4226	0.0000	0.1009
GASEPF	DEP	STANDARD	1	16	3	0	---	2.4226	0.0000	0.1009
GASEPF	DEP	STANDARD	1	34	5	0	---	3.6377	0.0000	0.1516
GASEPF	DEP	STANDARD	1	34	6	0	---	3.6377	0.0000	0.1516
GASEPF	TGO	STANDARD	1	16	50	0	---	2.5186	0.0000	0.1049
GASEPF	TGO	STANDARD	1	34	51	0	---	3.7811	0.0000	0.1575
GASEPV	APP	STANDARD	1	16	21	0	---	3.2301	0.0000	0.1346
GASEPV	APP	STANDARD	1	34	23	0	---	4.8503	0.0000	0.2021
GASEPV	DEP	STANDARD	1	16	2	0	---	1.6151	0.0000	0.0673
GASEPV	DEP	STANDARD	1	16	3	0	---	1.6151	0.0000	0.0673
GASEPV	DEP	STANDARD	1	34	5	0	---	2.4252	0.0000	0.1010
GASEPV	DEP	STANDARD	1	34	6	0	---	2.4252	0.0000	0.1010
GASEPV	TGO	STANDARD	1	16	50	0	---	1.6791	0.0000	0.0700
GASEPV	TGO	STANDARD	1	34	51	0	---	2.5207	0.0000	0.1050
H500D	APP	STANDARD	1	200	503	0	---	0.0263	0.0000	0.0011
H500D	APP	STANDARD	1	200	504	0	---	0.0263	0.0000	0.0011
H500D	DEP	STANDARD	1	200	501	0	---	0.0263	0.0000	0.0011
H500D	DEP	STANDARD	1	200	502	0	---	0.0263	0.0000	0.0011

CASE RUNUP OPERATIONS - [ALBANY]

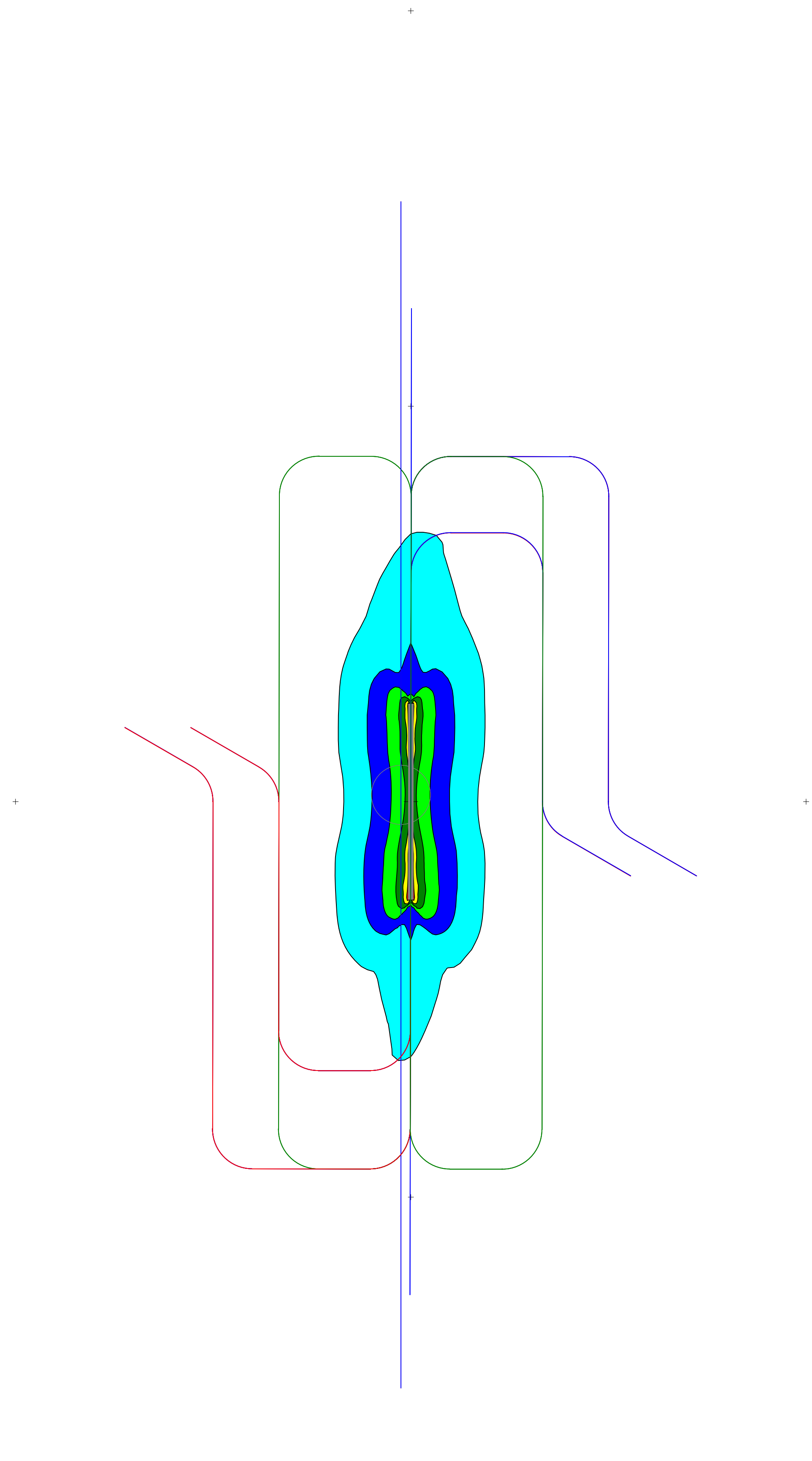
Acft	RunupId	X(nmi)	Y(nmi)	Head	Thrust	Dur(sec)	Day	Evening	Night
BEC58P	16	44.6419	123.0595	200.0	80.0 %	30.0	0.1049	0.0000	0.0044
BEC58P	34	44.6337	123.0594	20.0	80.0 %	30.0	0.1575	0.0000	0.0066
GASEPF	16	44.6419	123.0595	200.0	80.0 %	30.0	2.4226	0.0000	0.1009
GASEPF	34	44.6337	123.0594	20.0	80.0 %	30.0	3.6377	0.0000	0.1516
GASEPV	16	44.6419	123.0595	200.0	80.0 %	30.0	1.6151	0.0000	0.0673
GASEPV	34	44.6337	123.0594	20.0	80.0 %	0.0	2.4252	0.0000	0.1010

SCENARIO RUN OPTIONS
Run Type : Single-Metric
NoiseMetric : DNL
Do Terrain : No Terrain
Do Contour : Recursive Grid
Refinement : 11
Tolerance : 0.50
Low Cutoff : 55.0
High Cutoff : 85.0
Ground Type : All-Soft-Ground
Do Population : No

Do Locations : No
Do Standard : No
Do Detailed : No
Compute System Metrics:
DNL : No
CNEL : No
LAEQ : No
LAEQD : No
LAEQN : No
SEL : No
LAMAX : No
TALA : No
NEF : No
WECPNL : No
EPNL : No
PNLTM : No
TAPNL : No
CEXP : No
LCMAX : No
TALC : No

SCENARIO GRID DEFINITIONS

Name	Type	X(nmi)	Y(nmi)	Ang(deg)	DisI(nmi)	DisJ(nmi)	NI	NJ	Thrsh	dAmb	(hr)
CONTOUR	Contour	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00
DETAILED	Detailed	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00
STANDARD	Standard	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00



INM 7.0c 21-Apr-14 07:53	DNL	55.0	60.0	65.0	70.0	75.0	80.0	85.0
INM7.0C\ALBANY 2012\2012	sq.mi	0.49	0.19	0.09	0.04	0.01	0.01	0.00
Grid Size 5.00 nmi	color							

```
INM 7.0c SCENARIO RUN INPUT REPORT  17-Sep-13 12:51

STUDY: C:\PROGRAM FILES (X86)\INM7.0C\ALBANY 2017\
  Created     : 20-Aug-13 09:02
  Units       : English
  Airport     : S12
  Description :
    Your description

SCENARIO: 2017
  Created      : 21-Aug-13 12:14
  Description  :
  Last Run     : 17-Sep-13 10:09
  Run Duration :  000:00:05

STUDY AIRPORT
  Latitude    : 44.637815 deg
  Longitude   : 123.059449 deg
  Elevation   : 225.9 ft


CASES RUN:

CASENAME: ALBANY
  Temperature : 58.2 F
  Pressure    : 29.92 in-Hg
  AverageWind : 8.0 kt
  ChangeNPD   : No

STUDY RUNWAYS
  16
    Latitude  : 44.642366 deg
    Longitude : 123.059456 deg
    Xcoord    : 0.0003 nmi
    Ycoord    : 0.2731 nmi
    Elevation : 224.0 ft
    OtherEnd  : 34
    Length    : 3659 ft
    Gradient  : -0.03 %
    TkoThresh : 0 ft
    AppThresh : 157 ft

CASENAME: ALBANY
    RwyWind   : 8.0 kt

CASENAME: ALBANY
    RwyWind   : 8.0 kt
  34
    Latitude  : 44.632330 deg
    Longitude : 123.059437 deg
    Xcoord    : -0.0005 nmi
    Ycoord    : -0.3291 nmi
    Elevation : 223.0 ft
    OtherEnd  : 16
    Length    : 3659 ft
    Gradient  : 0.03 %
    TkoThresh : 0 ft
    AppThresh : 498 ft

CASENAME: ALBANY
    RwyWind   : 8.0 kt

STUDY HELIPADS
  201
    Latitude  : 44.638102 deg
    Longitude : 123.058872 deg
    Xcoord    : -0.0247 nmi
    Ycoord    : 0.0172 nmi

--------------------------------------------------------------------

STUDY TRACKS
  RwyId-OpType-TrkId
   Sub  PctSub   TrkType   Delta(ft)
  16-APP-20
    0   100.00   Vectors        0.0
  16-APP-21
    0   100.00   Vectors        0.0
  16-DEP-1
    0   100.00   Vectors        0.0
  16-DEP-2
```

```
   0   100.00   Vectors        0.0
  16-DEP-3
   0   100.00   Vectors        0.0
  16-TGO-50
   0   100.00   Vectors        0.0
  201-APP-302
   0   100.00   Vectors        0.0
  201-APP-303
   0   100.00   Vectors      180.0
  201-DEP-300
   0   100.00   Vectors        0.0
  201-DEP-301
   0   100.00   Vectors      180.0
  34-APP-22
   0   100.00   Vectors        0.0
  34-APP-23
   0   100.00   Vectors        0.0
  34-DEP-4
   0   100.00   Vectors        0.0
  34-DEP-5
   0   100.00   Vectors        0.0
  34-DEP-6
   0   100.00   Vectors        0.0
  34-TGO-51
   0   100.00   Vectors        0.0

STUDY TRACK DETAIL
  RwyId-OpType-TrkId-SubTrk
     #  SegType       Dist/Angle      Radius(nmi)
  16-APP-20-0
     1  Straight        0.2000 nmi
     2  Right-Turn       60.0000 deg      0.1000
     3  Straight        0.7730 nmi
     4  Left-Turn       90.0000 deg      0.1000
     5  Straight        0.3000 nmi
     6  Left-Turn       90.0000 deg      0.1000
     7  Straight        0.5258 nmi
  16-APP-21-0
     1  Straight        0.2000 nmi
     2  Right-Turn       60.0000 deg      0.1000
     3  Straight        0.6063 nmi
     4  Left-Turn       90.0000 deg      0.1000
     5  Straight        0.1333 nmi
     6  Left-Turn       90.0000 deg      0.1000
     7  Straight        0.3591 nmi
  16-DEP-1-0
     1  Straight        1.1022 nmi
     2  Right-Turn       90.0000 deg      0.1000
     3  Straight        0.3000 nmi
     4  Right-Turn       90.0000 deg      0.1000
     5  Straight        0.8292 nmi
     6  Left-Turn       60.0000 deg      0.1000
     7  Straight        0.2000 nmi
  16-DEP-2-0
     1  Straight        0.9355 nmi
     2  Right-Turn       90.0000 deg      0.1000
     3  Straight        0.1333 nmi
     4  Right-Turn       90.0000 deg      0.1000
     5  Straight        0.6624 nmi
     6  Left-Turn       60.0000 deg      0.1000
     7  Straight        0.2000 nmi
  16-DEP-3-0
     1  Straight        1.6022 nmi
  16-TGO-50-0
     1  Straight        1.0763 nmi
     2  Right-Turn       90.0000 deg      0.1000
     3  Straight        0.1333 nmi
     4  Right-Turn       90.0000 deg      0.1000
     5  Straight        1.6022 nmi
     6  Right-Turn       90.0000 deg      0.1000
     7  Straight        0.1333 nmi
     8  Right-Turn       90.0000 deg      0.1000
     9  Straight        0.5259 nmi
  201-APP-302-0
     1  Straight        1.5000 nmi
  201-APP-303-0
     1  Straight        1.5000 nmi
  201-DEP-300-0
     1  Straight        1.5000 nmi
  201-DEP-301-0
     1  Straight        1.5000 nmi
  34-APP-22-0
```

```
    1  Straight       0.2000 nmi
    2  Right-Turn      60.0000 deg      0.1000
    3  Straight       0.8291 nmi
    4  Left-Turn      90.0000 deg      0.1000
    5  Straight       0.3000 nmi
    6  Left-Turn      90.0000 deg      0.1000
    7  Straight       0.5820 nmi
  34-APP-23-0
    1  Straight       0.2000 nmi
    2  Right-Turn      60.0000 deg      0.1000
    3  Straight       0.6624 nmi
    4  Left-Turn      90.0000 deg      0.1000
    5  Straight       0.1333 nmi
    6  Left-Turn      90.0000 deg      0.1000
    7  Straight       0.4152 nmi
  34-DEP-4-0
    1  Straight       1.1022 nmi
    2  Right-Turn      90.0000 deg      0.1000
    3  Straight       0.3000 nmi
    4  Right-Turn      90.0000 deg      0.1000
    5  Straight       0.7730 nmi
    6  Left-Turn      60.0000 deg      0.1000
    7  Straight       0.2000 nmi
  34-DEP-5-0
    1  Straight       0.9355 nmi
    2  Right-Turn      90.0000 deg      0.1000
    3  Straight       0.1333 nmi
    4  Right-Turn      90.0000 deg      0.1000
    5  Straight       0.6063 nmi
    6  Left-Turn      60.0000 deg      0.1000
    7  Straight       0.2000 nmi
  34-DEP-6-0
    1  Straight       1.6022 nmi
  34-TGO-51-0
    1  Straight       1.0202 nmi
    2  Right-Turn      90.0000 deg      0.1000
    3  Straight       0.1333 nmi
    4  Right-Turn      90.0000 deg      0.1000
    5  Straight       1.6022 nmi
    6  Right-Turn      90.0000 deg      0.1000
    7  Straight       0.1333 nmi
    8  Right-Turn      90.0000 deg      0.1000
    9  Straight       0.5820 nmi
```

AIRCRAFT GROUP ASSIGNMENTS

STUDY AIRPLANES
```
  BEC58P     Standard data
  CNA208     Standard data
  CNA500     Standard data
  GASEPF     Standard data
  GASEPV     Standard data
```

STUDY SUBSTITUTION AIRPLANES
```
  CNA501     Standard data
```

USER-DEFINED NOISE CURVES

USER-DEFINED METRICS

USER-DEFINED PROFILE IDENTIFIERS

USER-DEFINED PROCEDURAL PROFILES

USER-DEFINED FIXED-POINT PROFILES

USER-DEFINED FLAP COEFFICIENTS

USER-DEFINED JET THRUST COEFFICIENTS

USER-DEFINED PROP THRUST COEFFICIENTS

USER-DEFINED GENERAL THRUST COEFFICIENTS

STUDY MILITARY AIRPLANES

USER-DEFINED MILITARY NOISE CURVES

USER-DEFINED MILITARY PROFILE IDENTIFIERS

USER-DEFINED MILITARY FIXED-POINT PROFILES

STUDY HELICOPTERS
H500D Standard data

USER-DEFINED HELICOPTER PROFILE IDENTIFIERS

USER-DEFINED HELICOPTER PROCEDURAL PROFILES

USER-DEFINED HELICOPTER NOISE CURVES

USER-DEFINED HELICOPTER DIRECTIVITY

CASE FLIGHT OPERATIONS - [ALBANY]

Acft	Op	Profile	Stg	Rwy	Track	Sub	Group	Day	Evening	Night
BEC58P	APP	STANDARD	1	16	20	0	---	0.2291	0.0000	0.0095
BEC58P	APP	STANDARD	1	34	22	0	---	0.5315	0.0000	0.0221
BEC58P	DEP	STANDARD	1	16	1	0	---	0.1162	0.0000	0.0048
BEC58P	DEP	STANDARD	1	16	3	0	---	0.1162	0.0000	0.0048
BEC58P	DEP	STANDARD	1	34	4	0	---	0.1758	0.0000	0.0073
BEC58P	DEP	STANDARD	1	34	6	0	---	0.1758	0.0000	0.0073
CNA208	APP	STANDARD	1	16	20	0	---	0.0286	0.0000	0.0012
CNA208	APP	STANDARD	1	34	22	0	---	0.0431	0.0000	0.0018
CNA208	DEP	STANDARD	1	16	1	0	---	0.0145	0.0000	0.0006
CNA208	DEP	STANDARD	1	16	3	0	---	0.0145	0.0000	0.0006
CNA208	DEP	STANDARD	1	34	4	0	---	0.0220	0.0000	0.0009
CNA208	DEP	STANDARD	1	34	6	0	---	0.0220	0.0000	0.0009
CNA500	APP	STANDARD	1	16	20	0	---	0.0954	0.0000	0.0040
CNA500	APP	STANDARD	1	34	22	0	---	0.1436	0.0000	0.0060
CNA500	DEP	STANDARD	1	16	1	0	---	0.0484	0.0000	0.0020
CNA500	DEP	STANDARD	1	16	3	0	---	0.0484	0.0000	0.0020
CNA500	DEP	STANDARD	1	34	4	0	---	0.0732	0.0000	0.0031
CNA500	DEP	STANDARD	1	34	6	0	---	0.0732	0.0000	0.0031
GASEPF	APP	STANDARD	1	16	21	0	---	5.5148	0.0000	0.2298
GASEPF	APP	STANDARD	1	34	23	0	---	8.2991	0.0000	0.3458
GASEPF	DEP	STANDARD	1	16	2	0	---	2.7551	0.0000	0.1148
GASEPF	DEP	STANDARD	1	16	3	0	---	2.7551	0.0000	0.1148
GASEPF	DEP	STANDARD	1	34	5	0	---	4.1464	0.0000	0.1728
GASEPF	DEP	STANDARD	1	34	6	0	---	4.1464	0.0000	0.1728
GASEPF	TGO	STANDARD	1	16	50	0	---	2.8633	0.0000	0.1193
GASEPF	TGO	STANDARD	1	34	51	0	---	4.3093	0.0000	0.1796
GASEPV	APP	STANDARD	1	16	21	0	---	3.6766	0.0000	0.1532
GASEPV	APP	STANDARD	1	34	23	0	---	5.5327	0.0000	0.2305
GASEPV	DEP	STANDARD	1	16	2	0	---	1.8367	0.0000	0.0765
GASEPV	DEP	STANDARD	1	16	3	0	---	1.8367	0.0000	0.0765
GASEPV	DEP	STANDARD	1	34	5	0	---	2.7643	0.0000	0.1152
GASEPV	DEP	STANDARD	1	34	6	0	---	2.7643	0.0000	0.1152
GASEPV	TGO	STANDARD	1	16	50	0	---	1.9089	0.0000	0.0795
GASEPV	TGO	STANDARD	1	34	51	0	---	2.8729	0.0000	0.1197
H500D	APP	STANDARD	1	201	302	0	---	0.0450	0.0000	0.0019
H500D	APP	STANDARD	1	201	303	0	---	0.0450	0.0000	0.0019
H500D	DEP	STANDARD	1	201	300	0	---	0.0450	0.0000	0.0019
H500D	DEP	STANDARD	1	201	301	0	---	0.0450	0.0000	0.0019

CASE RUNUP OPERATIONS - [ALBANY]

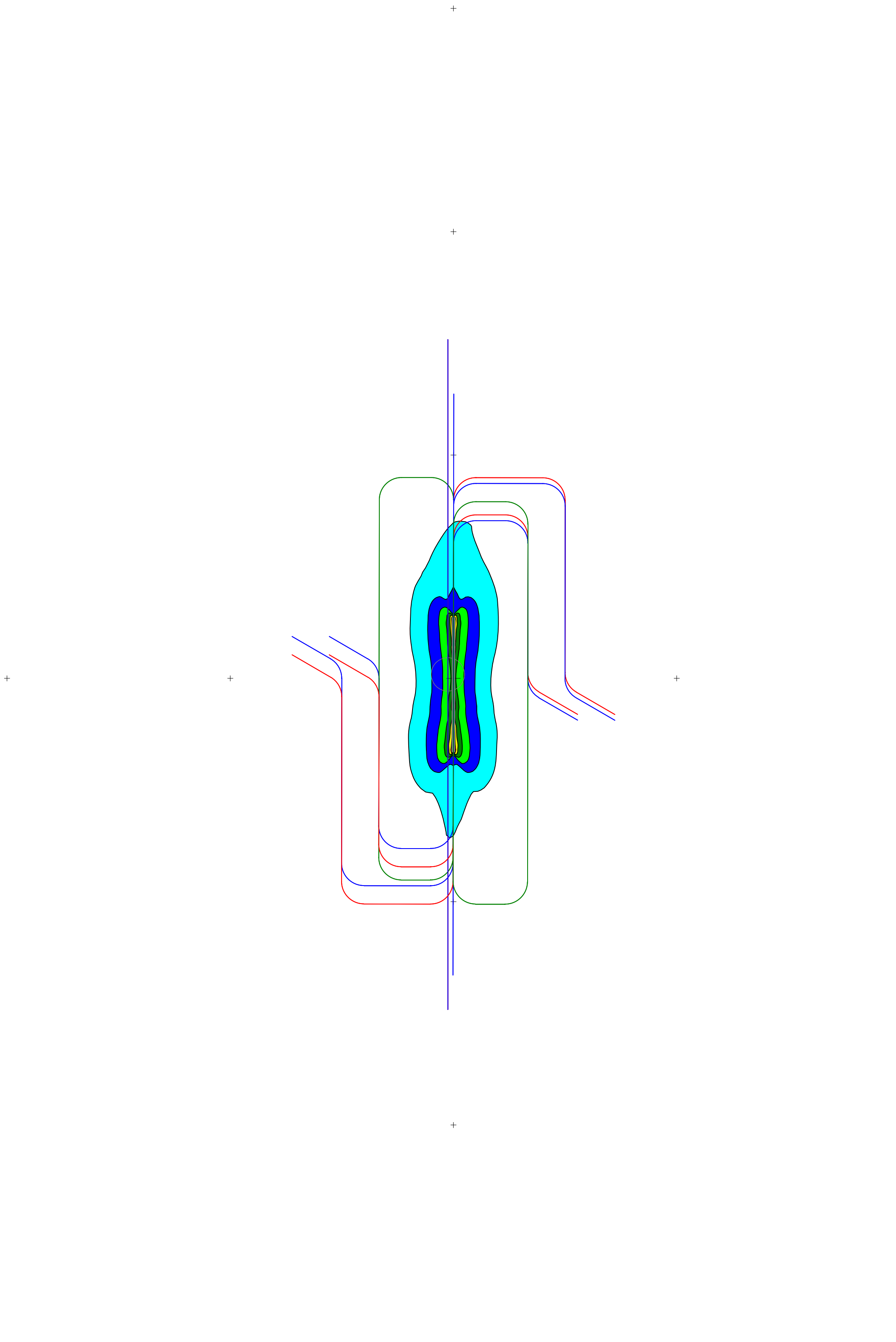
Acft	RunupId	X(nmi)	Y(nmi)	Head	Thrust	Dur(sec)	Day	Evening	Night
BEC58P	16	44.6424	123.0595	200.0	80.0 %	30.0	0.1162	0.0000	0.0048
BEC58P	34	44.6323	123.0594	20.0	80.0 %	30.0	0.1758	0.0000	0.0073
GASEPF	16	44.6424	123.0595	200.0	80.0 %	30.0	2.7551	0.0000	0.1148
GASEPF	34	44.6323	123.0594	20.0	80.0 %	30.0	4.1464	0.0000	0.1728
GASEPV	16	44.6424	123.0594	200.0	80.0 %	30.0	1.8367	0.0000	0.0765
GASEPV	34	44.6323	123.0594	20.0	80.0 %	30.0	2.7643	0.0000	0.1152

SCENARIO RUN OPTIONS
Run Type : Single-Metric
NoiseMetric : DNL
Do Terrain : No Terrain
Do Contour : Recursive Grid
Refinement : 11
Tolerance : 0.50
Low Cutoff : 55.0
High Cutoff : 85.0
Ground Type : All-Soft-Ground
Do Population : No

Do Locations : No
Do Standard : No
Do Detailed : No
Compute System Metrics:
DNL : No
CNEL : No
LAEQ : No
LAEQD : No
LAEQN : No
SEL : No
LAMAX : No
TALA : No
NEF : No
WECPNL : No
EPNL : No
PNLTM : No
TAPNL : No
CEXP : No
LCMAX : No
TALC : No

SCENARIO GRID DEFINITIONS

Name	Type	X(nmi)	Y(nmi)	Ang(deg)	DisI(nmi)	DisJ(nmi)	NI	NJ	Thrsh	dAmb	(hr)
CONTOUR	Contour	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00
DETAILED	Detailed	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00
STANDARD	Standard	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00



INM 7.0c 21-Apr-14 07:55	DNL	55.0	60.0	65.0	70.0	75.0	80.0	85.0
INM7.0C\ALBANY 2017\5 YR	sq.mi	0.56	0.22	0.11	0.04	0.01	0.01	0.00
Grid Size 5.00 nmi	color							

INM 7.0c SCENARIO RUN INPUT REPORT 17-Sep-13 13:12

STUDY: C:\PROGRAM FILES (X86)\INM7.0C\ALBANY 2032\
  Created : 20-Aug-13 09:02
  Units : English
  Airport : S12
  Description :
    Your description

SCENARIO: 2032
  Created : 25-Aug-13 17:59
  Description :
  Last Run : 26-Aug-13 13:22
  Run Duration : 000:00:04

STUDY AIRPORT
  Latitude : 44.637815 deg
  Longitude : 123.059449 deg
  Elevation : 225.9 ft

CASES RUN:

CASENAME: ALBANY
  Temperature : 58.2 F
  Pressure : 29.92 in-Hg
  AverageWind : 8.0 kt
  ChangeNPD : No

STUDY RUNWAYS
  16
    Latitude : 44.642366 deg
    Longitude : 123.059456 deg
    Xcoord : 0.0003 nmi
    Ycoord : 0.2731 nmi
    Elevation : 224.0 ft
    OtherEnd : 34
    Length : 3659 ft
    Gradient : -0.03 %
    TkoThresh : 0 ft
    AppThresh : 157 ft

CASENAME: ALBANY
    RwyWind : 8.0 kt

CASENAME: ALBANY
    RwyWind : 8.0 kt
  34
    Latitude : 44.632330 deg
    Longitude : 123.059437 deg
    Xcoord : -0.0005 nmi
    Ycoord : -0.3291 nmi
    Elevation : 223.0 ft
    OtherEnd : 16
    Length : 3659 ft
    Gradient : 0.03 %
    TkoThresh : 0 ft
    AppThresh : 498 ft

CASENAME: ALBANY
    RwyWind : 8.0 kt

STUDY HELIPADS
  201
    Latitude : 44.638102 deg
    Longitude : 123.058872 deg
    Xcoord : -0.0247 nmi
    Ycoord : 0.0172 nmi

STUDY TRACKS
  RwyId-OpType-TrkId
   Sub PctSub TrkType Delta(ft)
  16-APP-20
    0 100.00 Vectors 0.0
  16-APP-21
    0 100.00 Vectors 0.0
  16-DEP-1
    0 100.00 Vectors 0.0
  16-DEP-2

```
   0   100.00   Vectors        0.0
  16-DEP-3
   0   100.00   Vectors        0.0
  16-TGO-50
   0   100.00   Vectors        0.0
  201-APP-302
   0   100.00   Vectors        0.0
  201-APP-303
   0   100.00   Vectors      180.0
  201-DEP-300
   0   100.00   Vectors        0.0
  201-DEP-301
   0   100.00   Vectors      180.0
  34-APP-22
   0   100.00   Vectors        0.0
  34-APP-23
   0   100.00   Vectors        0.0
  34-DEP-4
   0   100.00   Vectors        0.0
  34-DEP-5
   0   100.00   Vectors        0.0
  34-DEP-6
   0   100.00   Vectors        0.0
  34-TGO-51
   0   100.00   Vectors        0.0

STUDY TRACK DETAIL
  RwyId-OpType-TrkId-SubTrk
     #  SegType       Dist/Angle      Radius(nmi)
  16-APP-20-0
     1  Straight        0.2000 nmi
     2  Right-Turn       60.0000 deg      0.1000
     3  Straight        0.7730 nmi
     4  Left-Turn       90.0000 deg      0.1000
     5  Straight        0.3000 nmi
     6  Left-Turn       90.0000 deg      0.1000
     7  Straight        0.5258 nmi
  16-APP-21-0
     1  Straight        0.2000 nmi
     2  Right-Turn       60.0000 deg      0.1000
     3  Straight        0.6063 nmi
     4  Left-Turn       90.0000 deg      0.1000
     5  Straight        0.1333 nmi
     6  Left-Turn       90.0000 deg      0.1000
     7  Straight        0.3591 nmi
  16-DEP-1-0
     1  Straight        1.1022 nmi
     2  Right-Turn       90.0000 deg      0.1000
     3  Straight        0.3000 nmi
     4  Right-Turn       90.0000 deg      0.1000
     5  Straight        0.8292 nmi
     6  Left-Turn       60.0000 deg      0.1000
     7  Straight        0.2000 nmi
  16-DEP-2-0
     1  Straight        0.9355 nmi
     2  Right-Turn       90.0000 deg      0.1000
     3  Straight        0.1333 nmi
     4  Right-Turn       90.0000 deg      0.1000
     5  Straight        0.6624 nmi
     6  Left-Turn       60.0000 deg      0.1000
     7  Straight        0.2000 nmi
  16-DEP-3-0
     1  Straight        1.6022 nmi
  16-TGO-50-0
     1  Straight        1.0763 nmi
     2  Right-Turn       90.0000 deg      0.1000
     3  Straight        0.1333 nmi
     4  Right-Turn       90.0000 deg      0.1000
     5  Straight        1.6022 nmi
     6  Right-Turn       90.0000 deg      0.1000
     7  Straight        0.1333 nmi
     8  Right-Turn       90.0000 deg      0.1000
     9  Straight        0.5259 nmi
  201-APP-302-0
     1  Straight        1.5000 nmi
  201-APP-303-0
     1  Straight        1.5000 nmi
  201-DEP-300-0
     1  Straight        1.5000 nmi
  201-DEP-301-0
     1  Straight        1.5000 nmi
  34-APP-22-0
```

```
    1  Straight        0.2000 nmi
    2  Right-Turn       60.0000 deg      0.1000
    3  Straight        0.8291 nmi
    4  Left-Turn       90.0000 deg      0.1000
    5  Straight        0.3000 nmi
    6  Left-Turn       90.0000 deg      0.1000
    7  Straight        0.5820 nmi
  34-APP-23-0
    1  Straight        0.2000 nmi
    2  Right-Turn       60.0000 deg      0.1000
    3  Straight        0.6624 nmi
    4  Left-Turn       90.0000 deg      0.1000
    5  Straight        0.1333 nmi
    6  Left-Turn       90.0000 deg      0.1000
    7  Straight        0.4152 nmi
  34-DEP-4-0
    1  Straight        1.1022 nmi
    2  Right-Turn       90.0000 deg      0.1000
    3  Straight        0.3000 nmi
    4  Right-Turn       90.0000 deg      0.1000
    5  Straight        0.7730 nmi
    6  Left-Turn       60.0000 deg      0.1000
    7  Straight        0.2000 nmi
  34-DEP-5-0
    1  Straight        0.9355 nmi
    2  Right-Turn       90.0000 deg      0.1000
    3  Straight        0.1333 nmi
    4  Right-Turn       90.0000 deg      0.1000
    5  Straight        0.6063 nmi
    6  Left-Turn       60.0000 deg      0.1000
    7  Straight        0.2000 nmi
  34-DEP-6-0
    1  Straight        1.6022 nmi
  34-TGO-51-0
    1  Straight        1.0202 nmi
    2  Right-Turn       90.0000 deg      0.1000
    3  Straight        0.1333 nmi
    4  Right-Turn       90.0000 deg      0.1000
    5  Straight        1.6022 nmi
    6  Right-Turn       90.0000 deg      0.1000
    7  Straight        0.1333 nmi
    8  Right-Turn       90.0000 deg      0.1000
    9  Straight        0.5820 nmi
```

AIRCRAFT GROUP ASSIGNMENTS

STUDY AIRPLANES

```
  BEC58P       Standard data
  CNA208       Standard data
  CNA500       Standard data
  GASEPF       Standard data
  GASEPV       Standard data
```

STUDY SUBSTITUTION AIRPLANES

```
  CNA501       Standard data
```

USER-DEFINED NOISE CURVES

USER-DEFINED METRICS

USER-DEFINED PROFILE IDENTIFIERS

USER-DEFINED PROCEDURAL PROFILES

USER-DEFINED FIXED-POINT PROFILES

USER-DEFINED FLAP COEFFICIENTS

USER-DEFINED JET THRUST COEFFICIENTS

USER-DEFINED PROP THRUST COEFFICIENTS

USER-DEFINED GENERAL THRUST COEFFICIENTS

STUDY MILITARY AIRPLANES

USER-DEFINED MILITARY NOISE CURVES

USER-DEFINED MILITARY PROFILE IDENTIFIERS

USER-DEFINED MILITARY FIXED-POINT PROFILES

STUDY HELICOPTERS
H500D Standard data

USER-DEFINED HELICOPTER PROFILE IDENTIFIERS

USER-DEFINED HELICOPTER PROCEDURAL PROFILES

USER-DEFINED HELICOPTER NOISE CURVES

USER-DEFINED HELICOPTER DIRECTIVITY

CASE FLIGHT OPERATIONS - [ALBANY]

Acft	Op	Profile	Stg	Rwy	Track	Sub	Group	Day	Evening	Night
BEC58P	APP	STANDARD	1	16	20	0	---	0.2737	0.0000	0.0114
BEC58P	APP	STANDARD	1	34	22	0	---	0.7024	0.0000	0.0293
BEC58P	DEP	STANDARD	1	16	1	0	---	0.1369	0.0000	0.0057
BEC58P	DEP	STANDARD	1	16	3	0	---	0.1369	0.0000	0.0057
BEC58P	DEP	STANDARD	1	34	4	0	---	0.2066	0.0000	0.0086
BEC58P	DEP	STANDARD	1	34	6	0	---	0.2066	0.0000	0.0086
CNA208	APP	STANDARD	1	16	20	0	---	0.0547	0.0000	0.0023
CNA208	APP	STANDARD	1	34	22	0	---	0.0826	0.0000	0.0034
CNA208	DEP	STANDARD	1	16	1	0	---	0.0274	0.0000	0.0011
CNA208	DEP	STANDARD	1	16	3	0	---	0.0274	0.0000	0.0011
CNA208	DEP	STANDARD	1	34	4	0	---	0.0413	0.0000	0.0017
CNA208	DEP	STANDARD	1	34	6	0	---	0.0413	0.0000	0.0017
CNA500	APP	STANDARD	1	16	20	0	---	0.1369	0.0000	0.0057
CNA500	APP	STANDARD	1	34	22	0	---	0.2066	0.0000	0.0086
CNA500	DEP	STANDARD	1	16	1	0	---	0.0684	0.0000	0.0029
CNA500	DEP	STANDARD	1	16	3	0	---	0.0684	0.0000	0.0029
CNA500	DEP	STANDARD	1	34	4	0	---	0.1033	0.0000	0.0043
CNA500	DEP	STANDARD	1	34	6	0	---	0.1033	0.0000	0.0043
GASEPF	APP	STANDARD	1	16	21	0	---	7.8404	0.0000	0.3267
GASEPF	APP	STANDARD	1	34	23	0	---	11.7877	0.0000	0.4912
GASEPF	DEP	STANDARD	1	16	2	0	---	3.9194	0.0000	0.1633
GASEPF	DEP	STANDARD	1	16	3	0	---	3.9194	0.0000	0.1633
GASEPF	DEP	STANDARD	1	34	5	0	---	5.8938	0.0000	0.2456
GASEPF	DEP	STANDARD	1	34	6	0	---	5.8938	0.0000	0.2456
GASEPF	TGO	STANDARD	1	16	50	0	---	4.0597	0.0000	0.1692
GASEPF	TGO	STANDARD	1	34	51	0	---	6.1049	0.0000	0.2544
GASEPV	APP	STANDARD	1	16	21	0	---	5.2269	0.0000	0.2178
GASEPV	APP	STANDARD	1	34	23	0	---	7.8585	0.0000	0.3274
GASEPV	DEP	STANDARD	1	16	2	0	---	2.6129	0.0000	0.1089
GASEPV	DEP	STANDARD	1	16	3	0	---	2.6129	0.0000	0.1089
GASEPV	DEP	STANDARD	1	34	5	0	---	3.9292	0.0000	0.1637
GASEPV	DEP	STANDARD	1	34	6	0	---	3.9292	0.0000	0.1637
GASEPV	TGO	STANDARD	1	16	50	0	---	2.7065	0.0000	0.1128
GASEPV	TGO	STANDARD	1	34	51	0	---	4.0699	0.0000	0.1696
H500D	APP	STANDARD	1	201	302	0	---	0.1278	0.0000	0.0053
H500D	APP	STANDARD	1	201	303	0	---	0.1278	0.0000	0.0053
H500D	DEP	STANDARD	1	201	300	0	---	0.1278	0.0000	0.0053
H500D	DEP	STANDARD	1	201	301	0	---	0.1278	0.0000	0.0053

CASE RUNUP OPERATIONS - [ALBANY]

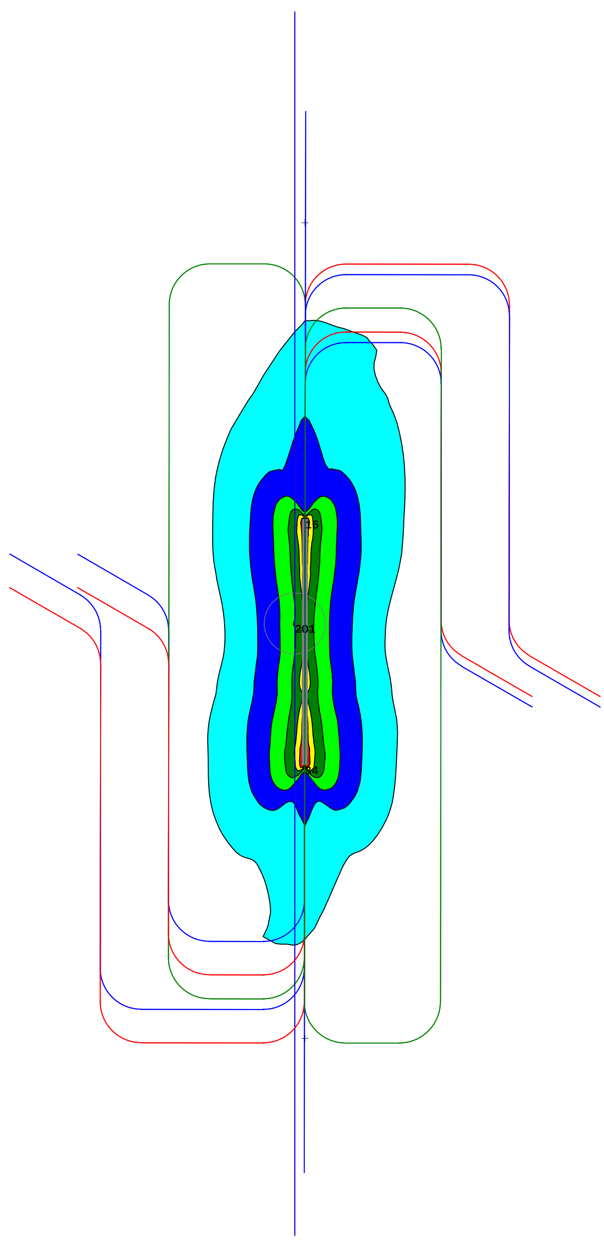
Acft	RunupId	X(nmi)	Y(nmi)	Head	Thrust	Dur(sec)	Day	Evening	Night
BEC58P	16	44.6424	123.0595	200.0	80.0 %	30.0	0.1369	0.0000	0.0057
BEC58P	34	44.6323	123.0594	20.0	80.0 %	30.0	0.2066	0.0000	0.0086
GASEPF	16	44.6424	123.0595	200.0	80.0 %	30.0	3.9194	0.0000	0.1633
GASEPF	34	44.6323	123.0594	20.0	80.0 %	30.0	5.8938	0.0000	0.2456
GASEPV	16	44.6424	123.0595	200.0	80.0 %	30.0	2.6129	0.0000	0.1089
GASEPV	34	44.6323	123.0594	20.0	80.0 %	30.0	3.9292	0.0000	0.1637

SCENARIO RUN OPTIONS
Run Type : Single-Metric
NoiseMetric : DNL
Do Terrain : No Terrain
Do Contour : Recursive Grid
Refinement : 11
Tolerance : 0.50
Low Cutoff : 55.0
High Cutoff : 85.0
Ground Type : All-Soft-Ground
Do Population : No

Do Locations : No
Do Standard : No
Do Detailed : No
Compute System Metrics:
DNL : No
CNEL : No
LAEQ : No
LAEQD : No
LAEQN : No
SEL : No
LAMAX : No
TALA : No
NEF : No
WECPNL : No
EPNL : No
PNLTM : No
TAPNL : No
CEXP : No
LCMAX : No
TALC : No

SCENARIO GRID DEFINITIONS

Name	Type	X(nmi)	Y(nmi)	Ang(deg)	DisI(nmi)	DisJ(nmi)	NI	NJ	Thrsh	dAmb	(hr)
CONTOUR	Contour	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00
DETAILED	Detailed	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00
STANDARD	Standard	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00

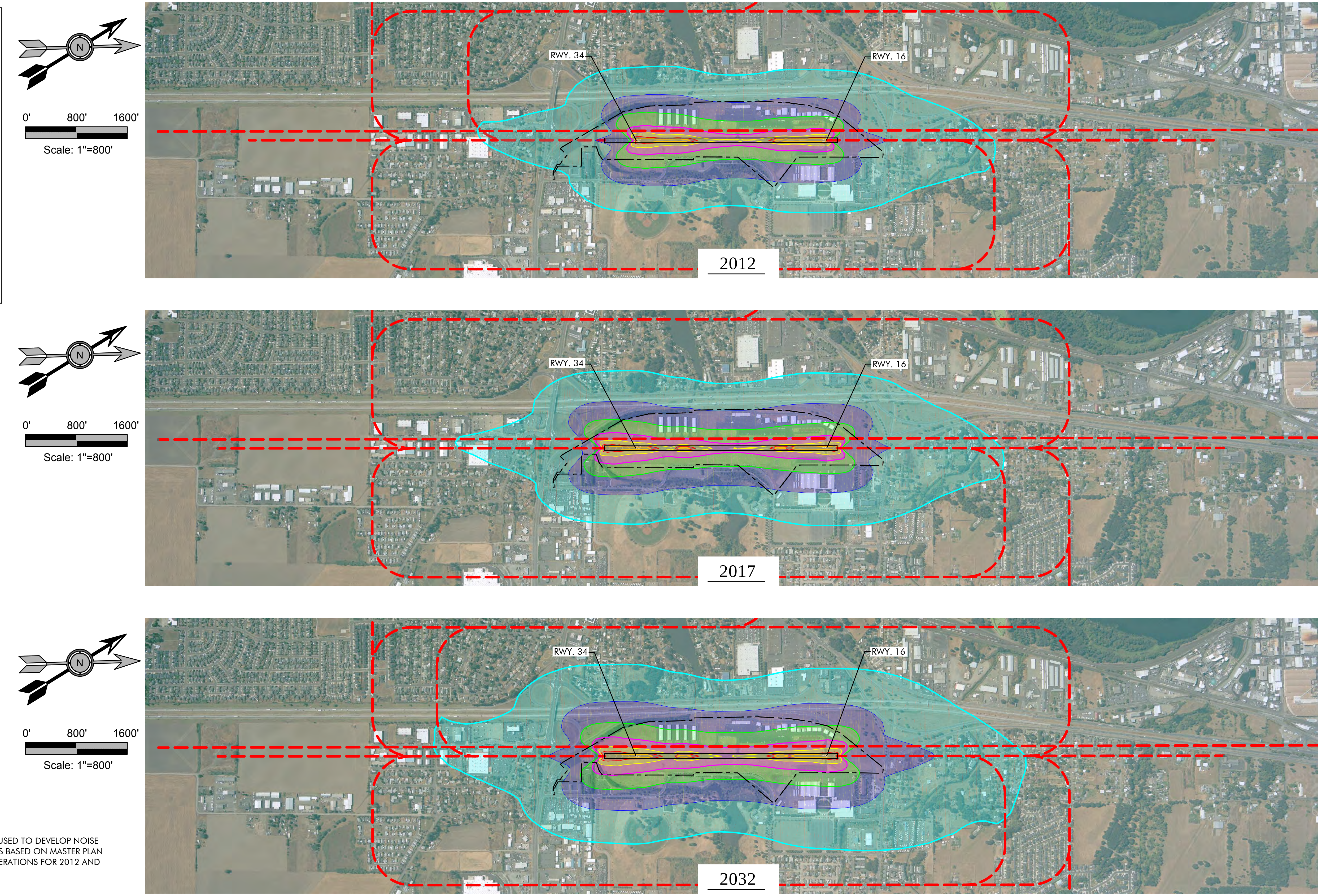


INM 7.0c 22-Apr-14 10:36	DNL	55.0	60.0	65.0	70.0	75.0	80.0	85.0
INM7.0C\ALBANY 2032\20YR	sq.mi	0.74	0.29	0.13	0.06	0.02	0.01	0.00
Grid Size 5.00 nmi	color							

LEGEND

- 55 DNL
- 60 DNL
- 65 DNL
- 70 DNL
- 75 DNL
- 80 DNL
- 85 DNL
- FLIGHT TRACKS
- PROPERTY LINE

DAY-NIGHT LEVEL (DNL)



DRAFT

NOTE:
1. FAA INM VERSION 7.0C USED TO DEVELOP NOISE CONTOURS. CONTOURS BASED ON MASTER PLAN FORECAST AIRCRAFT OPERATIONS FOR 2012 AND 2032.

CENTURY WEST
ENGINEERING CORPORATION

BEND OFFICE
1020 SW EMKAY DRIVE # 100
BEND, OR 97702
541.322.8962
541.382.2423 (FAX)
WWW.CENTURYWEST.COM

ALBANY MUNICIPAL AIRPORT

2012, 2017, AND 2032 NOISE CONTOURS

Appendix F

refuse materials must be contained within the screened area. Refuse disposal areas may not be located in required setbacks or buffer yards and must be placed at least 15 feet from any dwelling window.

4.310 to 4.320 Fence standards moved to Article 9, Ord. 5751, 3/9/11.

AIRPORT APPROACH

4.400 Purpose. The Airport Approach district is intended to protect the public from excessive noise and air traffic from possible hazards on landing or takeoff.

4.410 Applicability. The regulations below apply to those areas indicated on Figures 4-1 and 4-2.

4.420 Height Restrictions. No structure, mast, antenna, or wire shall be erected, altered, or maintained, and no tree shall be allowed to grow to a height in excess of the height limit established within each of the following described zones (which are also graphically represented in Figure 4-1):

(1) Visual Approach Area. Slopes 20 feet outward for each foot upward beginning at the ends of the primary surface (200 feet from the end of the pavement) and at the same elevation as the primary surface, and extending to a horizontal distance of 5,000 feet along the extended runway centerline.

(2) Transitional Areas. Slopes 7 feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation, which is 222 feet above mean sea level. In addition, there are height limits sloping 7 feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending to where they intersect the conical surface.

(3) Horizontal Area. One hundred fifty (150) feet above the airport elevation or at a height of 372 feet above mean sea level.

(4) Conical Area. Slopes 20 feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.

4.430 Other Interference Prohibited. Notwithstanding any other provisions of this ordinance, no use may be made of land or water within any zone established by this ordinance in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, takeoff, or maneuvering of aircraft intending to use the airport.

4.440 Noise Construction Standards. Within the designated airport noise contours indicated in Figure 4-2, the following regulations shall apply:

(1) In the 55 to 60 Day-Night Sound Level (ldn) area, a declaration of anticipated noise levels shall be attached to any land use application and recording of such declaration may be required for approval on each parcel within such area.

(2) Development of "noise sensitive property" (e.g. residentially zoned areas, group quarters used for sleeping, motels, hotels, schools, churches, hospitals, libraries) within the 55 to 60 ldn area and above shall be subject to the provisions of Site Plan Review outlined in Article 2 and may be required to include additional sound buffering features within the development as a condition of approval.

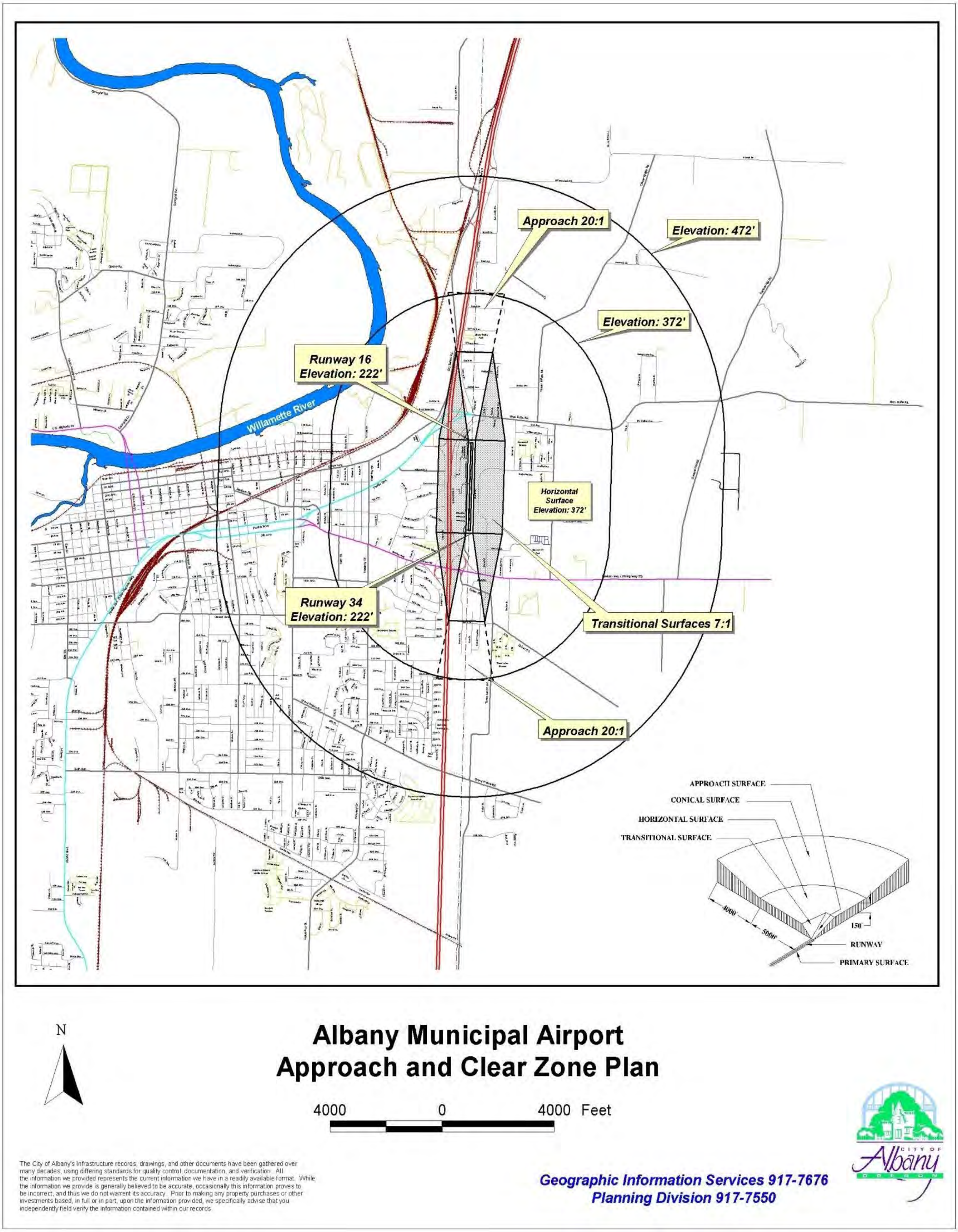


Figure 4-1: Albany Airport Approach District

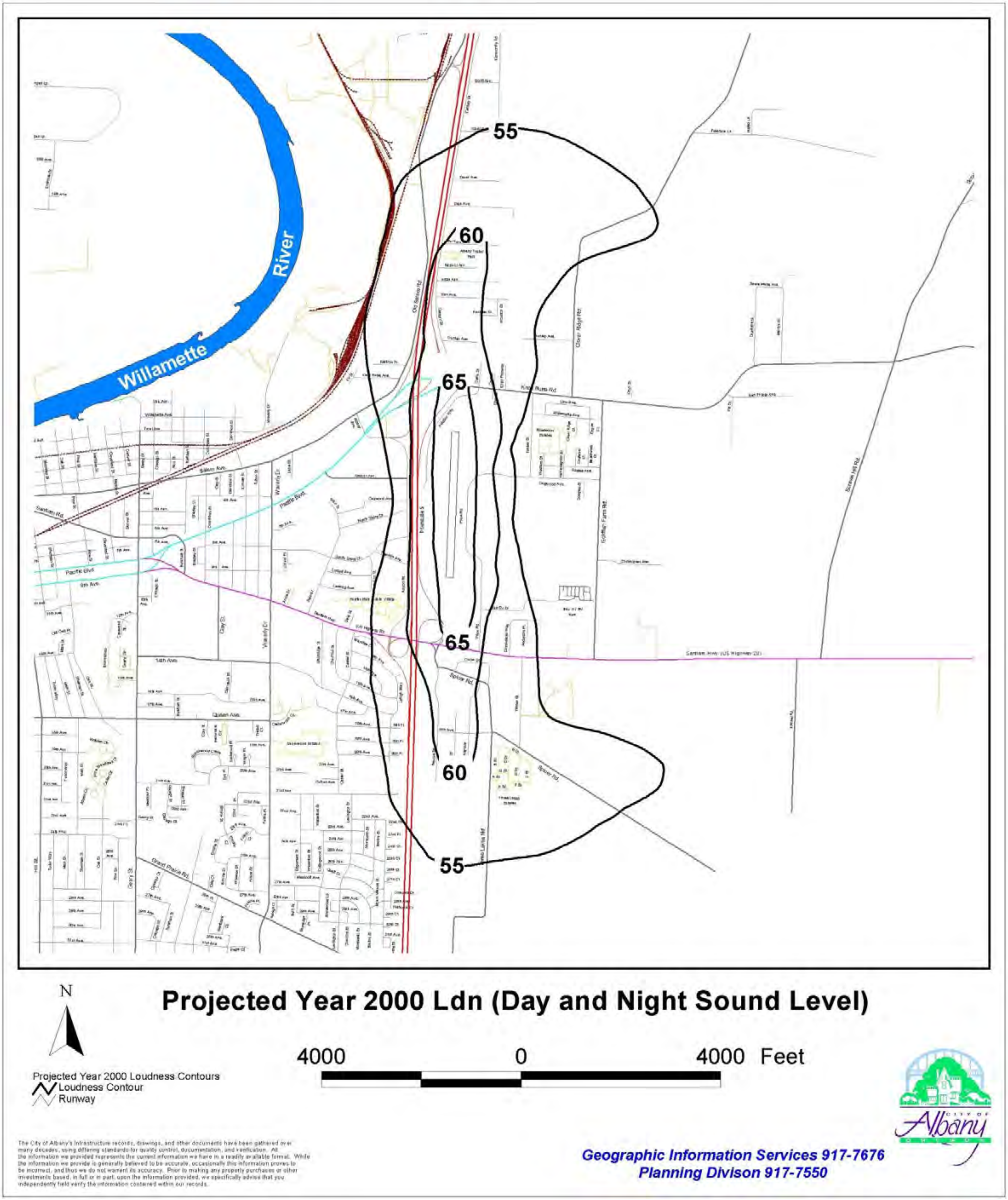


Figure 4-2: Albany Projected year 2000 Ldn Contours

Appendix G

FAA
Airports

ASSURANCES

Airport Sponsors

A. General.

1. These assurances shall be complied with in the performance of grant agreements for airport development, airport planning, and noise compatibility program grants for airport sponsors.
2. These assurances are required to be submitted as part of the project application by sponsors requesting funds under the provisions of Title 49, U.S.C., subtitle VII, as amended. As used herein, the term "public agency sponsor" means a public agency with control of a public-use airport; the term "private sponsor" means a private owner of a public-use airport; and the term "sponsor" includes both public agency sponsors and private sponsors.
3. Upon acceptance of this grant offer by the sponsor, these assurances are incorporated in and become part of this grant agreement.

B. Duration and Applicability.

1. **Airport development or Noise Compatibility Program Projects Undertaken by a Public Agency Sponsor.**

   The terms, conditions and assurances of this grant agreement shall remain in full force and effect throughout the useful life of the facilities developed or equipment acquired for an airport development or noise compatibility program project, or throughout the useful life of the project items installed within a facility under a noise compatibility program project, but in any event not to exceed twenty (20) years from the date of acceptance of a grant offer of Federal funds for the project. However, there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport. There shall be no limit on the duration of the terms, conditions, and assurances with respect to real property acquired with federal funds. Furthermore, the duration of the Civil Rights assurance shall be specified in the assurances.

2. **Airport Development or Noise Compatibility Projects Undertaken by a Private Sponsor.**

   The preceding paragraph 1 also applies to a private sponsor except that the useful life of project items installed within a facility or the useful life of the facilities developed or equipment acquired under an airport development or noise compatibility program project shall be no less than ten (10) years from the date of acceptance of Federal aid for the project.

3. **Airport Planning Undertaken by a Sponsor.**

   Unless otherwise specified in this grant agreement, only Assurances 1, 2, 3, 5, 6, 13, 18, 25, 30, 32, 33, and 34 in Section C apply to planning projects. The terms, conditions, and assurances of this grant agreement shall remain in full force and effect during the life of the project; there shall be no limit on the duration of the assurances regarding Airport Revenue so long as the airport is used as an airport.

C. Sponsor Certification.

The sponsor hereby assures and certifies, with respect to this grant that:

1. **General Federal Requirements.**

   It will comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance and use of Federal funds for this project including but not limited to the following:

   Federal Legislation

   a. Title 49, U.S.C., subtitle VII, as amended.
   b. Davis-Bacon Act - 40 U.S.C. 276(a), et seq.[1]
   c. Federal Fair Labor Standards Act - 29 U.S.C. 201, et seq.
   d. Hatch Act – 5 U.S.C. 1501, et seq.[2]
   e. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 Title 42 U.S.C. 4601, et seq.[1 2]
   f. National Historic Preservation Act of 1966 - Section 106 - 16 U.S.C. 470(f).[1]
   g. Archeological and Historic Preservation Act of 1974 - 16 U.S.C. 469 through 469c.[1]
   h. Native Americans Grave Repatriation Act - 25 U.S.C. Section 3001, et seq.
   i. Clean Air Act, P.L. 90-148, as amended.
   j. Coastal Zone Management Act, P.L. 93-205, as amended.
   k. Flood Disaster Protection Act of 1973 - Section 102(a) - 42 U.S.C. 4012a.[1]
   l. Title 49, U.S.C., Section 303, (formerly known as Section 4(f))
   m. Rehabilitation Act of 1973 - 29 U.S.C. 794.
   n. Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
   o. Americans with Disabilities Act of 1990, as amended, (42 U.S.C. § 12101 et seq.), prohibits discrimination on the basis of disability).
   p. Age Discrimination Act of 1975 - 42 U.S.C. 6101, et seq.
   q. American Indian Religious Freedom Act, P.L. 95-341, as amended.
   r. Architectural Barriers Act of 1968 -42 U.S.C. 4151, et seq.[1]
   s. Power plant and Industrial Fuel Use Act of 1978 - Section 403- 2 U.S.C. 8373.[1]
   t. Contract Work Hours and Safety Standards Act - 40 U.S.C. 327, et seq.[1]
   u. Copeland Anti-kickback Act - 18 U.S.C. 874.1
   v. National Environmental Policy Act of 1969 - 42 U.S.C. 4321, et seq.[1]
   w. Wild and Scenic Rivers Act, P.L. 90-542, as amended.
   x. Single Audit Act of 1984 - 31 U.S.C. 7501, et seq.[2]
   y. Drug-Free Workplace Act of 1988 - 41 U.S.C. 702 through 706.

z. The Federal Funding Accountability and Transparency Act of 2006, as amended (Pub. L. 109-282, as amended by section 6202 of Pub. L. 110-252).

Executive Orders

a. Executive Order 11246 - Equal Employment Opportunity[1]
b. Executive Order 11990 - Protection of Wetlands
c. Executive Order 11998 – Flood Plain Management
d. Executive Order 12372 - Intergovernmental Review of Federal Programs
e. Executive Order 12699 - Seismic Safety of Federal and Federally Assisted New Building Construction[1]
f. Executive Order 12898 - Environmental Justice

Federal Regulations

a. 2 CFR Part 180 - OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement).
b. 2 CFR Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. [OMB Circular A-87 Cost Principles Applicable to Grants and Contracts with State and Local Governments, and OMB Circular A-133 - Audits of States, Local Governments, and Non-Profit Organizations].[4, 5, 6]
c. 2 CFR Part 1200 – Nonprocurement Suspension and Debarment
d. 14 CFR Part 13 - Investigative and Enforcement Procedures14 CFR Part 16 - Rules of Practice For Federally Assisted Airport Enforcement Proceedings.
e. 14 CFR Part 150 - Airport noise compatibility planning.
f. 28 CFR Part 35- Discrimination on the Basis of Disability in State and Local Government Services.
g. 28 CFR § 50.3 - U.S. Department of Justice Guidelines for Enforcement of Title VI of the Civil Rights Act of 1964.
h. 29 CFR Part 1 - Procedures for predetermination of wage rates.[1]
i. 29 CFR Part 3 - Contractors and subcontractors on public building or public work financed in whole or part by loans or grants from the United States.[1]
j. 29 CFR Part 5 - Labor standards provisions applicable to contracts covering federally financed and assisted construction (also labor standards provisions applicable to non-construction contracts subject to the Contract Work Hours and Safety Standards Act).[1]
k. 41 CFR Part 60 - Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor (Federal and federally assisted contracting requirements).[1]
l. 49 CFR Part 18 - Uniform administrative requirements for grants and cooperative agreements to state and local governments.[3]
m. 49 CFR Part 20 - New restrictions on lobbying.
n. 49 CFR Part 21 – Nondiscrimination in federally-assisted programs of the Department of Transportation - effectuation of Title VI of the Civil Rights Act of 1964.
o. 49 CFR Part 23 - Participation by Disadvantage Business Enterprise in Airport Concessions.

p. 49 CFR Part 24 – Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs.[1 2]
q. 49 CFR Part 26 – Participation by Disadvantaged Business Enterprises in Department of Transportation Programs.
r. 49 CFR Part 27 – Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance.[1]
s. 49 CFR Part 28 – Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities conducted by the Department of Transportation.
t. 49 CFR Part 30 - Denial of public works contracts to suppliers of goods and services of countries that deny procurement market access to U.S. contractors.
u. 49 CFR Part 32 – Governmentwide Requirements for Drug-Free Workplace (Financial Assistance)
v. 49 CFR Part 37 – Transportation Services for Individuals with Disabilities (ADA).
w. 49 CFR Part 41 - Seismic safety of Federal and federally assisted or regulated new building construction.

Specific Assurances

Specific assurances required to be included in grant agreements by any of the above laws, regulations or circulars are incorporated by reference in this grant agreement.

Footnotes to Assurance C.1.

[1] These laws do not apply to airport planning sponsors.

[2] These laws do not apply to private sponsors.

[3] 49 CFR Part 18 and 2 CFR Part 200 contain requirements for State and Local Governments receiving Federal assistance. Any requirement levied upon State and Local Governments by this regulation and circular shall also be applicable to private sponsors receiving Federal assistance under Title 49, United States Code.

[4] On December 26, 2013 at 78 FR 78590, the Office of Management and Budget (OMB) issued the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards in 2 CFR Part 200. 2 CFR Part 200 replaces and combines the former Uniform Administrative Requirements for Grants (OMB Circular A-102 and Circular A-110 or 2 CFR Part 215 or Circular) as well as the Cost Principles (Circulars A-21 or 2 CFR part 220; Circular A-87 or 2 CFR part 225; and A-122, 2 CFR part 230). Additionally it replaces Circular A-133 guidance on the Single Annual Audit. In accordance with 2 CFR section 200.110, the standards set forth in Part 200 which affect administration of Federal awards issued by Federal agencies become effective once implemented by Federal agencies or when any future amendment to this Part becomes final. Federal agencies, including the Department of Transportation, must implement the policies and procedures applicable to Federal awards by promulgating a regulation to be effective by December 26, 2014 unless different provisions are required by statute or approved by OMB.

[5] Cost principles established in 2 CFR part 200 subpart E must be used as guidelines for determining the eligibility of specific types of expenses.

[6] Audit requirements established in 2 CFR part 200 subpart F are the guidelines for audits.

2. **Responsibility and Authority of the Sponsor.**

   a. Public Agency Sponsor:

   It has legal authority to apply for this grant, and to finance and carry out the proposed project; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing body authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

   b. Private Sponsor:

   It has legal authority to apply for this grant and to finance and carry out the proposed project and comply with all terms, conditions, and assurances of this grant agreement. It shall designate an official representative and shall in writing direct and authorize that person to file this application, including all understandings and assurances contained therein; to act in connection with this application; and to provide such additional information as may be required.

3. **Sponsor Fund Availability.**

   It has sufficient funds available for that portion of the project costs which are not to be paid by the United States. It has sufficient funds available to assure operation and maintenance of items funded under this grant agreement which it will own or control.

4. **Good Title.**

   a. It, a public agency or the Federal government, holds good title, satisfactory to the Secretary, to the landing area of the airport or site thereof, or will give assurance satisfactory to the Secretary that good title will be acquired.

   b. For noise compatibility program projects to be carried out on the property of the sponsor, it holds good title satisfactory to the Secretary to that portion of the property upon which Federal funds will be expended or will give assurance to the Secretary that good title will be obtained.

5. **Preserving Rights and Powers.**

   a. It will not take or permit any action which would operate to deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in this grant agreement without the written approval of the Secretary, and will act promptly to acquire, extinguish or modify any outstanding rights or claims of right of others which would interfere with such performance by the sponsor. This shall be done in a manner acceptable to the Secretary.

b. It will not sell, lease, encumber, or otherwise transfer or dispose of any part of its title or other interests in the property shown on Exhibit A to this application or, for a noise compatibility program project, that portion of the property upon which Federal funds have been expended, for the duration of the terms, conditions, and assurances in this grant agreement without approval by the Secretary. If the transferee is found by the Secretary to be eligible under Title 49, United States Code, to assume the obligations of this grant agreement and to have the power, authority, and financial resources to carry out all such obligations, the sponsor shall insert in the contract or document transferring or disposing of the sponsor's interest, and make binding upon the transferee all of the terms, conditions, and assurances contained in this grant agreement.

c. For all noise compatibility program projects which are to be carried out by another unit of local government or are on property owned by a unit of local government other than the sponsor, it will enter into an agreement with that government. Except as otherwise specified by the Secretary, that agreement shall obligate that government to the same terms, conditions, and assurances that would be applicable to it if it applied directly to the FAA for a grant to undertake the noise compatibility program project. That agreement and changes thereto must be satisfactory to the Secretary. It will take steps to enforce this agreement against the local government if there is substantial non-compliance with the terms of the agreement.

d. For noise compatibility program projects to be carried out on privately owned property, it will enter into an agreement with the owner of that property which includes provisions specified by the Secretary. It will take steps to enforce this agreement against the property owner whenever there is substantial non-compliance with the terms of the agreement.

e. If the sponsor is a private sponsor, it will take steps satisfactory to the Secretary to ensure that the airport will continue to function as a public-use airport in accordance with these assurances for the duration of these assurances.

f. If an arrangement is made for management and operation of the airport by any agency or person other than the sponsor or an employee of the sponsor, the sponsor will reserve sufficient rights and authority to insure that the airport will be operated and maintained in accordance Title 49, United States Code, the regulations and the terms, conditions and assurances in this grant agreement and shall insure that such arrangement also requires compliance therewith.

g. Sponsors of commercial service airports will not permit or enter into any arrangement that results in permission for the owner or tenant of a property used as a residence, or zoned for residential use, to taxi an aircraft between that property and any location on airport. Sponsors of general aviation airports entering into any arrangement that results in permission for the owner of residential real property adjacent to or near the airport must comply with the requirements of Sec. 136 of Public Law 112-95 and the sponsor assurances.

6. **Consistency with Local Plans.**

   The project is reasonably consistent with plans (existing at the time of submission of this application) of public agencies that are authorized by the State in which the project is located to plan for the development of the area surrounding the airport.

7. **Consideration of Local Interest.**

   It has given fair consideration to the interest of communities in or near where the project may be located.

8. **Consultation with Users.**

   In making a decision to undertake any airport development project under Title 49, United States Code, it has undertaken reasonable consultations with affected parties using the airport at which project is proposed.

9. **Public Hearings.**

   In projects involving the location of an airport, an airport runway, or a major runway extension, it has afforded the opportunity for public hearings for the purpose of considering the economic, social, and environmental effects of the airport or runway location and its consistency with goals and objectives of such planning as has been carried out by the community and it shall, when requested by the Secretary, submit a copy of the transcript of such hearings to the Secretary. Further, for such projects, it has on its management board either voting representation from the communities where the project is located or has advised the communities that they have the right to petition the Secretary concerning a proposed project.

10. **Metropolitan Planning Organization.**

    In projects involving the location of an airport, an airport runway, or a major runway extension at a medium or large hub airport, the sponsor has made available to and has provided upon request to the metropolitan planning organization in the area in which the airport is located, if any, a copy of the proposed amendment to the airport layout plan to depict the project and a copy of any airport master plan in which the project is described or depicted.

11. **Pavement Preventive Maintenance.**

    With respect to a project approved after January 1, 1995, for the replacement or reconstruction of pavement at the airport, it assures or certifies that it has implemented an effective airport pavement maintenance-management program and it assures that it will use such program for the useful life of any pavement constructed, reconstructed or repaired with Federal financial assistance at the airport. It will provide such reports on pavement condition and pavement management programs as the Secretary determines may be useful.

12. **Terminal Development Prerequisites.**

    For projects which include terminal development at a public use airport, as defined in Title 49, it has, on the date of submittal of the project grant application, all the safety equipment required for certification of such airport under section 44706 of Title 49, United States Code, and all the security equipment required by rule or regulation, and has provided for access to the passenger enplaning and deplaning area of such airport to passengers enplaning and deplaning from aircraft other than air carrier aircraft.

13. **Accounting System, Audit, and Record Keeping Requirements.**

    a. It shall keep all project accounts and records which fully disclose the amount and disposition by the recipient of the proceeds of this grant, the total cost of the project in connection with which this grant is given or used, and the amount or nature of that portion of the cost of the project supplied by other sources, and such other financial records pertinent to the project. The accounts and records shall be kept in accordance with an accounting system that will facilitate an effective audit in accordance with the Single Audit Act of 1984.

    b. It shall make available to the Secretary and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination, any books, documents, papers, and records of the recipient that are pertinent to this grant. The Secretary may require that an appropriate audit be conducted by a recipient. In any case in which an independent audit is made of the accounts of a sponsor relating to the disposition of the proceeds of a grant or relating to the project in connection with which this grant was given or used, it shall file a certified copy of such audit with the Comptroller General of the United States not later than six (6) months following the close of the fiscal year for which the audit was made.

14. **Minimum Wage Rates.**

    It shall include, in all contracts in excess of $2,000 for work on any projects funded under this grant agreement which involve labor, provisions establishing minimum rates of wages, to be predetermined by the Secretary of Labor, in accordance with the Davis-Bacon Act, as amended (40 U.S.C. 276a-276a-5), which contractors shall pay to skilled and unskilled labor, and such minimum rates shall be stated in the invitation for bids and shall be included in proposals or bids for the work.

15. **Veteran's Preference.**

    It shall include in all contracts for work on any project funded under this grant agreement which involve labor, such provisions as are necessary to insure that, in the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in Section 47112 of Title 49, United States Code. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

16. **Conformity to Plans and Specifications.**

    It will execute the project subject to plans, specifications, and schedules approved by the Secretary. Such plans, specifications, and schedules shall be submitted to the Secretary prior to commencement of site preparation, construction, or other performance under this grant agreement, and, upon approval of the Secretary, shall be incorporated into this grant agreement. Any modification to the approved plans, specifications, and schedules shall also be subject to approval of the Secretary, and incorporated into this grant agreement.

17. **Construction Inspection and Approval.**

    It will provide and maintain competent technical supervision at the construction site throughout the project to assure that the work conforms to the plans, specifications, and schedules approved by the Secretary for the project. It shall subject the construction work on any project contained in an approved project application to inspection and approval by the Secretary and such work shall be in accordance with regulations and procedures prescribed by the Secretary. Such regulations and procedures shall require such cost and progress reporting by the sponsor or sponsors of such project as the Secretary shall deem necessary.

18. **Planning Projects.**

    In carrying out planning projects:

    a. It will execute the project in accordance with the approved program narrative contained in the project application or with the modifications similarly approved.
    b. It will furnish the Secretary with such periodic reports as required pertaining to the planning project and planning work activities.
    c. It will include in all published material prepared in connection with the planning project a notice that the material was prepared under a grant provided by the United States.
    d. It will make such material available for examination by the public, and agrees that no material prepared with funds under this project shall be subject to copyright in the United States or any other country.
    e. It will give the Secretary unrestricted authority to publish, disclose, distribute, and otherwise use any of the material prepared in connection with this grant.
    f. It will grant the Secretary the right to disapprove the sponsor's employment of specific consultants and their subcontractors to do all or any part of this project as well as the right to disapprove the proposed scope and cost of professional services.
    g. It will grant the Secretary the right to disapprove the use of the sponsor's employees to do all or any part of the project.
    h. It understands and agrees that the Secretary's approval of this project grant or the Secretary's approval of any planning material developed as part of this grant does not constitute or imply any assurance or commitment on the part of the Secretary to approve any pending or future application for a Federal airport grant.

19. **Operation and Maintenance.**

    a. The airport and all facilities which are necessary to serve the aeronautical users of the airport, other than facilities owned or controlled by the United States, shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards as may be required or prescribed by applicable Federal, state and local agencies for maintenance and operation. It will not cause or permit any activity or action thereon which would interfere with its use for airport purposes. It will suitably operate and maintain the airport and all facilities thereon or connected therewith, with due regard to climatic and flood conditions. Any proposal to temporarily close the airport for non-aeronautical purposes must first be approved by the Secretary. In furtherance of this assurance, the sponsor will have in effect arrangements for-

1) Operating the airport's aeronautical facilities whenever required;
2) Promptly marking and lighting hazards resulting from airport conditions, including temporary conditions; and
3) Promptly notifying airmen of any condition affecting aeronautical use of the airport. Nothing contained herein shall be construed to require that the airport be operated for aeronautical use during temporary periods when snow, flood or other climatic conditions interfere with such operation and maintenance. Further, nothing herein shall be construed as requiring the maintenance, repair, restoration, or replacement of any structure or facility which is substantially damaged or destroyed due to an act of God or other condition or circumstance beyond the control of the sponsor.

b. It will suitably operate and maintain noise compatibility program items that it owns or controls upon which Federal funds have been expended.

20. **Hazard Removal and Mitigation.**

It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

21. **Compatible Land Use.**

It will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended.

22. **Economic Nondiscrimination.**

a. It will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.

b. In any agreement, contract, lease, or other arrangement under which a right or privilege at the airport is granted to any person, firm, or corporation to conduct or to engage in any aeronautical activity for furnishing services to the public at the airport, the sponsor will insert and enforce provisions requiring the contractor to-

1) furnish said services on a reasonable, and not unjustly discriminatory, basis to all users thereof, and
2) charge reasonable, and not unjustly discriminatory, prices for each unit or service, provided that the contractor may be allowed to make reasonable and nondiscriminatory discounts, rebates, or other similar types of price reductions to volume purchasers.

c. Each fixed-based operator at the airport shall be subject to the same rates, fees, rentals, and other charges as are uniformly applicable to all other fixed-based operators making the same or similar uses of such airport and utilizing the same or similar facilities.

d. Each air carrier using such airport shall have the right to service itself or to use any fixed-based operator that is authorized or permitted by the airport to serve any air carrier at such airport.

e. Each air carrier using such airport (whether as a tenant, non-tenant, or subtenant of another air carrier tenant) shall be subject to such nondiscriminatory and substantially comparable rules, regulations, conditions, rates, fees, rentals, and other charges with respect to facilities directly and substantially related to providing air transportation as are applicable to all such air carriers which make similar use of such airport and utilize similar facilities, subject to reasonable classifications such as tenants or non-tenants and signatory carriers and non-signatory carriers. Classification or status as tenant or signatory shall not be unreasonably withheld by any airport provided an air carrier assumes obligations substantially similar to those already imposed on air carriers in such classification or status.

f. It will not exercise or grant any right or privilege which operates to prevent any person, firm, or corporation operating aircraft on the airport from performing any services on its own aircraft with its own employees [including, but not limited to maintenance, repair, and fueling] that it may choose to perform.

g. In the event the sponsor itself exercises any of the rights and privileges referred to in this assurance, the services involved will be provided on the same conditions as would apply to the furnishing of such services by commercial aeronautical service providers authorized by the sponsor under these provisions.

h. The sponsor may establish such reasonable, and not unjustly discriminatory, conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport.

i. The sponsor may prohibit or limit any given type, kind or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public.

23. **Exclusive Rights.**

It will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. For purposes of this paragraph, the providing of the services at an airport by a single fixed-based operator shall not be construed as an exclusive right if both of the following apply:

a. It would be unreasonably costly, burdensome, or impractical for more than one fixed-based operator to provide such services, and

b. If allowing more than one fixed-based operator to provide such services would require the reduction of space leased pursuant to an existing agreement between such single fixed-based operator and such airport. It further agrees that it will not, either directly or indirectly, grant or permit any person, firm, or corporation, the exclusive right at the airport to conduct any aeronautical activities, including, but not limited to charter flights, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, air carrier operations, aircraft sales and services, sale of aviation petroleum products whether or not conducted in conjunction with other aeronautical activity, repair and maintenance of aircraft, sale of aircraft parts, and any other activities which because of their direct relationship to the operation of aircraft can be regarded as an aeronautical activity, and that it will terminate any exclusive right to conduct an aeronautical activity now existing at such an airport before the grant of any assistance under Title 49, United States Code.

24. **Fee and Rental Structure.**

It will maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, taking into account such factors as the volume of traffic and economy of collection. No part of the Federal share of an airport development, airport planning or noise compatibility project for which a grant is made under Title 49, United States Code, the Airport and Airway Improvement Act of 1982, the Federal Airport Act or the Airport and Airway Development Act of 1970 shall be included in the rate basis in establishing fees, rates, and charges for users of that airport.

25. **Airport Revenues.**

a. All revenues generated by the airport and any local taxes on aviation fuel established after December 30, 1987, will be expended by it for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport. The following exceptions apply to this paragraph:

1) If covenants or assurances in debt obligations issued before September 3, 1982, by the owner or operator of the airport, or provisions enacted before September 3, 1982, in governing statutes controlling the owner or operator's financing, provide for the use of the revenues from any of the airport owner or

operator's facilities, including the airport, to support not only the airport but also the airport owner or operator's general debt obligations or other facilities, then this limitation on the use of all revenues generated by the airport (and, in the case of a public airport, local taxes on aviation fuel) shall not apply.

2) If the Secretary approves the sale of a privately owned airport to a public sponsor and provides funding for any portion of the public sponsor's acquisition of land, this limitation on the use of all revenues generated by the sale shall not apply to certain proceeds from the sale. This is conditioned on repayment to the Secretary by the private owner of an amount equal to the remaining unamortized portion (amortized over a 20-year period) of any airport improvement grant made to the private owner for any purpose other than land acquisition on or after October 1, 1996, plus an amount equal to the federal share of the current fair market value of any land acquired with an airport improvement grant made to that airport on or after October 1, 1996.

3) Certain revenue derived from or generated by mineral extraction, production, lease, or other means at a general aviation airport (as defined at Section 47102 of title 49 United States Code), if the FAA determines the airport sponsor meets the requirements set forth in Sec. 813 of Public Law 112-95.

b. As part of the annual audit required under the Single Audit Act of 1984, the sponsor will direct that the audit will review, and the resulting audit report will provide an opinion concerning, the use of airport revenue and taxes in paragraph (a), and indicating whether funds paid or transferred to the owner or operator are paid or transferred in a manner consistent with Title 49, United States Code and any other applicable provision of law, including any regulation promulgated by the Secretary or Administrator.

c. Any civil penalties or other sanctions will be imposed for violation of this assurance in accordance with the provisions of Section 47107 of Title 49, United States Code.

26. **Reports and Inspections.**

It will:

a. submit to the Secretary such annual or special financial and operations reports as the Secretary may reasonably request and make such reports available to the public; make available to the public at reasonable times and places a report of the airport budget in a format prescribed by the Secretary;

b. for airport development projects, make the airport and all airport records and documents affecting the airport, including deeds, leases, operation and use agreements, regulations and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request;

c. for noise compatibility program projects, make records and documents relating to the project and continued compliance with the terms, conditions, and assurances of this grant agreement including deeds, leases, agreements, regulations, and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request; and

d. in a format and time prescribed by the Secretary, provide to the Secretary and make available to the public following each of its fiscal years, an annual report listing in detail:

   1) all amounts paid by the airport to any other unit of government and the purposes for which each such payment was made; and

   2) all services and property provided by the airport to other units of government and the amount of compensation received for provision of each such service and property.

27. **Use by Government Aircraft.**

It will make available all of the facilities of the airport developed with Federal financial assistance and all those usable for landing and takeoff of aircraft to the United States for use by Government aircraft in common with other aircraft at all times without charge, except, if the use by Government aircraft is substantial, charge may be made for a reasonable share, proportional to such use, for the cost of operating and maintaining the facilities used. Unless otherwise determined by the Secretary, or otherwise agreed to by the sponsor and the using agency, substantial use of an airport by Government aircraft will be considered to exist when operations of such aircraft are in excess of those which, in the opinion of the Secretary, would unduly interfere with use of the landing areas by other authorized aircraft, or during any calendar month that –

a. Five (5) or more Government aircraft are regularly based at the airport or on land adjacent thereto; or

b. The total number of movements (counting each landing as a movement) of Government aircraft is 300 or more, or the gross accumulative weight of Government aircraft using the airport (the total movement of Government aircraft multiplied by gross weights of such aircraft) is in excess of five million pounds.

28. **Land for Federal Facilities.**

It will furnish without cost to the Federal Government for use in connection with any air traffic control or air navigation activities, or weather-reporting and communication activities related to air traffic control, any areas of land or water, or estate therein, or rights in buildings of the sponsor as the Secretary considers necessary or desirable for construction, operation, and maintenance at Federal expense of space or facilities for such purposes. Such areas or any portion thereof will be made available as provided herein within four months after receipt of a written request from the Secretary.

29. **Airport Layout Plan.**

a. It will keep up to date at all times an airport layout plan of the airport showing

   1) boundaries of the airport and all proposed additions thereto, together with the boundaries of all offsite areas owned or controlled by the sponsor for airport purposes and proposed additions thereto;

   2) the location and nature of all existing and proposed airport facilities and structures (such as runways, taxiways, aprons, terminal buildings, hangars and

roads), including all proposed extensions and reductions of existing airport facilities;

3) the location of all existing and proposed nonaviation areas and of all existing improvements thereon; and

4) all proposed and existing access points used to taxi aircraft across the airport's property boundary. Such airport layout plans and each amendment, revision, or modification thereof, shall be subject to the approval of the Secretary which approval shall be evidenced by the signature of a duly authorized representative of the Secretary on the face of the airport layout plan. The sponsor will not make or permit any changes or alterations in the airport or any of its facilities which are not in conformity with the airport layout plan as approved by the Secretary and which might, in the opinion of the Secretary, adversely affect the safety, utility or efficiency of the airport.

b. If a change or alteration in the airport or the facilities is made which the Secretary determines adversely affects the safety, utility, or efficiency of any federally owned, leased, or funded property on or off the airport and which is not in conformity with the airport layout plan as approved by the Secretary, the owner or operator will, if requested, by the Secretary (1) eliminate such adverse effect in a manner approved by the Secretary; or (2) bear all costs of relocating such property (or replacement thereof) to a site acceptable to the Secretary and all costs of restoring such property (or replacement thereof) to the level of safety, utility, efficiency, and cost of operation existing before the unapproved change in the airport or its facilities except in the case of a relocation or replacement of an existing airport facility due to a change in the Secretary's design standards beyond the control of the airport sponsor.

30. **Civil Rights.**

It will promptly take any measures necessary to ensure that no person in the United States shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in any activity conducted with, or benefiting from, funds received from this grant.

a. Using the definitions of activity, facility and program as found and defined in §§ 21.23 (b) and 21.23 (e) of 49 CFR § 21, the sponsor will facilitate all programs, operate all facilities, or conduct all programs in compliance with all non-discrimination requirements imposed by, or pursuant to these assurances.

b. Applicability

1) Programs and Activities. If the sponsor has received a grant (or other federal assistance) for any of the sponsor's program or activities, these requirements extend to all of the sponsor's programs and activities.

2) Facilities. Where it receives a grant or other federal financial assistance to construct, expand, renovate, remodel, alter or acquire a facility, or part of a facility, the assurance extends to the entire facility and facilities operated in connection therewith.

3) Real Property. Where the sponsor receives a grant or other Federal financial assistance in the form of, or for the acquisition of real property or an interest in real property, the assurance will extend to rights to space on, over, or under such property.

c. Duration.

The sponsor agrees that it is obligated to this assurance for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the assurance obligates the sponsor, or any transferee for the longer of the following periods:

1) So long as the airport is used as an airport, or for another purpose involving the provision of similar services or benefits; or

2) So long as the sponsor retains ownership or possession of the property.

d. Required Solicitation Language. It will include the following notification in all solicitations for bids, Requests For Proposals for work, or material under this grant agreement and in all proposals for agreements, including airport concessions, regardless of funding source:

"The **(Name of Sponsor)**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises and airport concession disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award."

e. Required Contract Provisions.

1) It will insert the non-discrimination contract clauses requiring compliance with the acts and regulations relative to non-discrimination in Federally-assisted programs of the DOT, and incorporating the acts and regulations into the contracts by reference in every contract or agreement subject to the non-discrimination in Federally-assisted programs of the DOT acts and regulations.

2) It will include a list of the pertinent non-discrimination authorities in every contract that is subject to the non-discrimination acts and regulations.

3) It will insert non-discrimination contract clauses as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a sponsor.

4) It will insert non-discrimination contract clauses prohibiting discrimination on the basis of race, color, national origin, creed, sex, age, or handicap as a

covenant running with the land, in any future deeds, leases, license, permits, or similar instruments entered into by the sponsor with other parties:

a) For the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and

b) For the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.

f. It will provide for such methods of administration for the program as are found by the Secretary to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the acts, the regulations, and this assurance.

g. It agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the acts, the regulations, and this assurance.

31. **Disposal of Land.**

a. For land purchased under a grant for airport noise compatibility purposes, including land serving as a noise buffer, it will dispose of the land, when the land is no longer needed for such purposes, at fair market value, at the earliest practicable time. That portion of the proceeds of such disposition which is proportionate to the United States' share of acquisition of such land will be, at the discretion of the Secretary, (1) reinvested in another project at the airport, or (2) transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order, (1) reinvestment in an approved noise compatibility project, (2) reinvestment in an approved project that is eligible for grant funding under Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid to the Secretary for deposit in the Airport and Airway Trust Fund. If land acquired under a grant for noise compatibility purposes is leased at fair market value and consistent with noise buffering purposes, the lease will not be considered a disposal of the land. Revenues derived from such a lease may be used for an approved airport development project that would otherwise be eligible for grant funding or any permitted use of airport revenue.

b. For land purchased under a grant for airport development purposes (other than noise compatibility), it will, when the land is no longer needed for airport purposes, dispose of such land at fair market value or make available to the Secretary an amount equal to the United States' proportionate share of the fair market value of the land. That portion of the proceeds of such disposition which is proportionate to the United States' share of the cost of acquisition of such land will, (1) upon application to the Secretary, be reinvested or transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order: (1) reinvestment in an approved noise compatibility project, (2) reinvestment in an approved project that is eligible for grant funding under Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid to the Secretary for deposit in the Airport and Airway Trust Fund.

c. Land shall be considered to be needed for airport purposes under this assurance if (1) it may be needed for aeronautical purposes (including runway protection zones) or serve as noise buffer land, and (2) the revenue from interim uses of such land contributes to the financial self-sufficiency of the airport. Further, land purchased with a grant received by an airport operator or owner before December 31, 1987, will be considered to be needed for airport purposes if the Secretary or Federal agency making such grant before December 31, 1987, was notified by the operator or owner of the uses of such land, did not object to such use, and the land continues to be used for that purpose, such use having commenced no later than December 15, 1989.

d. Disposition of such land under (a) (b) or (c) will be subject to the retention or reservation of any interest or right therein necessary to ensure that such land will only be used for purposes which are compatible with noise levels associated with operation of the airport.

32. **Engineering and Design Services.**

It will award each contract, or sub-contract for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design, engineering, surveying, mapping or related services with respect to the project in the same manner as a contract for architectural and engineering services is negotiated under Title IX of the Federal Property and Administrative Services Act of 1949 or an equivalent qualifications-based requirement prescribed for or by the sponsor of the airport.

33. **Foreign Market Restrictions.**

It will not allow funds provided under this grant to be used to fund any project which uses any product or service of a foreign country during the period in which such foreign country is listed by the United States Trade Representative as denying fair and equitable market opportunities for products and suppliers of the United States in procurement and construction.

34. **Policies, Standards, and Specifications.**

It will carry out the project in accordance with policies, standards, and specifications approved by the Secretary including but not limited to the advisory circulars listed in the Current FAA Advisory Circulars for AIP projects, dated ____________ (the latest approved version as of this grant offer) and included in this grant, and in accordance with applicable state policies, standards, and specifications approved by the Secretary.

35. **Relocation and Real Property Acquisition.**

    a. It will be guided in acquiring real property, to the greatest extent practicable under State law, by the land acquisition policies in Subpart B of 49 CFR Part 24 and will pay or reimburse property owners for necessary expenses as specified in Subpart B.
    b. It will provide a relocation assistance program offering the services described in Subpart C and fair and reasonable relocation payments and assistance to displaced persons as required in Subpart D and E of 49 CFR Part 24.
    c. It will make available within a reasonable period of time prior to displacement, comparable replacement dwellings to displaced persons in accordance with Subpart E of 49 CFR Part 24.

36. **Access By Intercity Buses.**

    The airport owner or operator will permit, to the maximum extent practicable, intercity buses or other modes of transportation to have access to the airport; however, it has no obligation to fund special facilities for intercity buses or for other modes of transportation.

37. **Disadvantaged Business Enterprises.**

    The sponsor shall not discriminate on the basis of race, color, national origin or sex in the award and performance of any DOT-assisted contract covered by 49 CFR Part 26, or in the award and performance of any concession activity contract covered by 49 CFR Part 23. In addition, the sponsor shall not discriminate on the basis of race, color, national origin or sex in the administration of its DBE and ACDBE programs or the requirements of 49 CFR Parts 23 and 26. The sponsor shall take all necessary and reasonable steps under 49 CFR Parts 23 and 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts, and/or concession contracts. The sponsor's DBE and ACDBE programs, as required by 49 CFR Parts 26 and 23, and as approved by DOT, are incorporated by reference in this agreement. Implementation of these programs is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the sponsor of its failure to carry out its approved program, the Department may impose sanctions as provided for under Parts 26 and 23 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1936 (31 U.S.C. 3801).

38. **Hangar Construction.**

    If the airport owner or operator and a person who owns an aircraft agree that a hangar is to be constructed at the airport for the aircraft at the aircraft owner's expense, the airport owner or operator will grant to the aircraft owner for the hangar a long term lease that is subject to such terms and conditions on the hangar as the airport owner or operator may impose.

39. **Competitive Access.**

a. If the airport owner or operator of a medium or large hub airport (as defined in section 47102 of title 49, U.S.C.) has been unable to accommodate one or more requests by an air carrier for access to gates or other facilities at that airport in order to allow the air carrier to provide service to the airport or to expand service at the airport, the airport owner or operator shall transmit a report to the Secretary that-

   1) Describes the requests;

   2) Provides an explanation as to why the requests could not be accommodated; and

   3) Provides a time frame within which, if any, the airport will be able to accommodate the requests.

b. Such report shall be due on either February 1 or August 1 of each year if the airport has been unable to accommodate the request(s) in the six month period prior to the applicable due date.

Glossary of Terms

GLOSSARY OF AVIATION TERMS

The following glossary of aviation terms was compiled from a variety of sources and edited by David Miller, AICP for use in aviation planning projects.

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.

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 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.

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 Surface – A surface that extends upward from the departure end of an instrument runway that should be free of any obstacle penetrations. For instrument runways other than air carrier, the slope is 40:1, extending 10,200 feet from the runway end. Air carrier runways have a similar surface designed for one-engine inoperative conditions with a slope of 62.5: 1.

Design Aircraft - Aircraft which controls one or more design items based on wingspan, approach speed and/or maximum certificated takeoff weight. The same aircraft may not represent the design aircraft for all design items (i.e., runway length, pavement strength, etc.). Also referred to as "critical aircraft."

Displaced Threshold – A landing threshold located at a point other than on the runway end, usually provided to mitigate close-in obstructions to runway approaches for landing aircraft. The area between the runway end and the displaced threshold accommodates aircraft taxi and takeoff, but not landing.

Distance Measuring Equipment (DME) – Equipment that provides electronic distance information to enroute or approaching aircraft from a land-based transponder that sends and receives pulses of fixed duration and separation. The ground stations are typically co-located with VORs, but they can also be co-located with an ILS.

Distance Remaining Signs – Airfield signs that indicate to pilots the amount of useable runway remaining in 1,000-foot increments. The signs are located along the side of the runway, visible for each direction of runway operation.

DNL - Day-night sound levels, a mathematical method of measuring noise exposure based on cumulative, rather than single event impacts. Night time operations (10pm to 7AM) are assessed a noise penalty to reflect the increased noise sensitivity that exists during normal hours of rest. Previously referred to as Ldn.

Easement – An agreement that provides use or access of land or airspace (see avigation easement) in exchange for compensation.

Enplanements - Domestic, territorial, and international revenue passengers who board an aircraft in the states in scheduled and non-scheduled service of aircraft in intrastate, interstate, and foreign commerce and includes intransit passengers (passengers on board international flights that transit an airport in the US for non-traffic purposes).

Entitlements - Distribution of Airport Improvement Plan (AIP) funds by FAA from the Airport & Airways Trust Fund to commercial service airport sponsors based on passenger enplanements or cargo volumes and smaller fixed amounts for general aviation airports (Non-Primary Entitlements).

Experimental Aircraft – See homebuilt aircraft.

Federal Aviation Administration (FAA) - The FAA is the branch of the U.S. Department of Transportation that is responsible for the development of airports and air navigation systems.

FAR Part 77 - Federal Air Regulations (FAR) which establish standards for determining obstructions in navigable airspace and defines imaginary (airspace) surfaces for airports and heliports that are designed to prevent hazards to air navigation. FAR Part 77 surfaces include approach, primary, transitional, horizontal, and conical surfaces. The dimensions of surfaces can vary with the runway classification (large or small airplanes) and approach type of each runway end (visual, nonprecision 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 nonprecision 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 nonprecision 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 nonprecision 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 nonprecision 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 know 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 nonprecision 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 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.

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 ility, 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 Acronyms

AC – Advisory Circular
AC – Asphaltic Concrete
ADG – Airplane Design Group
ALP – Airport Layout Plan
ALS – Approach Lighting System
APL – Aircraft Parking Line
ARC – Airport Reference Code
ARP - Airport Reference Point
ASDA – Accelerate-Stop Distance Available
ASV – Annual Service Volume
ATCT – Air Traffic Control Tower
ASOS – Automated Surface Observation System
AWOS – Automated Weather Observation System
BRL – Building Restriction Line
CTAF – Common Traffic Advisory Frequency
FAA – Federal Aviation Administration
FAR – Federal Air Regulation
FBO – Fixed Base Operator
GPS – Global Positioning System
HIRL – High Intensity Runway Lighting
IFR – Instrument Flight Rules
IMC – Instrument Meteorological Conditions
LDA – Landing Distance Available
LDA - Localizer Directional Aid
LIRL – Low Intensity Runway Lighting
MIRL – Medium Intensity Runway Lighting
MITL - Medium Intensity Taxiway Lighting
NAVAID – Navigational Aid
OCS – Obstacle Clearance Surface
OFA – Object Free Area
OFZ – Obstacle Free Zone
PAPI – Precision Approach Path Indicator
PCC – Portland Cement Concrete
PCI – Pavement Condition Index
REIL – Runway End Identifier Lights
RPZ – Runway Protection Zone
RSA – Runway Safety Area
RVZ – Runway Visibility Zone
TSA- Taxiway Safety Area
TSA – Transportation Security Administration
TODA – Takeoff Distance Available
TORA – Takeoff Run Available
UGA – Urban Growth Area
UGB – Urban Growth Boundary
UNICOM – Universal Communications
VASI – Visual Approach Slope Indicator
VFR – Visual Flight Rules
VGI - Visual Guidance Indicators

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