Albany Municipal Airport
Albany, Oregon

Airport Master Plan Update

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ALBANY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN REPORT
2000-2020

FINAL REPORT

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF DRAWINGS

APPENDICES

ALBANY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN REPORT
2000-2020

CHAPTER ONE
Inventory

CHAPTER ONE

Inventory

INTRODUCTION

This airport master plan update is intended to define the needs and direction of future development at Albany Municipal Airport over the next twenty years and beyond. This project updates the Albany Municipal Site Selection and Airport Master Plan (Wadell Engineering, 1979), which has provided the primary airport planning guidance for the airport. Considerable improvements have been made to airfield facilities (primarily pavement and electrical) since the last master plan was completed. However, several of the older airport buildings have deteriorated and are now in need of significant renovation or repair.

A recent project studying the option of developing a regional general aviation airport in Linn County also provided updated facility inventory and forecasts information for Albany Municipal Airport. The Linn County Regional Airport Feasibility Study (Bucher, Willis, & Ratliff, 1996) is being used as the primary source document for this master plan update. The data contained in the study is relatively current and will be used to the greatest extent possible in this master plan update. The existing airfield facilities were also examined during recent on-site inspections.

Data from a variety of other sources are used in this evaluation, including:

- Oregon Continuous Aviation System Plan (Volume 1 Inventory and Forecasts, March 1997, The Airport Technology and Planning Group)
- Pavement Evaluation and Maintenance Management Program, Albany Municipal Airport, Oregon Aviation System Plan (Pavement Consultants Inc., 1997)
- Local documents, drawings and regional socioeconomic data
- FAA Airport Record Forms, Forecast data, Aeronautical charts, instrument approach data, etc.

AIRPORT LOCALE

Albany is located in Linn County in the heart of Oregon's Willamette Valley, approximately 65 miles south of Portland. The Willamette Valley is recognized as one of Oregon's leading agricultural areas with a mild climate and rich soils. Albany is the county seat for Linn County, which has a land area of 2,297 square miles. Albany also provides a variety of professional, educational, business, and recreational services for numerous smaller outlying communities in the region.

The western one-third of Linn County is located in the fertile Willamette Valley, while the eastern two-thirds of the county is heavily forested. A large portion of the forested area is located within the Willamette National Forest.

U.S. Interstate 5 (I-5) travels through Albany and borders the west edge of the airport. State Highway 20 extends west and east through Albany, just south of the airport. Highway 99E runs south from Albany to Harrisburg and Junction City.

The airport is approximately two miles from the city center, immediately east of I-5. The airport is located entirely within the city limits and urban growth boundary for the City of Albany. A combination of transportation corridors, public facilities, commercial, and residential development surrounds the airport. The Linn County Fair & Expo Center and the Timber-Linn Memorial Park are located along the eastern edge of the airport.

Vehicle access to the airport is provided from a single entrance road (Aviation Way) that extends south from Knox Butte Road along the west side of the airport. The south (off-airport) aircraft parking area has surface access provided from Price Road. An aircraft parking area located near the northeast corner of the airport has limited access provided through a gate in the fence for the adjacent Linn County Fair & Expo Center.

CLIMATE

Moderate temperatures and precipitation characterize the central Willamette Valley region. Based on recorded climatic data for the period 1928 and 1963, Albany averages 39.39 inches of precipitation and 7.4 inches of snowfall annually.[1] The average maximum temperature is 81.6 degrees Fahrenheit (July) and the average minimum temperature is 32.4 degrees (January). Prevailing winds in the Willamette Valley generally follow a north-south pattern. Based on available wind data, it appears that Runway 16-34 provides more than 95 percent wind coverage at both 12 and 15 miles per hour.

[1] Western Regional Climate Center

SOCIOECONOMIC CONDITIONS

Population

In 1996, the population of Albany (incorporated area) was estimated to be 37,095; Linn County was estimated at 100,000; and Benton County was estimated to be 76,000.[2] Over the last thirty years, the area has experienced a variety of economic shifts, although overall growth in population has occurred.

Based on current conditions and economic projections, Linn and Benton Counties are expected to continue experiencing modest growth in population over the next 30 years.[3] Between 1990 and 2040, Linn County population is projected to grow at an annual average rate of 1.06 percent; Benton County annual population growth projections average 0.82 percent. These annual growth rates are expected to be slightly lower than the average statewide growth in population (about 1.2 percent). **Table 1-1** summarizes area and statewide historic and projected population trends.

Table 1-1: Area Population Data

Year	Linn County (% of Oregon)	Benton County (% of Oregon)	Linn-Benton Combined (% of Oregon)	Oregon
1960	58,867 (3.3%)	39,165 (2.2%)	98,032 (5.5%)	1,768,687
1970	71,914 (3.4%)	53,776 (2.6%)	125,690 (6.0%)	2,091,385
1990	91,000 (3.2%)	71,200 (2.5%)	162,200 (5.7%)	2,856,000
1996	100,000 (3.1%)	76,000 (2.4%)	176,000 (5.6%)	3,181,000
1960-96 Growth				
Overall	70.0%	94.1%	79.5%	79.9%
Avg. Annual	1.48%	1.86%	1.64%	1.64%
Population Projections				
2010	*116,053 (3.0%)*	*85,080 (2.2%)*	*201,133 (5.2%)*	*3,857,000*
2020	*121,593 (2.8%)*	*91,345 (2.1%)*	*212,938 (4.9%)*	*4,326,000*

Source Center for Population Research, Portland State University; U.S. Census Data

[2] Portland State University
[3] Oregon Department of Administrative Services, Office of Economic Analysis

Economy

The Albany (Linn-Benton County) area has historically experienced periodic upward and downward swings in economic activity. As the county seat, Albany has historically maintained a strong government employment base. However, major changes in the wood products industries devastated many communities like Albany, where nearly one of four nonfarm jobs were related to wood products as recently as 25 years ago. Today, lumber manufacturing accounts for less than one out of every ten nonfarm jobs. [4]

The region was among Oregon's most severely impacted economic areas as the decline in wood products industry occurred. Unemployment in Linn County peaked at around 15 percent in 1982. According to data maintained by the Oregon Department of Employment, average unemployment in Linn and Benton County, have ranged from 7 to 9 percent since 1990. However, in recent years, the area has gradually broadened its economic base beyond wood products with growth in manufacturing, particularly manufactured housing; service; construction; government; agriculture; and transportation segments.

According to Oregon Employment Department data, Linn County now has one of the most diversified industry bases of any non-metropolitan county in Oregon. Per capita income in Linn and Benton Counties has increased over the last fifteen years. In 1980, both counties were ranked near the bottom of Oregon's counties in per capita income. This trend has changed dramatically where by 1995, Linn County was ranked 15th and Benton County was ranked 4th in per capita income. [5]

AIRPORT HISTORY

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. [6] 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 70 years.

[4] Oregon Employment Department Data
[5] Oregon Employment Department Data
[6] Local historical records

Airport Historical Status

In 1998, the Oregon State Historic Preservation Office (SHPO) certified a 58.77-acre parcel of Albany Municipal Airport for placement on the National Register of Historic Places.[7] 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

The considerations associated with the historical status of the land area and the structures will be evaluated as part of the airfield development alternatives analyses.

AIRPORT ENVIRONMENT

Albany Municipal Airport is located approximately two miles southeast of the city center, east of U.S. Interstate 5 (I-5). As noted earlier, the airport is located in an area of moderate development along the I-5 corridor. The airport is surrounded on all sides by development and highway facilities.

Cox Creek is a primary local drainage and enters the airport from the east. The creek travels along 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. The undeveloped areas of the airport are grass covered and drain reasonably well. A recent citywide wetland delineation survey found no wetlands on the airport beyond the Cox Creek drainage.

The two I-5 exits/interchanges located at the north and south ends of the airport, and surrounding developments create a generally urbanized setting for the airport. No significantly incompatible land uses or activities appear to exist in the vicinity of the airport. However, preventing future incompatible land uses and obstructions in the areas around the airport will be critical to protecting the long-term viability of this site.

[7] National Register of Historic Place Registration Form, dated April 25, 1998

AIRFIELD FACILITIES

The airport currently accommodates locally based single and light twin-engine aircraft. In addition to local aircraft, the airport accommodates itinerant general aviation and business aviation. **Table 1-2** summarizes airport data. Existing conditions at the airport are depicted on Drawing 1 – Airport Layout Plan in Chapter Seven.

Table 1-2: Airport Data

Airport Name/Designation	Albany Municipal Airport (S12)
Airport Owner	City of Albany
Date Established	1929
Airport Category	National Plan of Integrated Airport Systems (NPIAS) – General Aviation FAA Airport Reference Code: B-I
Airport Acreage	126 Acres (estimated by City per 1984 boundary change)
Primary Airport Facilities	Single paved, lighted runway; full-length west parallel taxiway; partial-length east parallel taxiway nonprecision instrument approach; aircraft parking aprons and hangars; fixed base operator; aviation gasoline (AVGAS)
Airport Coordinates	N 44° 38.27' W 123° 03.57'
Airport Elevation	226 Feet Mean Sea Level (MSL)
Airport Traffic Pattern	Left Traffic – 1,000 feet above ground level

RUNWAY AND TAXIWAYS

Albany Municipal Airport has one paved runway (16-34) which is oriented on a 160-340 degree magnetic alignment. Runway 16-34 has a full-length west side parallel taxiway with three exit taxiway connections to the runway. The parallel taxiway provides access to aircraft parking and hangar areas located on the west side of the airport. Aircraft holding/run-up areas are located at each end of the runway, on the parallel taxiway. Several access taxiways extend from the west parallel taxiway to adjacent aircraft parking apron and hangar areas. A partial-length east side parallel taxiway extends from the north end of the runway to an aircraft parking area located adjacent to the Fair & Expo Center facilities. Runway and taxiway data are listed in **Tables 1-3 and 1-4.**

A 115-foot wide east-west taxilane is designated at the north end of the main apron. The taxilane allows aircraft movement between the apron and hangar areas and the runway-taxiway system. A southern taxiway extends from the south end of the parallel taxiway to an aircraft parking area located off airport property. The southern taxiway crosses a bridge at Cox Creek.

A recent visual inspection of the runway and parallel taxiway indicated that the pavement was in good condition, showing normal signs of weathering. The runway and taxiway markings are generally in good condition. The City conducts a routine program of vegetation control, crackfilling, sealcoating, and marking of airfield pavements.

Table 1-3: Runway Data

Dimensions	3,004 x 75 feet
Effective Gradient	0.02%
Surface	Asphaltic Concrete (AC) 4"-9" (city estimate) 8" Crushed Aggregate Base
Weight Bearing Capacity (WBC)	30,000 Pounds – Single Wheel Landing Gear 43,000 Pounds –Dual Wheel Landing Gear 71,000 Pounds –Dual Tandem Wheel Landing Gear
Marking	Basic (runway numbers, centerline stripe)
Lighting	Medium Intensity Runway Edge Lighting (MIRL) Threshold Lights Visual Approach Slope Indicators (VASI) – Rwy 16&34
Wind Coverage	99.9 % at 15 mph

Source: City of Albany airport drawings and documents; FAA/NOS Airport Facility Directory

As required in the master plan scope, a Century West structural engineer was on site to inspect the condition of the taxiway bridge located at the southern end of Runway 16-34. This inspection was conducted on June 16, 1999 (see Appendix 4).

The bridge spans approximately forty feet across a stream. The bridge is constructed of three flat-bed railroad cars. Pressure-treated 3x10 wood planks span transverse across the rail cars. A four to six inch layer of asphalt overlays the wood planks. The rail cars are supported and anchored into concrete pads at each end.

The riveted-steel rail cars are in good condition - minimal corrosion is evident throughout the spans. The pressure-treated wood planks are also in good shape. No immediate maintenance appears necessary. Within

the next five years, the steel rail cars should be re-painted to maintain minimal corrosion protection. This routine item of maintenance should be conducted periodically to maximize useful life of the structure.

The load carrying capacity of the bridge is substantial. Currently, the maximum anticipated aircraft load is approximately 12,500 pounds. This is well below the capacity of the bridge span and foundation. Each rail car has the capacity of 70,000 pounds, however, the existing foundation limits the bridge capacity to approximately 50,000 pounds. The service life of the bridge should easily last another 20 years considering the overall condition of the bridge, and the light, intermittent use.

Table 1-4: Taxiway Data

Configuration	Full length west parallel taxiway with three 90-degree exits. Aircraft holding areas at both runway ends. Partial length east parallel taxiway with one 90-degree exit at Runway 16 end. Aircraft taxilanes to hangars; south taxiway to off-airport parking area with bridge.
Dimensions	West Parallel Taxiway 3,004 x 30 feet East Parallel Taxiway 470 x 25 feet South Taxiway 900 x 30 feet South Hangar Taxilanes (3) 312 x 20 feet South Hangar Taxilanes (2) 320 x 25 feet North Hangar Taxilane 665 x 25 feet
Surface	Main Taxiways Asphaltic Concrete (AC) 3 to 3.5"; 4.5" to 8" Crushed Aggregate Base; secondary taxiways/taxilanes 1.5 to 2" AC on 4.5 to 8" Crushed Aggregate Base
Marking	Centerline Stripes; Hold Lines; Lead-in Lines (yellow paint)
Lighting	None (edge reflectors)
Runway-Parallel Taxiway Separation	150 feet. Aircraft hold lines 125 feet from runway centerline.

Source: City of Albany airport drawings and documents; FAA/NOS Airport Facility Directory

AIRCRAFT PARKING APRON

Most of the airport's aircraft parking aprons are located on the west side of the runway, although a small apron is also located at the northeast corner of the airport. In addition to these areas, a small aircraft apron is located off airport property, near the south end of the runway-taxiway system. Vehicle access to the aircraft aprons and adjacent hangars is provided through a series of gates located along the east side of the airport access road. The southern apron is accessed through a restaurant vehicle parking area on Price Road. All aircraft parking areas have direct access to the runway-parallel taxiway. The aircraft parking aprons are summarized in **Table 1-5.**

The main aircraft apron is configured in three narrow sections, each abutting the other to provide a continuous pavement area of approximately 26,300 square yards and 55 light aircraft tiedowns.

The section of the main apron located immediately in front of the FBO building is used for aircraft loading/unloading, fueling, and tiedowns. The apron has a center row of cable tiedowns, which accommodates approximately 15 tail-in tiedowns. Two aircraft tiedowns are located adjacent to the FBO building.

The center section of the main apron extends from the large (former Mountain Air) hangar south, to beyond the FBO building. This apron is primarily used to provide aircraft access to adjacent hangars and movement to and from the parallel taxiway. A single outer row of 6 west-facing tiedowns is located along the eastern edge of this apron.

The outer section of the main apron extends from the midfield taxiway exit to the area adjacent to the large hangar. This apron accommodates two rows of west-facing light aircraft tiedowns, with 32 designated spaces.

A small apron area fronting two conventional hangars is located at the north end of the terminal area. A hangar taxiway connects this area with the northwest corner of the main apron and the parallel taxiway at its north end. A small aircraft parking area is located on the northeast corner of the airport. This parking area provides convenient access to the adjacent Fair & Expo Center facilities, located along the east edge of the airport.

A small aircraft apron located off airport property (south) provides aircraft parking for an adjacent restaurant and hotel. The area can accommodate approximately 12 light aircraft parking positions.

Table 1-5: Aircraft Apron Data

Aircraft Aprons	Description	Existing Use/Parking Capacity
Main (Fronting FBO Building)	480 x 100' (5,330 sy). 2" Asphaltic Concrete w/ Fabric; 2" AC on original 8" aggregate base. PCI Rating: "Excellent"	Aircraft loading, fueling, business aircraft parking 17 light aircraft tiedowns.
Main (Center Section)	1,205 x 95' (12,720 sy). 2" Asphaltic Concrete w/ Fabric; 1.5" AC on original 4.5" aggregate base. PCI Rating: "Excellent"	Aircraft fueling, business aircraft parking. 6 light aircraft tiedowns.
Main (Outer Tiedown Section)	740 x 100' (8,220 sy). 3.5" Asphaltic Concrete on 9" aggregate base. PCI Rating: "Good"	Aircraft, fueling, business aircraft parking. 32 light aircraft tiedowns.
Northwest Hangar Area	200 x 45' (1,000 sy). Unknown surface and base sections. PCI Rating: "Excellent"	Aircraft hangar area. No designated parking positions.
Northeast Parking Area	100 x 440' (4,888 sy). Asphalt Concrete PCI Rating: "Excellent"	Aircraft Parking; access to Fair & Expo Center. 7 light aircraft tiedowns.
South Apron	291 x 130' (4,200 sy). 1.5" Asphaltic Concrete on 4.5" aggregate base. PCI Rating: "Fair"	Aircraft Parking; access to nearby motels and restaurant. 12 aircraft parking positions

Source: *Oregon Aviation System Plan Pavement Evaluation/Maintenance Management Program* (1999) for Albany Municipal Airport.

AIRFIELD PAVEMENT CONDITION

As part of the Oregon Aviation System Plan, the Pavement Evaluation/Maintenance Management Program was developed and applied to all Oregon general 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 1-6 summarizes pavement condition at Albany Municipal Airport based on inspections conducted in 1999 and 1994. With the exception of the northern-most hangar taxilane, which has failed, all airfield pavements were rated "Good" or better. Between 1994 and 1999, the percentage of airfield pavement at Albany rated "fair" or lower has remained steady at 8.08 percent. This percentage can be expected to increase during the current 20-year master planning period as pavements approach the end of their useful lives and require more frequent maintenance or rehabilitation. The rate of pavement deterioration documented between the 1994 and 1999 inspections does not appear unusual based on local conditions or type of aircraft use.

Table 1-6: Summary of Airfield Pavement Condition

Pavement	1994 PCI [1]	1999 PCI [1]	Current Condition
Runway	98	91	Excellent
West Parallel Taxiway	100	100	Excellent
Center Exit Taxiway	95	91-93	Excellent
North Hangar Taxiway	25	0-25	Excellent - Reconstructed in 2000 - est. 100 PCI
East Parallel Taxiway	--	--	Excellent - Constructed in 2000 - est. 100 PCI
South Hangar Taxiways (3 south)	73-100	58-84	Excellent - Overlaid in 2000 - est. 100 PCI
South Hangar Taxiways (2 north)	--	--	Excellent - Constructed in 2000 - est. 100 PCI
West P. Taxiway Turnarounds	--	76-88	Very Good to Excellent
Main Apron	78-93	67-91	Good to Excellent
South Apron and Taxiway	59-62	41-44	Fair
North Aircraft Parking Apron	--	100	Excellent

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* (1999) for Albany Municipal Airport.

LANDSIDE FACILITIES

AIRPORT BUILDINGS

Albany Municipal Airport accommodates a variety of aviation-related buildings. Currently, all airport buildings and aviation facilities are located along the west side of the airport. The airport has one open front T-hangar, one portable hangar, five conventional hangars, and a combination office and hangar, which is used by the airport FBO. Four T-hangars are located south of the terminal area. An electrical control building for airfield lighting, and a modular telephone control unit are located along the west edge of the apron, near the airport beacon. **Table 1-7** summarizes existing airport hangars and other airport buildings.

As noted earlier, two of the airport hangars date back to the early days of airport operations. A portion of the airfield and several airport buildings/structures are nominated for inclusion on the National Register of Historic Places.

Table 1-7: Airport Buildings

Bldg. No.	Building	Existing Use	Historic Status
1.	Lg. Conventional Hangar (formerly Mountain Air)	Vacant; aircraft storage and related use	Yes
2.	Conventional Hangar (Beige – North Airport)	Aircraft storage	No
3.	Conventional Hangar (Blue/Green–North Airport)	Aircraft storage	No
4.	11 unit T-Hangar (North Airport)	Aircraft storage	No
5.	Conventional Hangar (South of electrical buildings fenced area)	Aircraft related business use; aircraft storage	No
6.	Conventional Hangar (North of electrical buildings fenced area)	Vacant; aircraft storage or related business use	Yes
7.	Electrical Building	Electronics housing	No
8.	Telephone Control Building	Electronics housing	No
9.	FBO Office and Hangar (north and south bays)	FBO operations; office, classroom, aircraft maintenance, aircraft storage	No
10.	10-Unit T-Hangar (South Airport)	Aircraft storage	No
11.	10-Unit T-Hangar (South Airport)	Aircraft storage	No
12.	11-Unit T-Hangar (South Airport)	Aircraft storage	No
13.	11-Unit T-Hangar (South Airport)	Aircraft storage	No
14.	Portable Hangar (south end of main apron)	Aircraft storage	No

The City of Albany recently conducted an evaluation of the city-owned buildings on the airport, including the large hangars and the FBO building. Preliminary needs and costs were defined for bring the buildings up to

code. As part of this project, a preliminary structural/architectural evaluation was conducted for these buildings (see Appendix 2). Several airport users have identified addressing the deteriorated condition of several major airport buildings as a significant action item for the City.

AIRPORT SUPPORT FACILITIES

Aviation gasoline (AVGAS) is available at the airport. Jet fuel is not available for sale at the airport. The airport's fixed base operator (FBO) provides a variety of aviation services in addition to handling fuel sales. Fuel storage at the airport has historically included fixed storage tanks and mobile fuel trucks. Since the last master plan, the airport's underground fuel storage tanks have been removed. Some contaminated soils detected around the tanks were also removed.

Since that time, the FBO used several fuel trucks for fuel storage and dispensing. Eventually however, state fire marshal requirements were upgraded making these trucks non-compliant. Plans for installing a new aboveground fuel storage tank were initiated. As a temporary measure, an approved small capacity fuel truck was leased for use until the City completed its fuel tank installation project. Planning for the new fuel storage and dispensing system was included as a key element of this master plan update. A new 12,000-gallon above ground fuel tank was installed in early 2000. Public aviation fuel storage is summarized in **Table 1-8**.

Table 1- 8: Aviation Fuel Storage

Fuel Type	Capacity/Storage Facility
Aviation Gasoline (AVGAS) 100LL	1- 12,000 gallon above ground fuel tank
Aviation Gasoline (AVGAS) 100LL	2 - 2,000 gallon trucks (top fill tank, not currently in use)
Aviation Gasoline (AVGAS) 80/87	1 – 600-gallon truck (top fill tank; not currently in use)

AIRPORT LIGHTING

The airfield lighting at Albany Municipal Airport accommodates day-night operations in visual and instrument conditions. Airfield lighting includes runway edge lighting, threshold lighting, visual approach slope indicators (VASI), a lighted windsock and segmented circle, three lighted taxiway guidance signs, and the airport beacon.

Airfield lighting operates automatically between dusk and dawn. The VASIs are pilot activated by the common traffic advisory frequency (CTAF). The airport beacon is mounted on a tower, immediately south of the former Mountain Air hangar. The lighted wind cone and segmented circle are located on the east side of the runway, near its north end. Overhead flood lighting is provided on the apron and in the hangar areas.

In 1983, nearly all of the airfield lighting was replaced or upgraded. A visual inspection of the airfield lighting systems in Fall 1999 found all systems to be in working order, although the taxiway guidance signs were not illuminated. Existing lighting systems are described in **Table 1-9**.

Table 1-9: Airport Lighting

Component	Type	Condition
Runway Lighting	Medium Intensity Runway Edge Lighting (MIRL) Threshold Lighting	Very Good
Taxiway Lighting	None Note: 12" reflectors are located on both sides of the parallel taxiways and at the taxiway exits	N/A Very Good
Taxiway Guidance Signs	3 Internally Lighted Signs (at each connecting taxiway)	Very Good[8]
Visual Guidance Indicators	Visual Approach Slope Indicator (VASI) – Rwy 16 & 34	Very Good
Airport Lighting	Airport Rotating Beacon; Segmented Circle & Wind Sock Illumination	Very Good
Other Lighting	Flood Lighting (Fuel Area, Apron, Aircraft Parking, Hangars, Vehicle Parking Area)	Good [9]

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. There are no electronic navigational aids located on the airport. The instrument approach procedure for Albany Municipal Airport is based on the Corvallis VOR/DME, located approximately 12.3 nautical miles from the airport. A global positioning system (GPS) overlay approach was also developed for the airport, using the same procedure. **Table 1-10** summarizes existing navigational aids and related items.

The airport does not have on-site weather observation capabilities, such as an automated weather observation system (AWOS). The Corvallis altimeter setting is used for instrument approaches at Albany.

[8] Guidance signs not illuminated during nighttime inspection (10/99).

[9] Several exterior floodlights and overhead streetlights were not illuminated during nighttime inspection (10/99).

Table 1-10: Navigational Aids and Related Items

Type	Facilities
Electronic Navigational Aids	VOR/DME Corvallis (CVO) 115.4 MHz (12.3 nm on 032 degree radial)
Instrument Approaches	VOR/DME, GPS-A (Circling Procedure) Approach Minimums: 840 feet mean sea level (617 feet above ground level) minimum descent altitude and 1 mile visibility. Procedure authorized for Category A and B aircraft only (approach speeds 120 knots of less)
Weather Observation	None
Communication	Unicom (122.8 MHz)

The airport is surrounded by numerous obstructions within a ten-mile radius, as identified on the Seattle and Klamath Falls Sectional Aeronautical Chart. Local airport traffic pattern altitude is 1,000 feet (AGL). **Table 1-11** summarizes notable obstructions or other notable items in the vicinity of the airport.

Several instrument navigation airways converge near the airport. However, based on minimum enroute altitudes, the IFR routes do not affect local air traffic. The nonprecision instrument approach procedure allows aircraft to descend to an altitude 617 feet above ground level (AGL) in the local airport environment, west of the runway. Normal communication procedures for coordinating IFR and VFR traffic in airport areas appear to be adequate. **Table 1-12** summarizes airspace designations and IFR routes in the vicinity of Albany Municipal Airport.

Table 1-11: Local Airspace Obstructions/Features (10 NM radius)

Type of Obstruction	Description	Distance From Airport
Overhead Power Lines	Major Transmission Lines	.5 miles west, north, south
Radio Tower	313-foot above ground level (AGL) Tower (Lighted)	1 mile northeast
Tower	280-foot AGL Tower	1 mile west-southwest
Tower	279-foot AGL Tower	2 miles southwest
Tower	220-foot AGL Tower	1 mile east
Radio Tower	329-foot AGL Group of Towers	6 miles west
Tower	255-foot AGL Group of Towers	6 miles east-southeast
Tower	1,573-foot MSL Group of Towers (reported under construction)	9 miles southeast
Parachute Jumping Area	Airport Traffic Area	.5 to 1 mile east

Source: Seattle, Klamath Falls Sectional Aeronautical Chart; U.S. Terminal Procedures – Northwest Volume. National Oceanic and Atmospheric Administration, National Ocean Service

SURFACE ACCESS AND VEHICLE PARKING

Vehicle access to the airport is provided by Aviation Way, a 20-foot wide paved access road which runs approximately 0.5 miles south from Knox Butte Road. The road is does not have curbs, gutters, or sidewalks. The roadway pavement is generally in fair condition, although some sections are in poor condition. The airport extended a gravel access road 1,000 to 1,200 feet beyond the FBO to connect the south hangar area.

There are two main vehicle parking on the airport including the area on the west side of FBO building and the area north of the large hangar.

FENCING

The airport has a combination of chain-link fencing or wire fencing located around the perimeter. 6-foot chain link fencing is located along the western portion of the airport (east of the access road) from a point even with the end of Runway 16 to the south end of the FBO hangar. 5-foot wire fencing extends from the northern end of the chain link fencing around the northern end of airport and along the eastern edge until reaching Cox Creek. Other wire fencing, including freeway fencing is located around the southern portion of the airport.

The fencing located along the east side of the airport access road has several gates to provide vehicle access to hangars, aircraft aprons and fuel tanks.

Table 1-12: Airspace/Instrument Routes

Airspace Item	Description	Location
Class E Airspace	Albany Municipal Airport, extends to airspace surrounding Corvallis and Salem airports. Floor 700 feet above surface.	4 nautical mile radius at airport
Low Altitude Enroute Airway	Victor 23 – 3,000 feet mean sea level minimum enroute altitude (MEA); Eugene VORTAC 355 degree radial	1 nautical mile east – connects to Eugene VORTAC
Low Altitude Enroute Airway	Victor 536 – 4,000 feet mean sea level minimum enroute altitude (MEA); Corvallis VOR 078 degree radial	10 nautical miles south – connects to Corvallis VOR
Low Altitude Enroute Airway	Victor 495 – 4,000 feet mean sea level minimum enroute altitude (MEA); Corvallis VOR 354 degree radial	8 nautical miles west – connects to Corvallis VOR
Low Altitude Enroute Airway	Victor 448 – 4,000 feet mean sea level minimum enroute altitude (MEA); Eugene VORTAC 010 degree radial	9 nautical miles east-southeast – connects to Eugene VORTAC
Instrument Landing System (ILS) Localizer	Corvallis Localizer Runway 17	10 nautical miles west
Instrument Landing System (ILS) Localizer	McNary (Salem) Localizer Runway 31	10 nautical miles east-northeast

Source: Seattle and Klamath Falls Sectional Charts; Enroute Low Altitude – U.S. U.S. Department of Commerce, National Ocean Service.

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 the western access road with underground or overhead crossings on I-5. Overhead power lines run along the west side of the access road, with overhead connections to several airport buildings. Utility line extensions (water and electrical) serve the new hangar areas south of the main apron.

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.

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.

LAND USE PLANNING AND ZONING

Albany Municipal Airport is located entirely within the City of Albany Urban Growth Boundary (UGB) and city limits. 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. A more detailed summary of land use and zoning issues associated with the airport is included Chapter Five – Land Use and Noise Compatibility.

AIRPORT SERVICE AREA

The airport service area refers to the area surrounding an airport that is directly affected by the activities at that airport. It is not uncommon to have other airports located within a service area, although the services or facilities available often define the size of the service area. Normally a 30 or 60-minute surface travel time is used to approximate the boundaries of a service area. **Table 1-13** lists the other public airports in the vicinity of Albany.

The availability of several other public airports within a 30 to 60-minute travel time of Albany illustrates that the activities at Albany Municipal Airport appear to be heavily focused on local and itinerant general aviation and business aviation users.

In addition to the nearby public airports, Propst Airport is located within one mile (east) of the airport. Although traffic for the two airports is located in close proximity, no significant airspace conflicts have been identified through in recent facility evaluations.

Table 1-13: Public Airports in Vicinity (within 20 NM)

Airport	Location	Runway Dimension (feet)	Surface
Lebanon State	9 NM southeast	2,877 x 50	Asphalt
Corvallis Municipal	13 NM southwest	5,900 x 150 (primary rwy)	Asphalt
Independence State	17 NM north-northwest	3,070 x 60	Asphalt
Salem Municipal	18 NM north	5,811 x 150 (primary rwy)	Asphalt

Source: Seattle and Klamath Falls Sectional Charts. U.S. Department of Commerce, National Ocean Service.

AIRPORT ACTIVITY

Aviation activity at Albany Municipal Airport has fluctuated since the last airport master plan was completed in 1978. The 1978 master plan provided estimates of based aircraft and operations that are considerably higher than current levels. The decline of general aviation experienced throughout the U.S. in the 1980's and well into the 1990's also likely affected Albany's decline in activity. More recently, general aviation has started to experience a period of new activity, including large scale manufacturing of conventional light aircraft and continued growth in alternative designs.

Other local issues such as the general uncertainty about the airport's future may have also contributed to fluctuations in activity. The departure of Mountain Air from the airport several years ago was partly responsible for the most significant recent decline in based aircraft. **Table 1-14 and Figures 1-2 and 1-3** summarize recent historical airport activity. **Table 1-15** lists the current estimate of based aircraft at the airport.

The current based aircraft levels appear to be somewhat representative of the general aviation user base at the airport. Accurate estimates of aircraft operations at non-towered airports have generally been difficult to generate. A major improvement in the collection of accurate data has been the introduction of the Acoustical Activity Counting program by Oregon DOT Aeronautics. This program uses recorders to collect activity samples throughout an extended period. The sample data provides the basis for calculating statistical estimates of activity. Seasonal variations are addressed through a specific data collection cycle. For Albany, the acoustical counting program provides operations data for nine different years since 1981, which are summarized in **Table 1-14**.

The 1996 Linn County Study estimated 73 based aircraft in 1995, including 37 single-engine fixed, 6 multi-engine fixed wing, and 30 helicopters. As noted earlier, a large helicopter operator has since left the airport.

In late 2000, airport management estimated locally based aircraft to be 65, including one multi-engine aircraft and 64 single-engine aircraft.

Table 1-14: Historical Aviation Activity

Year	Based Aircraft	Aircraft Operations	Avg. Ops per Based Aircraft	Data Source
1978	105	77,500	738	1979 Airport Master Plan
1981	--	30,272	--	OASP RENS Data
1983	--	31,790	--	OASP RENS Data
1984	50	11,226	225	OASP Forecast Document
1986	--	20,101	--	OASP RENS Data
1987	--	24,299	--	OASP RENS Data
1989	45	25,019	556	OASP Forecast Document
1992	--	12,479	--	OASP RENS Data
1993	--	16,054	--	OASP RENS Data
1994	73	21,407	293	OASP RENS Data; Linn County Airport Study
1995	73	33,803	463	OASP RENS Data; Linn County Airport Study
1997	--	17,704	--	OASP RENS Data
1998	43	--	--	Airport Records
2000	65	--	--	Airport Records

Table 1-15: Based Aircraft Summary (2000)

Aircraft Type	Quantity
Single Engine	64
Multi-Engine	1
Total	65

FUEL ACTIVITY

Aviation fuel deliveries at Albany Municipal were reviewed for the period 1995-1998 and are summarized in **Table 1-16** and depicted in **Figure 1-1**. The fuel records indicate that annual deliveries of AVGAS at Albany fluctuated during this period. Deliveries of 80/87 grade AVGAS at Albany ended in 1996. The 1998 totals were about 20 percent off the most recent four-year average (41,437 gallons) and approximately 35 percent lower than the most recent peak in 1996. It appears that several unrelated issues may have contributed to a decline in fuel sales activity at Albany over the last few years.

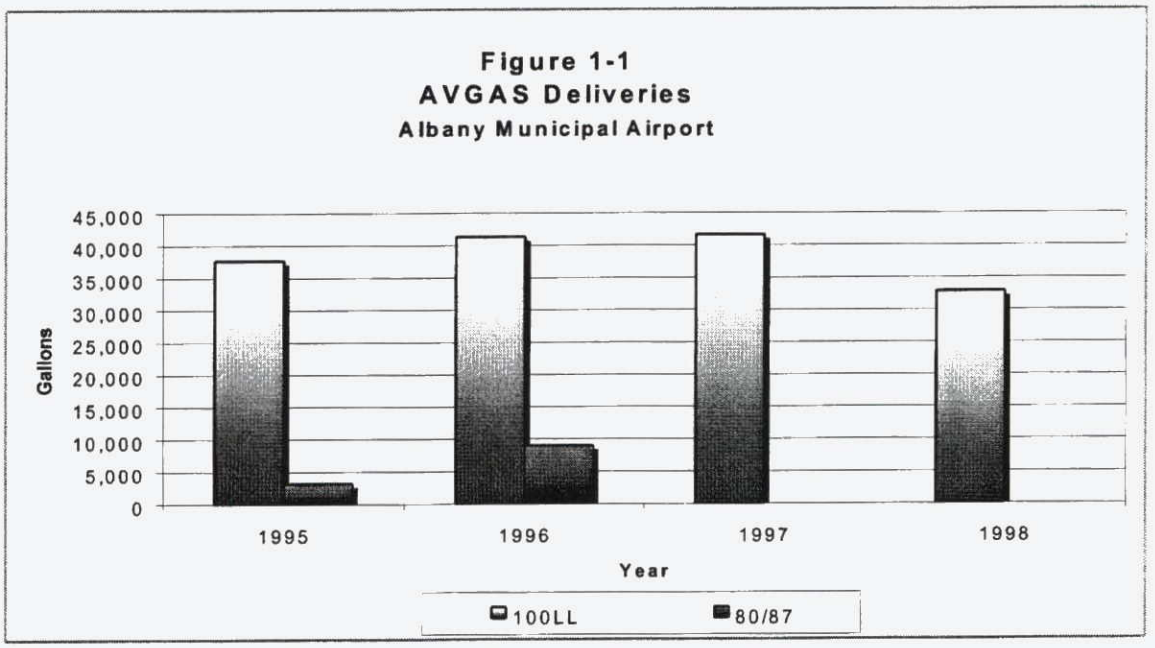


Table 1-16: Airport Fuel Deliveries

Year	100 LL	80/87	Total	Annual Change
1995	37,692	3,250	40,942	–
1996	41,320	9,020	50,340	+23.0%
1997	41,649	0	41,649	-17.3%
1998	32,817	0	32,817	-21.2%

Source: Valley Oil Company

Figure 1-2

Historic Aviation Activity

Albany Municipal Airport

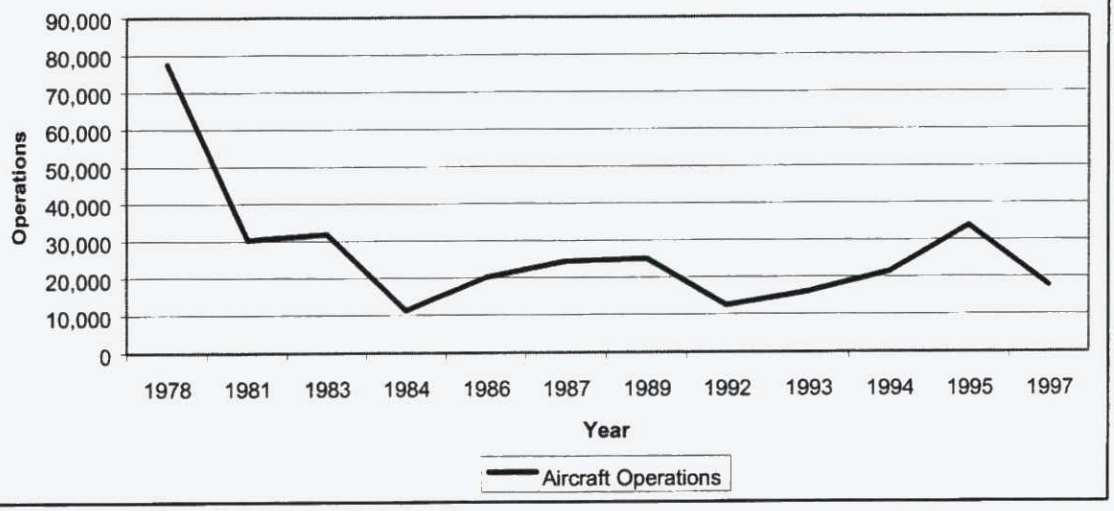
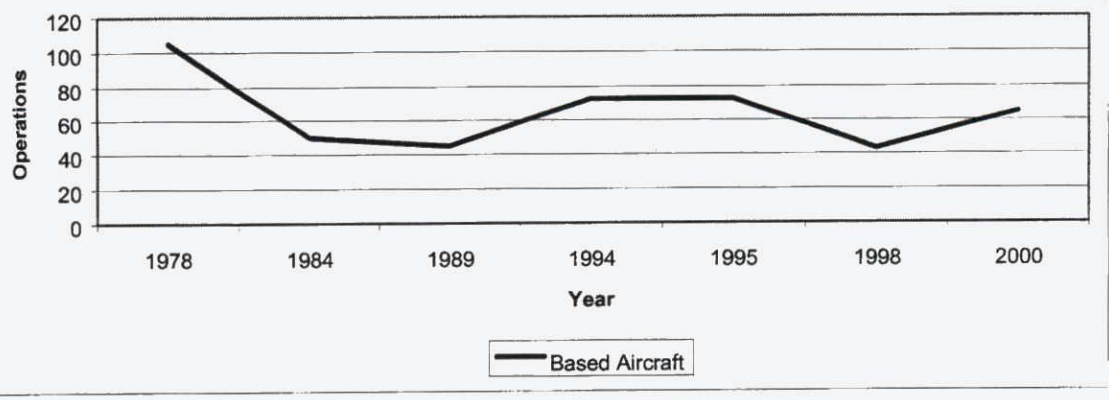


Figure 1-3

Historic Based Aircraft

Albany Municipal Airport Master Plan



ALBANY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN REPORT
2000-2020

CHAPTER TWO
Aviation Activity Forecasts

CHAPTER TWO

Aviation Activity Forecasts

INTRODUCTION

This chapter will define the type and level of aviation activity expected at Albany Municipal Airport during the next twenty years. As noted in chapter one, this master plan updates the twenty year old Albany Municipal Site Selection and Airport Master Plan (Wadell Engineering, 1979). The forecasts contained in the 1979 master plan did not anticipate changes in local airport activity or in the general aviation industry that have occurred since the last master plan was completed. Accordingly, the previous master plan forecasts are useful only as background information.

The recent Linn County Regional Airport Feasibility Study (Bucher, Willis, & Ratliff, 1996) provides the most recent and comprehensive forecasts of aviation activity available for Albany Municipal Airport. These forecasts are relatively current and are considered to provide a realistic assessment of activity. The 1996 forecasts provide a good basis for developing this forecast update. The Linn County Airport study provided the following aviation forecasts for Albany Municipal Airport:

- Based Aircraft (four projection methodologies, one preferred) 1995-2015
- Aircraft Fleet Mix 1995-2015
- Aircraft Operations 1995-2015
- Local/Itinerant Aircraft Operations 1995-2015
- Peak Activity Forecasts 1995-2015

Other existing forecasts of activity including the Oregon Continuous Aviation System Plan (Volume 1 Inventory and Forecasts, March 1997, The Airport Technology and Planning Group) and the Federal Aviation Administration Terminal Air Forecasts (TAF) will be reviewed.

A summary of historic aviation activity at Albany Municipal Airport was presented in Chapter One, **Table 1-14**.

SOCIOECONOMIC CONDITIONS

POPULATION AND ECONOMY

As noted in the Inventory chapter (see **Table 1-1**), Albany and the surrounding counties are expected to experience modest population growth through the master planning period. This trend is consistent with the overall expectations of Oregon through the mid-point of the next century.

It appears that over the last thirty years, the relationship between population and airport activity in Albany is difficult to link. Although some of the airport's broad fluctuations in based aircraft or operations may have periodically coincided with local economic (and population) downturns, it appears that other forces beyond population growth or decline have a more direct effect on airport activity. The prolonged stagnation of general aviation throughout the United States has affected activity at all airports, and only recently has it shown signs of marked improvement.

For this reason, the anticipated growth in the local and area population is generally expected to have a neutral or nominal effect on airport activity. In contrast, specific local improvements, such as the availability of new hangar space, FBO services, and fuel are expected to more directly affect aviation activity at Albany Municipal Airport.

In general, the continued diversification and strengthening of the local area economy is expected to have a positive effect on airport activity. A stagnant or depressed economy reduces business and personal investment in aircraft, travel, and other related expenses. Local business users are typically among the leading private investors in hangars at most general aviation airports.

As noted earlier, Linn County has one of the most diversified industry bases of any non-metropolitan county in Oregon. Per capita income in Linn and Benton Counties has increased over the last fifteen years. Growth in several major economic segments is expected for both employment and new businesses. Employment within the Linn, Benton, and Lincoln County region is expected to increase from 95,200 in 1996 to 114,700 in 2006, a change of 20.5 percent. Among the leading employment segments are Nonmanufacturing Services (+36.8%); Manufacturing Machinery (+29.0%) and Other Durable Goods (+26.5%); and Construction & Mining (+26.8%). Lumber and Wood Products employment is projected to decline 4.7 percent.

Conclusion (Socioeconomic Impacts)

The anticipated growth in local and regional population is expected to have nominal direct effects on airport activity. However, to the extent that population growth is reflective of strength in the economy, activity at the airport should be positively affected. The continued economic diversification in the area should create

numerous opportunities for the airport to play an important role in the transportation system of Albany and the greater Linn and Benton county area.

A synergistic effect can be achieved in any situation when individual complimentary components are effectively combined. For this reason, it is critical that the airport to be positioned to actively respond to interest and opportunities that result from the area's overall economic growth. With a choice of two larger airports located within 30 minutes, Albany is positioned to best serve users who can save time and money by choosing to operate at Albany Municipal Airport.

EXISTING AVIATION FORECASTS

Master Plan Forecasts (1979)

As indicated above, the 1979 master plan forecasts have become obsolete. The 20-year forecast date (year 2000) coincides with today. The master plan projected based aircraft in the year 2000 at 255 and operations to be 210,000. Both totals are significantly higher than current activity and are not considered useful for evaluating alternative forecast scenarios.

Oregon Aviation System Plan Forecasts (1997)

The 1997 Oregon Continuous Aviation System Plan (Volume 1 Inventory and Forecasts) provided comprehensive forecasts of aviation activity for all Oregon Airports. The 1997 OCASP forecasts were generated just after the Linn County Airport Study was completed. These forecasts were updated in the 1999 Oregon Aviation Plan, although no changes in growth rates or other assumptions were made. The OCASP forecasts for based aircraft and aircraft operations are summarized in **Table 2-1**.

The OCASP forecasts for Albany project based aircraft to grow at an annual average of 1.1 percent and aircraft operations to 1.2 percent through 2014. The distribution of itinerant and local operations is held relatively steady at 60 percent itinerant and 40 percent local through the forecast period.

Table 2-1: OASP Forecasts - Albany Municipal Airport

	1994	1999	2004	2014	2018
Based Aircraft[1]					
Single Engine	37	38	41	46	50
Multi-Engine	6	6	7	8	8
Rotor	30	31	33	38	38
Other[2]	3	3	3	4	4
Total	**76**	**79***	**84**	**95***	**100**
Aircraft Operations					
Local	8,554	8,879	9,421	10,696	11,254
Itinerant	11,975	12,431	13,189	14.974	15,756
Total	**20,259**	**21,310**	**22,610**	**25,670**	**27,010**

1. includes rotor aircraft, per 1998 airport estimate of based aircraft fleet
2. others include homebuilt, sailplanes, lighter-than-air, and ultralights

* rounding error contained in system plan data

FAA Forecasts

The Federal Aviation Administration (FAA) maintains the Terminal Air Forecasts (TAF) for all airports in the national plan of integrated airport systems (NPIAS). At Albany, the TAF projection of based aircraft reflects a flat line with 73 aircraft. This total nearly coincides with the 1994 estimate of based aircraft contained in the 1997 Oregon Continuous Aviation System Plan.). As with the other forecasts, the recent departure of rotor aircraft and addition of single-engine aircraft is not reflected in the TAF projections. When a flat line projection appears at airports, it often means that the most recent forecasts have not been entered into the federal system. As a result, a flat line projection should not necessarily be interpreted as a no-growth scenario.

The TAF operations forecasts reflect an annual average growth rate of 0.69 percent through 2015. A distribution of 70 percent itinerant and 30 percent local operations is maintained through the forecast period. The current TAF for Albany was last updated in 1997 and is summarized in **Table 2-2**.

Table 2-2: FAA TAF Forecasts - Albany Municipal Airport

	1997	2000	2005	2010	2015
Based Aircraft					
Single Engine	37	37	37	37	37
Multi-Engine	6	6	6	6	6
Rotor	30	30	30	30	30
Other	0	0	0	0	0
Total	**73**	**73**	**73**	**73**	**73**
Aircraft Operations					
Local	10,139	10,368	10,750	11,132	11,514
Itinerant	23,914	24,437	25,310	26,183	27,056
Total	**34,053**	**34,805**	**36,050**	**37,315**	**38,570**

LINN COUNTY AIRPORT STUDY FORECASTS (1996)

As noted above, 1996 Linn County Regional Airport Feasibility Study provides detailed forecasts of aviation activity for Albany Municipal Airport. Because these forecasts are recent and well conceived, they are acceptable for use as the base level projection in the master plan update. Minor adjustments to these projections can be made, and the forecasts can be extrapolated to the meet the master plan year of 2020.

Based Aircraft

The study contained four methodologies for projecting based aircraft. The preferred forecast was based on a Linn County per capita income regression model. The model had an R2 value of .82, which demonstrated a reasonably good correlation with countywide per capita income:

> *"Since the early 1980's, based aircraft at the airport have been subject to great fluctuations ranging from 76 aircraft in 1983 diminishing to 44 aircraft five years later in 1988 and increasing to 73 in 1995. For forecasting purposes, it has been assumed that between 1995 and 2000, based aircraft at Albany Municipal Airport will trend toward the number of based aircraft predicted in the model. This adjustment accounts for some of the decrease in based aircraft at the airport during the initial five-year forecasting period."*

Although the projected increase in absolute numbers is minimal, the components of the based aircraft forecasts reveal several considerations, which demonstrate a good grasp of the volatile nature of the forecast event.

Since the forecasts were prepared, the airport has experienced a sharp decline in based helicopters, which was followed by a similarly sharp upswing in the number of based single engine aircraft. These unrelated events demonstrate the extent to which activity can be affected in relatively unpredictable ways. It is expected that activity at Albany will continue to be affected largely by market forces that influence periodic upward or downward trends.

For forecasting purposes, the distribution of based aircraft will be adjusted to reflect current fixed-wing and rotor fleet mix at the airport. This change will be maintained in the projections through the current planning period. As noted earlier, the adjustment in based aircraft fleet mix will not alter the projected operations levels. The original 1996 Linn County Study forecasts are presented in **Table 2-3**. The adjusted (preferred) forecasts are summarized in **Table 2-6**, located at the end of this chapter.

Aircraft Operations

The forecast of aircraft operations was based on a growth rate of about 1.0 percent per year. This rate is consistent with the FAA's national forecast of general aviation activity. This rate of growth is virtually identical to the forecasts contained in the 1997 Oregon Continuous Aviation System Plan. The ratio of operations to based aircraft is projected to increase from 270 to 338 during the planning period. This gradual increase indicates that aircraft operations will increase at a slightly faster rate than growth in based aircraft.

The distribution of itinerant and local operations was estimated at 53 percent itinerant and 47 percent local in 1995. The percentage of itinerant operations was projected to gradually increase to 58 percent by 2015. This gradual increase in the percentage of itinerant activity is consistent with the overall trend in general aviation.

The most recent activity estimates generated by Oregon DOT Aeronautics (1997) are 12.6 percent lower than the Linn County Airport Study estimates for 1995 but only 4.8 percent lower than the year 2000 projection. This would suggest that current traffic volumes have adjusted to the change in locally based aircraft fleet mix and the remaining Linn County Airport Study projections appear to be reliable.

Peak Period Activity

Forecasts of peaking activity were also developed in the Linn County Airport Study. Peak month operations were estimated to total 10 percent of annual operations. Design day operations represent the number of operations occurring on an average day in the peak month. Design hour operations were estimated to be approximately 12 percent of design day operations. These percentages were assumed to remain unchanged during the forecast period as presented in **Table 2-4.** A summary of the recent activity forecasts is provided in **Table 2-5.**

Table 2-3: Linn County Study Forecasts - Albany Municipal Airport

	1995	2000	2005	2010	2015
Based Aircraft					
Single Engine	37	40	41	43	45
Multi-Engine	6	3	4	4	4
Rotor	30	19	19	20	20
Turboprop	0	1	1	1	3
Business Jet	0	0	1	1	1
Other[1]	0	2	2	2	2
Total	**73**	**65**	**68**	**71**	**75**
Aircraft Operations					
Local	8,554	8,496	9,118	9,815	10,647
Itinerant	11,975	10,094	11,418	12,905	14.703
Total	**20,529**	**18,590**	**20,536**	**22,720**	**25,350**

1. others include homebuilt, sailplanes, lighter-than-air, and ultralights

Table 2-4: Linn County Study Peak Activity Forecasts - Albany Municipal Airport

	1995	2000	2005	2010	2015
Annual Operations	20,529	18,590	20,536	22,720	25,350
Peak Month	2,053	1,859	2,054	2,272	2,535
Average Day	66	60	66	73	82
Design Hour	8	7	8	9	10

Table 2-5: Comparison of Forecasts - Albany Municipal Airport

	1995	2000	2005	2010	2015
1979 Master Plan	225	255	--	--	--
1997 OCASP	76[1]	79	84	--	95[2]
1996 Linn County	73	65	68	71	75
FAA TAF	73	73	73	73	73
Aircraft Operations					
1979 Master Plan	182,500	210,000	--	--	--
1997 OCASP	20,259[1]	21,310	22,610	--	25,670[2]
1996 Linn County	20,529	18,590	20,536	22,720	25,350
FAA TAF	34,053	34,805	36,050	37,315	38,570

1. 1994 PROJECTIONS. 2. 2014 PROJECTION

Critical Aircraft

The Linn County Airport Study recommended FAA Airport Reference Code (ARC) B-II for Albany, with the Cessna Bravo used as the design aircraft. While business jet activity of this type could be expected to increase during the 20-year planning period, it would probably be toward the end of the planning period before a change in design standards could be justified. In addition, the physical site constraints that exist at Albany may limit changes in runway configuration beyond the current ARC B-I design standards.

For this reason, it appears that a typical twin-engine turboprop included in the FAA's airplane design group I would be a reasonable choice for design aircraft. Typical B-I aircraft include the Beechcraft King Air B100 and F90, Cessna Citation I, Cessna Citationjet 525, and Piper Cheyenne 400LS, in addition to most of the piston light twin-engine aircraft in the general aviation fleet.

Operations by design aircraft will depend on the number of that aircraft type based at the airport and the frequency of itinerant aircraft operations of that type. Based on these factors, it is assumed that the respective design aircraft will generate approximately ten percent of operations at Albany (2,000 to 2,800 annual operations). As noted in the Linn County Airport Study, any changes in design aircraft activity need to be documented by the airport. By FAA guidelines, a design aircraft must generate a minimum of 500 itinerant annual operations.

FORECAST CONCLUSIONS

A review of recently developed forecasts suggests that the 1996 Linn County Regional Airport Feasibility Study forecasts provide reasonable projections of aviation demand at Albany Municipal Airport over the next 15 years. Although the overall totals of based aircraft and operations appear to be reasonable, the distribution of aircraft fleet mix should be adjusted to reflect recent events (see below).

The recent sharp swings in based aircraft at Albany create a significant level of uncertainty in projecting future demand. The airport has both experienced prolonged periods of no-growth or declining activity and periodic spikes of growth, which has been the case following the most recent hangar construction activity. The selected projections of activity summarized in **Table 2-6** reflect relatively modest growth expectations (averaging 1.2% annual increase for based aircraft and about 2% for aircraft operations). However, based on the airport's historical fluctuations of activity, any projections have a good possibility of overestimating or underestimating the airport's future demand over the next twenty years. For this reason, ample development reserves should be incorporated into the airport layout plan (ALP) to accommodate unexpected swings in demand-sensitive components such as aircraft parking and hangar space.

For the purposes of updating the forecasts for this master plan, three specific adjustments are recommended to the Linn County Regional Airport Feasibility Study forecasts:

1. *Replace rotor aircraft in the current and future totals of based aircraft with single-engine aircraft. Add one additional (new) rotor aircraft in forecast year 2015 to reflect the potential for based rotorcraft at the airport during the planning period.*

2. *Extrapolate all forecasts to the year 2020, based on the average annual growth rate for the period 2010 to 2015. All other assumptions for local-itinerant split, peaking characteristics and fleet mix will remain unchanged unless otherwise noted.*

3. *Change current design aircraft to a light twin-engine aircraft and future design aircraft to a typical light twin-engine turboprop or light business jet corresponding with Airport Reference Code B-I.*

Table 2-6: Updated Activity Forecasts - Albany Municipal Airport

	2000 (actual)	2005	2010	2015	2020
Based Aircraft					
Single Engine	64	65	67	69	74
Multi-Engine	1	1	2	2	3
Rotor	0	0	0	1	1
Turboprop	0	0	0	1	1
Business Jet	0	0	0	0	1
Other[1]	0	2	2	2	2
Total	**65[2]**	***68***	***71***	***75***	***82***
Aircraft Operations					
Local	7,259	9,118	9,815	10,647	11,869
Itinerant	10,445	11,418	12,905	14,703	16,391
Total	**17,704[3]**	**20,536**	**22,720**	**25,350**	**28,260**
Peak Activity					
Peak Month	1,770	2,054	2,272	2,535	2,826
Average Day	57	66	73	82	91
Design Hour	7	8	9	10	11

1. "Others" include homebuilt, sailplanes, lighter-than-air, and ultralights
2. Airport management records
3. Based on 1997 aircraft acoustical counting data

ALBANY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN REPORT
2000-2020

CHAPTER THREE
Airport Facility Requirements

CHAPTER THREE

Airport Facility Requirements

INTRODUCTION

To plan for the future needs of Albany Municipal Airport, it is necessary to translate forecast aviation demand--including type and volume--into specified types and quantities of facilities that can adequately serve this identified demand. This chapter uses the results of the inventory and forecast analyses, as well as established planning criteria, to determine the airside and landside facility requirements. Airside facilities include runways, taxiways, navigational aids and lighting systems. Landside facilities include hangars, fixed base operator (FBO) facilities, aircraft parking apron, agricultural aircraft facilities, aircraft fueling, automobile parking, utilities and surface access. A review of airfield capacity will also be conducted to identify any potential capacity-related issues that may occur over the next twenty years.

The objective of this effort is to identify the adequacy or inadequacy of the existing airport facilities and outline what new facilities may be needed to accommodate forecast demands. Having established facility requirements, alternatives for providing these facilities are evaluated in **Chapter Four** to determine the most cost effective and efficient means for implementation.

OVERVIEW

The 1979 Airport Master Plan (Wadell) addressed the need for a variety of facility improvements at Albany Municipal Airport. However, most facility improvements made since the last master plan have involved maintaining or replacing existing pavement or electrical systems.

Master plan recommended improvements that have been completed include reconstruction/overlay of the runway and parallel taxiway; new runway lighting, and pavement overlays on the main aircraft apron. Recommendations for east-side improvements (east-side parallel taxiway, new apron, new vehicle access, etc.) were not completed, and have since been altered by redefinition of the airport property line, development of the Fair and Expo Center and improvements to Price Road.

Between 1979 and 1999, the airport experienced minimal private investment (only two new aircraft hangars constructed), private investment at the airport has increased considerably in the 1999-2000 period. During the period of updating the master plan, four privately funded T-hangars were constructed on the airport. This construction coincided with a series of improvements for airfield facilities (taxiways, parking areas, fuel storage, etc.), all of which, were consistent with the recommended development planning contained in the master plan update. It appears that a reaffirmed city commitment to protect the long-term future of the airport has provided some of the stability needed to encourage private investment in facilities and businesses at the airport.

Airport Layout Plan (ALP) and Approach and Clear Zone Plan drawings were prepared as part of the 1979 master plan. During the inventory phase of this project, more recent versions of the ALP drawing were located in the City's files, including a drawing dated October 1984, bearing the approval signatures of the mayor and city manager. The 1984 ALP reflects the changes in airport property line and has eliminated most of the recommended east-side airfield improvements depicted on the 1979 drawing. The Approach and Clear Zone Plan drawing has not been updated since the 1979 master plan.

The 1979 master plan reflects facility planning based on light twin-engine aircraft, weighing 12,500 pounds or less. All future airfield facilities and airspace surfaces were based on this assumption. The Approach and Clear Zone Plan depicts airspace surfaces for utility runways (aircraft weighing 12,500 pounds and less) for Runway 16-34. Utility runway standards are compatible with the variety of general aviation aircraft operating at the airport, the geometric configuration of the runway-taxiway system within the overall airport site, and the overall capabilities of the airfield facilities.

The 1996 Linn County Regional Airport Feasibility Study concurred with this assessment:

> *"Albany Municipal Airport is too physically constrained to allow any significant runway extension. The configuration of the site essentially makes improved all-weather landing capabilities impractical to implement due to the increased FAA setback distances that would be required from the runway. Consequently, it is not feasible to expand the airport to serve potential long-term demand by higher performance aircraft. However, the airport already accommodates certain segments of the business aviation fleet and appears adequate to serve anticipated activity for a number of years....Given that Albany Municipal Airport cannot be expanded to any significant degree, the potential role of the Airport will, at best, remain basically as it stands today. Providing needed maintenance as well as additional hangars and tie-down would generally upgrade the current airport facilities, but no significant change in airport role is likely to occur in the future."*

The 1999 Oregon Aviation Plan (Dye) categorizes Albany as a Community General Aviation Airport. Community GA airports are an important part of Oregon's aviation system, primarily

serving the needs of business and general aviation users within a local area. Community GA airports typically have the basic airfield facilities, lighting, and navigational aids needed to accommodate single and multi-engine piston aircraft weighing 12,500 pounds or less.

AIRPORT DESIGN STANDARDS AND FAR PART 77 OVERVIEW

The selection of design standards for airfield facilities is based primarily upon the characteristics of the aircraft that are expected to use the airport The most critical characteristics are the approach speed and wingspan of the selected design aircraft. Aircraft operating weight is also an important planning criterion for general aviation airports. The FAA defines small airplanes as "an airplane of 12,500 pounds or less maximum certificated takeoff weight." As noted earlier, most aircraft that operate at Albany are included in the small airplane category.

Federal Aviation Administration (FAA) **Advisory Circular (AC) 150/5300-13, Airport Design**, serves as the primary reference in planning airfield facilities. **Federal Air Regulations (FAR) Part 77, Objects Affecting Navigable Airspace**, defines airport imaginary surfaces which are established to protect the airspace immediately surrounding a runway.

FAA **Advisory Circular 150/5300-13** groups aircraft into five categories based upon their approach speed. Categories A and B include small propeller aircraft, business jet and turboprop aircraft, and some larger aircraft with approach speeds of less than 121 knots. Categories C, D, and E consist of the remaining business jets, turboprops and larger aircraft generally associated with commercial and military use; these aircraft have approach speeds of 121 knots or more. The advisory circular also establishes six aircraft design groups, based on the physical size (wingspan) 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. ADG I is further divided into subcategories for runways serving "small airplanes exclusively" and for runways serving aircraft weighing more than 12,500 pounds.

The design aircraft represents the most demanding aircraft type with at least 500 itinerant operations per year. The airport reference code (ARC) reflects the combination of aircraft approach speed and design group for the design aircraft. A summary of typical aircraft and their respective design categories is presented in **Table 3-1.**

Table 3-1: Typical Aircraft & Design Categories

Aircraft	Design Group	Approach Category	Maximum Gross Takeoff Weight (Lbs)
Cessna 182	A	I	3,110
Beechcraft Bonanza A36	A	I	3,650
Beechcraft Baron 55	A	I	5,300
Aerospatiale TBM 700	A	I	6,579
Piper Aerostar 602P	B	I	6,000
Cessna 340	B	I	5,990
Cessna 421	B	I	7,450
Cessna Citation I	B	I	11,850
Beech King Air B100	B	I	11,800
Pilatus PC-12	A	II	9,920
Piper Malibu	A	II	4,300
Cessna Caravan 1	A	II	8,000
Beech King Air B200	B	II	12,500
Cessna Citation II	B	II	13,300
Cessna Citation III	B	II	34,000

Source: AC 150/5300-13, change 5

All locally based aircraft and most itinerant aircraft operating at the airport are included in ADG I (small airplanes exclusively). A limited amount of larger ADG I and ADG II aircraft operations may also occur at the airport, although this activity is not believed to be substantial.

Based on current and forecast activity, the appropriate design aircraft is a twin-engine piston or turboprop, such as a Cessna 421 or Beechcraft King Air, which is representative of ADG I (small airplanes). A twin-engine aircraft represents the most demanding runway length and geometric clearance requirements within this category. ***(Airport Reference Code - ARC B-I, small airplanes exclusively).***

ADG I (small airplanes) design standards are summarized in **Table 3-2.** ADG I and ADG II standards are also presented (for comparison) and a summary of potential runway-taxiway system compliance with the three design standards levels is presented in **Table 3-3**. As indicated in the table, the existing runway-taxiway would be unable to meet several ADG I or II dimensional standards without major reconfiguration.

Table 3-2: Airport Design Standards Summary (in feet)

Standard	ADG I[1] SmallAircraft Exclusively	ADG I[1] A&B Aircraft	ADG II[1] A&B Aircraft
Runway Length[2]	3,040 /3,610	3,040 /3,610	3,040 /3,610
Runway Width	60	60	75
Runway Shoulder Width	10	10	10
Runway Safety Area Width	120	120	150
Runway Safety Area Length (Beyond Runway End)	240	240	300
Obstacle-Free Zone	250	250	250
Object Free Area Width	250	400	500
Object Free Area Length (Beyond Runway End)	240	240	300
Primary Surface Width[1]	250	250	500
Primary Surface Length (Beyond Runway End)	200	200	200
Runway Protection Zone Length[1]	1,000	1,000	1,000
Runway Protection Zone Inner Width[1]	250	250	500
Runway Protection Zone Outer Width[1]	450	450	700
Runway Centerline to:			
Parallel Taxiway Centerline	150	225	240
Aircraft Parking Area[3]	125/194.5	200/269.5	250/315.5
Building Restriction Line[4]	244[5]	269.5	369
Taxiway Width	25	25	35
Taxiway Shoulder Width	10	10	10
Taxiway Safety Area Width	49	49	79
Taxiway Object Free Area Width	89	89	131
Taxiway Centerline to Fixed/Movable Object	44.5	44.5	65.5

Notes:

1. Utility runways (Per FAR Part 77); all other dimensions reflect visual or nonprecision runways with not lower than 3/4-statute mile approach visibility minimums (per AC 150/5300-13, Change 5). RPZ dimensions bases on visual and not lower than 1-mile approach visibility minimums.
2. Runway length required to accommodate 95 and 100 percent of General Aviation Fleet 12,500 pounds or less. 82 degrees F, 1-foot change in runway centerline elevation
3. Minimum distance per AC 150/5300-13/ distance with standard parallel taxiway object free area protected.
4. Minimum distance to protect parallel taxiway object free area and accommodate a +17-foot structure at the BRL.
5. The existing BRL located at 250 feet and accommodates a +17.8-foot structure height above runway elevation. No reduction (to 244 feet) is recommended due to variations in ground elevation and the convenience of using a standard distance.

Table 3-3: Runway 16-34 Compliance With FAA Design Standards

Item	Airplane Design Group I[1] Small Aircraft Exclusively	Airplane Design Group I[1] A & B Aircraft	Airplane Design Group II[1] A & B Aircraft
Runway Safety Area	Yes	Yes	Yes
Runway Object Free Area	Yes	Yes	No[2]
Runway Obstacle Free Zone	Yes	Yes	Yes
Taxiway Safety Area	Yes	No[3]	No[3]
Taxiway Object Free Area	Yes	No[3]	No[3]
Building Restriction Line	Yes	No[4]	No[4]
Aircraft Parking Line	Yes	No[3]	No[3]
Runway Protection Zones	No[5]	No[5]	No[5]
Runway-Parallel Taxiway Separation	Yes	No	No
Runway Width	Yes	Yes	Yes
Runway Length	Yes[6]	Yes[6]	No[6]
Taxiway Width	Yes	Yes	No

Notes:

1. Runway design standards for approach category A&B visual runways and runways with not lower than ¾-statute mile approach visibility minimums.
2. Parked aircraft on main apron would penetrate OFA.
3. Existing parallel taxiway would not meet separation standard; parked aircraft would penetrate taxiway OFA and TSA
4. T- hangar penetration.
5. Roads cross the Runway 16 and 34 protection zones.
6. Per FAA Runway Length Model – length needed to accommodate 95% of the general aviation fleet under 12,500 pounds. Many ADG II aircraft require additional runway lengths.

AIRSPACE

The airspace surrounding Albany Municipal Airport is relatively uncomplicated and does not appear to constrain instrument approach procedures and capabilities at the airport. En route instrument airways and approach procedures for other nearby airports do not appear to affect the local airport traffic pattern. Several obstructions (terrain, radio towers, etc.) identified within the 10 nautical mile radius of the approach midpoint appear to dictate the minimums for the instrument approach.

INSTRUMENT APPROACH CAPABILITIES

As noted in the facility inventory, Albany has a nonprecision instrument approach that utilizes the Corvallis VOR/DME, located approximately 13 miles southwest of the airport. A global positioning system (GPS) overlay approach is also available for the same procedure. The approaches require use of the Corvallis altimeter setting. Because certified on-field weather data is not available at Albany, the approach is not authorized for commercial aircraft (air taxi, charter, medevac, etc.) operating under FAR Part 135.

The existing instrument approach is categorized as a circling procedure. A circling procedure is required when the final approach course is offset from the runway by more than 15 degrees. At Albany, the final approach segment has a 52-degree intercept angle with the runway. The approach is authorized for Category A and B aircraft (approach speeds up to 120 knots), with approach minimums of 840 feet mean sea level (617 feet above ground level) with visibility requirements of 1 mile.

A circling procedure requires the pilot to visually establish the airport environment before reaching the minimum descent altitude on the approach. Once the airport environment is established, the pilot selects a runway and lands by visual reference. If the runway environment is not established, the pilot must execute a missed approach procedure, returning to a holding pattern at the Corvallis VOR/DME.

A straight-in instrument approach to a specific runway end would require a 500-foot wide primary surface, which cannot be accommodated at Albany without significantly impacting aircraft parking areas and buildings located along the existing 250-foot building restriction line (BRL). However, it may be possible to develop a procedure that reduces the existing approach offset angle while retaining the circling approach designation. Developing this type of procedure would not require any changes to the airport's FAR Part 77 airspace surfaces or other airport setbacks.

Although an improvement in the approach minima may not be possible due to the heights of the nearby obstructions, a final approach course more closely aligned with the runway may provide a more convenient and effective procedure for pilots.

It has been noted in the inventory of land use that several public schools have been developed in the area southwest of the airport. Although some may be located within the boundary of the airport's imaginary surfaces, none of the schools appear to interfere with the existing approach procedure or are subjected to significant noise impacts. However, developing a GPS approach that more closely follows the normal arrival and departure paths may also allow arriving aircraft to approach the airport more closely in line with the extended runway approaches and provide additional separation from the areas southwest of the runway. The City may request the FAA to develop a stand-alone GPS procedure. Surveyed runway end coordinate and elevation data will also be required by the FAA to develop a new procedure.

Airport Design Standards Note:

The following airport design standards are based on visual runways and runways with not lower than ¾ statute mile visibility minimums for Aircraft Approach Categories A and B (small airplanes exclusively). For defining runway protection zones (RPZ), the visibility standard is "visual and not lower than 1-mile (small airplanes exclusively)." All references to the "standards" are based on these approach visibility assumptions, unless otherwise noted. (Per FAA Advisory Circular 150/5300-13, change 6)

AIRPORT DESIGN STANDARDS

RUNWAY SAFETY AREA (RSA)

The runway safety area (RSA) is a surface surrounding the runway intended to support aircraft that inadvertently leave (or miss) the runway environment during landing or takeoff. Design standards exist for dimensions and physical condition (maximum grades, surface condition, etc.). The standard RSA for ADG I (small) runways is 120 feet wide, extending 240 feet beyond each runway end. The FAA-recommended lateral (transverse) grade, beyond the runway shoulder, is between 1.5 and 5 percent; the recommended grade for the extended RSA is between 0 and 2 percent.

The RSA surrounding Runway 16-34 meets the ADG I (small) geometric standards and appears to be free of physical obstructions.

RUNWAY OBJECT FREE AREA (OFA)

The object free area (OFA) is an area of ground centered on the runway, intended to be clear of ground objects protruding above the runway safety area edge elevation. Obstructions within the OFA may interfere with aircraft flight in the immediate vicinity of the runway.

The standard OFA for ADG I (small) runways is 250 feet wide and extends 240 feet beyond each runway end. The OFA surrounding Runway 16-34 meets the ADG I (small) geometric standards and appears to be free of physical obstructions.

RUNWAY OBSTACLE FREE ZONE (OFZ)

The obstacle free zone (OFZ) is a plane of clear airspace extending vertically to a height of 150 feet, which coincides with the FAR Part 77 horizontal surface elevation. The OFZ standard precludes parked or taxiing aircraft, or other non-frangible objects.

The standard OFZ for runways serving small aircraft is 250 feet wide and extends 200 feet beyond each runway end. The nonprecision instrument approach for the airport has only circling minimums available, with visibility requirements of at least one mile. Based on the instrument approach visibility minimums and lighting configuration, inner-transitional and inner-approach OFZs are not required.

There appear to be no physical penetrations to the Runway 16-34 OFZ, other than the runway lights, lighted guidance signs and visual approach slope indicators (VASI), which have locations fixed by function.

TAXIWAY SAFETY AREA

The taxiway safety area performs the same function as the runway safety area, except for taxiing aircraft. The standard width for ADG I taxiway safety areas is 49 feet, centered on the taxiway. The existing parallel taxiways meet the ADG I safety area standard.

TAXIWAY OBJECT FREE AREA

The taxiway OFA performs a similar function as the runway OFA, except for taxiing aircraft. The standard taxiway OFA for ADG I is 89 feet wide, centered on the taxiway. There appear to be no penetrations to the parallel taxiway object free areas.

BUILDING RESTRICTION LINE (BRL)

The Airport Layout Plan depicts building restriction lines (BRL) along the west and east side of the runway, 250-feet from runway centerline. There are no buildings on the airport located inside the BRLs, as depicted on the ALP. The existing setback provides clearance for a 17.8-foot high structure (above runway elevation) located on the BRLs. The 250-foot BRL is adequate as a minimum setback distance to accommodate smaller (low profile) hangars. Regardless of the BRL location, structures with higher roof elevations may require additional setback distances in order to remain below the runway transitional surface 7:1 slope. Each new building proposal for the airport should be required to demonstrate compatibility with the appropriate FAR Part 77 imaginary surfaces, including submittal and approval of FAA Form 7460-1 – Notice of Proposed Construction or Alteration.

RUNWAY PROTECTION ZONES (RPZ)

Runway protection zones (RPZ) are trapezoidal shaped areas located off runway ends intended to protect people and property on the ground. The boundaries of the RPZ coincide with the inner approach surfaces for runways. Development within RPZ boundaries is restricted and RPZs with buildings, roadways, or other items do not comply with FAA standards.

The 1979 airport layout plan depicts standard clear zones (now referred to as runway protection zones) for Runway 16 and 34, with portions of both extending beyond airport property. Although future avigation easements are depicted for the portions of the clear zones extending beyond airport property, it is not evident whether current easements are secured. A City of Albany "Exhibit B" Avigation Easements drawing (not dated) identifies a variety of easements surrounding the airport. The status of these easements should be verified through review of City legal records. As a general airport planning and management guideline, airport sponsors should control activity within runway protection zones either through outright ownership of the land or purchase of avigation easements for any portions of RPZs that extend beyond airport boundaries.

The standard for RPZs on Runway 16-34 is based on visual and not lower than 1-mile approach visibility minimums for small airplanes exclusively. The RPZ standard dimensions are 250 feet at the inner width, 450 feet at the outer width, and 1,000 feet in length. Based on the existing and anticipated instrument approach capabilities, these RPZ dimensions should be adequate for both existing and future conditions.

A review of recent aerial photography identified several items within the RPZ boundaries (see **Table 3-4**). It is recognized that realigning freeway components or the two major surface access routes within the RPZs north and south of the runway is not highly feasible at Albany. However, where possible, the City should discourage development within the RPZs (particularly structures) that is inconsistent with FAA standards.

RUNWAY-PARALLEL TAXIWAY SEPARATION

Runway 16-34 has a full-length parallel taxiway located on the west side of the runway and a partial- length parallel taxiway located on the east side of the runway. Both taxiways have a 150-foot separation from the runway, which meets the ADG I standard for small airplanes exclusively (12,500 pounds and less), but is considerably less than the ADG I or ADG II standards of 225 and 240 feet. Physical site constraints limit the practicality of increasing the runway-parallel taxiway separation beyond existing dimensions.

Table 3-4: Runway Protection Zone Summary

Runway End	Items Located Within RPZ
Runway 16	• Fences located along the north airport property line and along airport access road. Nearest point: 550 feet from runway end • Airport access road 400 feet from runway end • Freeway exit 600 feet from runway end • Knox Butte Road 950 feet from runway end • Vacant gas station 975 feet from runway end • Structures located immediately north of gas station – 1100 feet from runway end
Runway 34	• South taxiway and aircraft apron • Vehicle parking lot (motel) 1050 feet from runway end • Fence on southern property line • Freeway on-ramp and exit loop 780 to 880 feet from runway end

AIRCRAFT PARKING LINE (APL)

The 1979 Airport Layout Plan depicts aircraft parking lines (APL) 225 feet from runway centerline on both sides of the runway. The 225-foot western APL runs through the outer row of aircraft tiedowns on the main apron. The outer edge of the main apron is located approximately 200 feet from runway centerline and 50 feet from the taxiway centerline. The western APL should be relocated to reflect the parallel taxiway object free area clearance and the outer edge of the apron. According to available elevation data, the outer edge of the main apron is slightly more than 2 feet lower than runway elevation. The tail heights of aircraft parked (facing west) along the outer edge of the apron could be up to nearly 13 feet before reaching the transitional surface slope. A western APL located 200 feet from runway centerline would coincide with the outer edge of the main apron.

The existing east-side aircraft parking positions are also located approximately 200 feet from the runway centerline. Based on the location of the east parallel taxiway, the east side APL should be located at least 194.5 feet from runway centerline. As with west-side aircraft parking areas, a 200-foot APL would coincide with the edge of the parking area.

FAR PART 77 SURFACES

FAR Part 77 defines imaginary surfaces (airspace) to be protected surrounding airports. The diagram (**Figure 3-1**) on the following page illustrates plan and isometric views of the Part 77 surfaces. **Table 3-5** summarizes FAR Part 77 standards with the corresponding runway type and instrument approach capability.

The 1979 Approach and Clear Zone Plan depicts airspace surfaces that are consistent with visual approaches for a utility runway.[10] As noted earlier, this classification also applies to nonprecision approaches with a visual final approach segment. For airspace planning purposes, the continued use of utility runway standards with visual approach capabilities (per FAR Part 77) is appropriate for Runway 16-34. These surfaces will protect the airspace surrounding the airport required for the existing nonprecision instrument approach capabilities.

The 1979 Approach and Clear Zone Plan depicted only one obstruction to Part 77 imaginary surfaces. A review of current obstruction data will be completed as part of the preparation of updated airspace and runway protection zone plan drawings for the airport. The City should periodically review the elevations of potential close-in obstructions to ensure that an unobstructed approach is maintained, where possible.

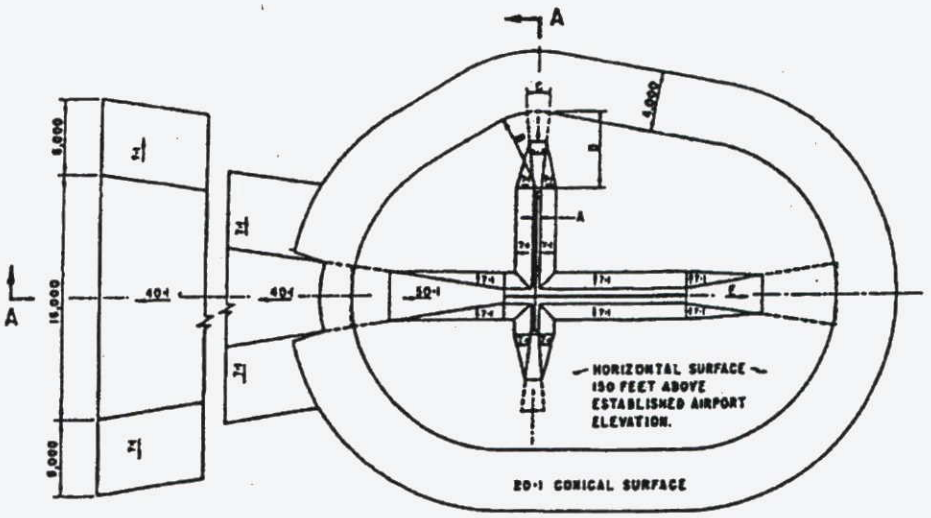
The updated Airport Airspace Plan contained in Chapter Seven (Page 7-8) depicts the FAR Part 77 surfaces described below.

APPROACH SURFACES

Approach surfaces extend outward and upward from each runway end, along the extended runway centerline. For Runway 16-34, the inner width of the approach surfaces is 250 feet, the outer width is 1,250 feet, and the surfaces extend outward 5,000 feet. The FAR Part 77 standard slopes for utility visual runway approach surfaces is a 20:1.

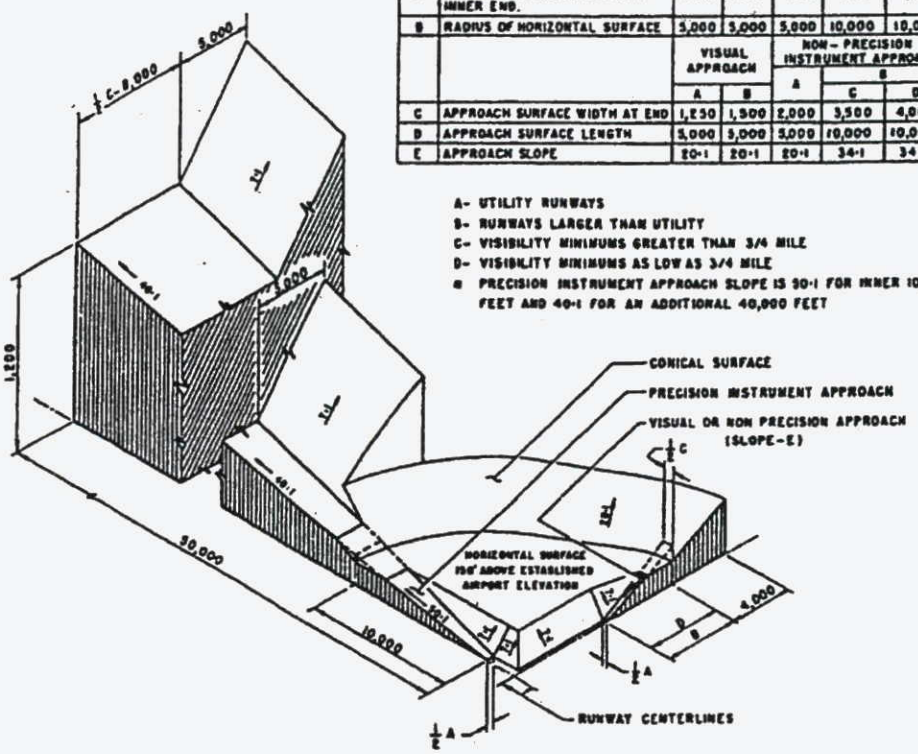
The 1979 Approach and Clear Zone Plan identifies one penetration to the approach surface for Runway 16, with a clear slope of 15:1. At its nearest point within the approach surface, the airport access road is located approximately 200 feet from the beginning of the 20:1 slope. Although the drawing does not provide any details regarding the amount of penetration, the elevation is listed as 237 feet, which would create a penetration of approximately five feet into the 20:1 approach surface.

[10] Utility runway is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less (FAR Part 77.2)



DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B		
					C	D	
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
		A	B	A	B		
					C	D	
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	*

A- UTILITY RUNWAYS
B- RUNWAYS LARGER THAN UTILITY
C- VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
D- 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



ISOMETRIC VIEW OF SECTION A-A

§ 77.25 CIVIL AIRPORT IMAGINARY SURFACES

DESIGNED BY: DM	CHECKED BY:		FIGURE 3-1
DRAWN BY: JLM	SCALE: NONE		
FILE: 4048000101			

CENTURY WEST
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The Runway 34 approach slope is listed as having a clear slope of 25:1. Roads located south of the runway do not appear to penetrate the approach surface. The plan identifies several trees located south of Highway 20, although they did not penetrate the approach surface (in 1979). The highest tree elevation was listed at 285 feet in 1979 (63 feet above the runway end elevation) located approximately 1,300 feet from the beginning of the approach surface. Based on a 20:1 slope, a tree elevation 65 feet above the runway end elevation would penetrate the 20:1 approach surface. Top elevations should periodically be surveyed for the trees traversing the Runway 34 approach slope, just south of Highway 20. The treetops should remain below the 20:1 runway approach surface.

Table 3-5: FAR Part 77 Airspace Surfaces

Item	Utility [1] (visual)[2]
Width of Primary Surface	250 feet
Radius of Horizontal Surface	5,000 feet
Approach Surface Width at End	1,250 feet
Approach Surface Length	5,000 feet
Approach Slope	20:1

1. Utility runways are designed for aircraft weighing 12,500 pounds or less
2. Visibility minimums greater than ¾ mile.

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., VASI, edge lights, etc.). The end of the primary surface connects to the inner portion of the runway approach surface.

The FAR Part 77 standard primary surface for Runway 16-34 is 250 feet wide, centered on the runway. This width meets the standard for utility runways with visual approaches. No penetrations to the primary surface were identified on the 1979 Approach and Clear Zone Plan and none appear to exist today.

TRANSITIONAL SURFACE

The transitional surface is located at the outer edge of the primary surface, represented by a plane of airspace which 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 penetrations to the transitional surface were identified on the 1979 Approach and Clear Zone Plan. The top elevation of the large hangar and the airport beacon will be verified to determine whether any penetration exists when the updated Airspace Plan is prepared. The front of the hangar is located 400 feet from runway centerline, which could accommodate a building height of approximately 39 feet (above runway elevation) before penetrating the transitional surface.

HORIZONTAL SURFACE

The horizontal surface is a flat plane of airspace located 150 feet above runway elevation. The outer boundary of the horizontal surface is defined by two radii (5,000-feet), that extend from the runway ends (the intersection point of the extended runway centerline, the outer edge of primary surface, and the inner edge of the approach surface). The outer points of the radii for each runway are connected to form an oval, which is defined as the horizontal surface.

No penetrations to the horizontal surface were identified on the 1979 Approach and Clear Zone Plan. A review of USGS topographical mapping will be conducted when the updated Airspace Plan is prepared to determine whether areas of terrain or any of the nearby radio towers depicted on aeronautical charts penetrate the horizontal surface.

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 will be 200 feet above the horizontal surface and 350 feet above airport elevation.

No penetrations to the conical surface were identified on the 1979 Approach and Clear Zone Plan. As noted above, USGS topographical mapping will be reviewed when the updated Airspace Plan is prepared to determine whether areas of terrain or any of the nearby radio towers depicted on aeronautical charts penetrate the conical surface.

AIRSIDE REQUIREMENTS

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

- **Runway**
- **Taxiways**
- **Airfield Instrumentation and Lighting**

RUNWAY

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

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. When landing and taking off, aircraft are able to maneuver on a runway as long as the wind component perpendicular to the aircraft's direction of travel (defined as crosswind) is not excessive. For runway planning and design, a crosswind component is considered excessive at 12 miles per hour for smaller aircraft (gross takeoff weight 12,500 pounds or less) and 15 miles per hour for larger aircraft. As the crosswind angle narrows, an aircraft can tolerate increasingly higher wind speeds. When winds are closely aligned with a runway, aircraft can take off or land in very high wind conditions.

The runway (16-34) at Albany Municipal Airport is oriented in a north-south direction and is generally in line with prevailing winds. FAA planning standards indicate that an airport should be planned with the capability to operate under allowable wind conditions at least 95 percent of the time.

The 1979 Airport Layout Plan does not include a wind rose detailing wind coverage. However, airport drawings dating back as far as 1947 estimated Runway 16-34 wind coverage to be approximately 99.6 percent at 12 miles per hour. Based on this limited wind data, it appears that Runway 16-34 meets FAA wind coverage criteria for primary runways and a crosswind runway is not required. From a practical perspective, the narrow configuration of the airport land area combined with the development surrounding the airport would effectively limit alternative runway alignments regardless of wind coverage.

Runway Length

Runway 16-34 has a published length of 3,004 feet (U.S. Government Airport/Facility Directory). 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.

The 1979 Master Plan did not recommend an increase in runway length from current length. However, the Airport Layout Plan (ALP) does depict reserves for runway extensions and/or overruns at both ends of the runway. A 325-foot runway and parallel taxiway extension reserve is depicted at the end of Runway 34. A 150-foot overrun reserve is depicted at the end of Runway 16. The 1984 ALP depicts a runway and parallel taxiway reserve at the Runway 34 end of 280 feet; the 150-foot overrun reserve beyond Runway 16 is unchanged.

Local airport users have indicated that the existing runway length may limit some higher performance general aviation and business aircraft from operating at Albany. During the recent airport issues work session, the option of lengthening the runway was discussed. Based on the physical site characteristics of the airport, adding a limited amount of additional runway length may be feasible, although the physical obstructions located at both ends of the runway may preclude any changes in the existing approach surfaces. By retaining the existing threshold locations (displaced from new pavement end), some additional runway length may be obtained for aircraft takeoff and roll-out while still meeting safety area and object free area clearances.

Based on local conditions and the methodology outlined in **AC 150/5325-4A**, a runway length of 3,610 feet would be required to accommodate 100 percent of small aircraft (12,500 pounds or less maximum gross takeoff weight) in the general aviation fleet. **At 3,004 feet, Runway 16-34 is capable of accommodating approximately 95 percent of the general aviation fleet of small airplanes** in the conditions described below. A summary of FAA-recommended runway lengths for a variety of aircraft types and load configurations is presented in **Table 3-6**.

To evaluate the needs of a typical high performance business aircraft (small airplane category), the consultant contacted Flightcraft, an Oregon-based aircraft charter business. With the assistance of Chief Pilot John Harper, the runway length requirements for a Beechcraft B200 King Air twin-engine turboprop were calculated based on local conditions (same as used in the FAA model described above). Three primary distances were identified: takeoff roll, distance to clear a 50-foot obstacle, and accelerated stop distance. The accelerated stop distance is typically the most demanding performance criteria (the runway length needed for a multi-engine aircraft to reach takeoff speed, immediately lose an engine, and bring the aircraft to a complete stop).

Table 3-6: FAA-Recommended Runway Lengths (From FAA Computer Model)

Runway Length Parameters for Albany Municipal Airport

- *Airport Elevation: 222 MSL*
- *Mean Max Temperature in Hottest Month: 82 F*
- *Maximum Difference in Runway Centerline Elevation: 1 Foot*
- *Existing Runway Length: 3,004 feet*

Small Airplanes with less than 10 seats	
75 percent of these airplanes	*2,490 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*
Large Airplanes of 60,000 pounds or less	
75 percent of these airplanes at 60 percent useful load	*4,640 feet*
75 percent of these airplanes at 90 percent useful load	*6,190 feet*
Airplanes of more than 60,000 pounds	*5,090 feet*
Selected Aircraft Types	
Beechcraft Super King Air B200 (8 passengers)	*3,600 feet*[1]

1. Maximum certificated takeoff weight (accelerated/stop distance)

Based on the conditions described above, a Beechcraft B200 King Air turboprop (at maximum gross takeoff weight of 12,500 pounds) requires a takeoff ground roll of approximately 2,200 feet, a distance to clear a 50-foot obstacle of 2,800 to 3,000 feet, and an accelerated-stop distance of 3,600 feet. Although the aircraft could routinely operate from the 3,000-foot runway, the more-stringent accelerated-stop calculation cannot be met on Runway 16-34 during those conditions. An increase in wind, lower air temperature, reduced operating weight of the aircraft, or a combination of these factors can significantly reduce each of the runway length requirements. Mr. Harper also indicated that these runway length distances are comparable to those required for the smaller Cessna Citation business jets and other multi-engine aircraft.

It is reasonable to assume that an incremental increase in useable runway would provide some improvement in the airport's ability to accommodate a higher percentage of the small airplane fleet. The current ability to accommodate 95 percent of the small airplane fleet suggests that the remaining 5 percent consist of primarily of

high performance multi-engine aircraft. As demonstrated above and in the FAA model, an increase to approximately 3,600 feet would allow the runway to accommodate virtually the entire small airplane fleet under most conditions.

Based on the design aircraft, existing and projected activity, and FAA criteria, options for increasing the useable length of Runway 16-34 are discussed in Chapter 4. If additional runway cannot be feasibly added, the existing runway length will continue to accommodate the majority of the small airplane fleet under most conditions.

The FAA indicated in their review of the draft technical memorandum "Feasible options for runway extension(s) may be evaluated and shown on the updated airport layout plan (ALP). However, it should be noted, that for a small general aviation (GA) airport already capable of serving 95 percent of the small airplane fleet, a proposed extension would likely receive very low priority for funding under the Airport Improvement Program (AIP). This is due to the fact that a significant expenditure would be required to accommodate very few additional aircraft operations."[11]

The width of Runway 16-34 is 75 feet, which exceeds ADG I standards. Based on the good condition of the runway pavement and runway lighting, retaining the current width appears to be appropriate.

Runway Capacity

According to data contained in the 1996 Linn County Regional Airport Feasibility Study the annual service volume of Runway 16-34 is estimated at 166,000 operations. The hourly capacity of Runway 16-34 is approximately 95 to 106 operations during visual flight rules (VFR) conditions. The design hour (estimated at 12 percent of average day in peak month) operations at Albany are projected to range from 7 to 11 during the 20-year planning period. Based on forecast operations, the runway will continue to operate well below hourly and annual capacity during the planning period and well beyond.

AIRFIELD PAVEMENT

The Pavement Evaluation/Maintenance Management Program (1999) provided an inventory of all airfield pavements at Albany Municipal Airport. Based on the most recent inspections, more than 90 percent of the pavements were rated "good" or better. The PCI Report outlined a three-year pavement maintenance and rehabilitation program, which included the following items:

- Slurry, fog, and coal tar seals on the runway and taxiways (2000-2001). Completed in 2000.
- Slurry, fog, and coal tar seals on aircraft aprons (scheduled for 2002).
- 2" asphalt concrete overlay on south taxiway and apron (off airport) (recommended for 1999).

[11] From FAA correspondence dated September 20, 1999.

- Reconstruction of north hangar taxilanes (1999). Partially completed in 2000.
- Localized areas of crack sealing, slurry seal, fog seal, and deep asphalt concrete patching (yearly)

The airfield pavements, although presently in good condition, will begin to deteriorate at a more rapid rate as they age. A regular maintenance program of vegetation control, crackfilling, and sealcoating is recommended to extend the useful life of all airfield pavements. **Table 1-6,** in Chapter One, summarizes the most recent pavement condition data.

The current Airport/Facility Directory, published by NOAA, lists the pavement strength of Runway 16-34 ranging from 30,000 lbs. (single wheel landing gear design) to 71,000 pounds for aircraft with dual tandem wheel landing gear designs. The previous master plan recommended future pavement strength of 12,500 pounds for the runway, which corresponds with the design aircraft. The existing pavement section will easily meet requirements associated with the design aircraft weight (12,500 pounds).

The surface of the runway and parallel taxiway is in good condition, showing only normal wear. Existing pavement markings will require periodic repainting. The main apron is in good condition.

Over the twenty year planning period, a series of pavement rehabilitation projects (runway, parallel taxiway, main apron) will required. Timely maintenance of airfield pavements will extend their service life and therefore reduce the life cycle costs for the airport. Standard pavement maintenance and rehabilitation items are listed in **Table 3-7**. Actual results will vary depending on local weather conditions, pavement design and the type and volume of traffic.

Table 3-7: Airfield Pavement Maintenance Schedules

Pavement Maintenance	Approximate Life Expectancy
Pavement Overlays	15 to 20 years
Sealcoat	6 to 8 years
Crackfilling	3 years

TAXIWAYS

Taxiways are constructed primarily to facilitate aircraft movements to and from the runway system. Some taxiways are necessary simply to provide access between airside and landside facilities, while other taxiways become necessary as activity increases and safer and more efficient use of the airfield is needed. Runway 16-34 is served by a full-length west parallel taxiway, a partial-length east parallel taxiway, and several hangar access taxiways. Aircraft holding areas are located at each end of the runway, adjacent to the parallel taxiways.

The airport also has an access taxiway that extends beyond the south end of the parallel taxiway to an off-airport parking apron. This off-airport apron is used primarily by itinerant aircraft using the adjacent hotel or restaurant.

As noted earlier, the parallel taxiways meet the ADG I (small airplanes) runway separation standard and the width of 30 feet exceeds the ADG I standard. The runway has three exit taxiways connected to the west parallel taxiway. The exit taxiways provide for efficient movement of aircraft in the runway-taxiway system. The east parallel taxiway has one exit taxiway connector located at the Runway 16 threshold. The east parallel taxiway provides aircraft access to a small parking apron and the adjacent Fair and Expo Center, located near the northeast corner of the airport. The west parallel taxiway provides access to all developable areas on west side of the airport

New taxiways should be designed to meet the ADG I standards, although hangar taxiways and taxilanes may be sized for the specific aircraft types.

AIRFIELD INSTRUMENTATION AND LIGHTING

Runway 16-34 has medium-intensity runway edge lighting (MIRL), the standard for general aviation runways. Runways 16 and 34 are equipped with visual approach slope indicators (VASI). VASIs provide visual guidance to pilots by projecting colored light beams outward and upward along the approach path for a runway. Pilots are able to adjust their approach path upward or downward based on the visual cues provided by the VASI. Precision Approach Path Indicators (PAPI) are now the standard for visual guidance systems. The existing VASIs should be replaced at the end of their useful life with PAPIs. Airport records indicate that the VASI units were installed in 1983 or 1984. The useful life of an outdoor electrical component can vary greatly, although twenty years is a reasonable planning estimate. However, unless the system begins to experience reliability problems, or becomes too costly to maintain (replacement parts, bulbs, etc.) it is likely to continue functioning well into the current planning period.

The runway is not equipped with runway end identifier lights (REIL). REILs consist of two sequenced strobes that provide rapid and positive identification of the approach end of the runway. REILs improve utilization of the runway during nighttime and poor visibility condition and are generally recommended for instrument

runways without approach lights. REILs should be located at both runway ends to improve runway environment visibility during circling approach procedures. An evaluation of ground level glare (to vehicles, residences, etc.) should be conducted as part of the installation. If required, glare shields may be utilized to minimize impacts to surrounding areas.

The taxiway system does not have edge lighting, but does have reflective edge markers on the parallel taxiway and exits. Upgrading to medium-intensity taxiway edge lighting (MITL) is an option, although based on the relatively low level of nighttime operations and the cost of lighting, reflectors appear to be adequate during the planning period.

The aircraft apron and hangar areas have limited overhead flood lighting, including several older fixtures mounted on various buildings. The new aircraft fueling area also has flood lighting. Flood lighting is recommended for all new operations areas to maintain safety and security.

ON-FIELD WEATHER

The airport does not have an automated weather observation system (AWOS) located on the field. The AWOS satisfies weather observation requirements for general aviation and commercial operations (i.e. charter flights, medevac, etc.). To this point in the planning process, airport users have not identified adding on-field weather as a high priority. However, without on-field weather observation, aircraft operated under Part 135 are generally limited to operating in visual conditions at Albany.

LANDSIDE FACILITIES

The purpose of this section is to determine the space requirements during the planning period for the following types of facilities normally associated with general aviation operations areas:

- **Hangars**
- **Aircraft Parking and Tiedown Apron**
- **Fixed Base Operator (FBO) Facilities**
- **Agricultural Aircraft Facilities**
- **Surface Access, Vehicle Parking, Utilities**
- **Aviation Fuel Storage**

HANGARS

It is estimated that 80 percent of based aircraft at Albany are stored in hangars. Until recently, the development of hangars at Albany had been very limited over the last 20 years. However, the construction of four privately funded T-hangars (42 spaces) in 1999-2000 has significantly increased hangar capacity at the airport.

Albany currently has twelve hangars totaling more than 96,000 square feet. The hangar space dedicated to aircraft storage is estimated at approximately 60,000 square feet (four T-hangars, north shade hangar, two north conventional hangars, and portable hangar - approximately 58 spaces).

The remaining hangar space is being used for maintenance (FBO) or is currently vacant (other city-owned hangars) awaiting renovation or other maintenance. It is assumed that these hangars, if utilized in the future, will be used to support airport-related business rather than aircraft storage. The feasibility of renovating and utilizing these older hangars will be determined by the City on a case by case basis. The large hangar on the airport has historical status, which may affect future development plans. If one or more of the existing conventional hangars were upgraded and used for aircraft storage, the demand for new hangar construction may be reduced.

The existing 11-unit shade hangar located at the north end of the airport may continue in service through the current planning period with some minor maintenance and reinforcement. However, in the event that the building is not maintained through the planning period, the site should remain dedicated to aircraft-related storage.

Based on the development of new hangars, it is anticipated that the current percentage of aircraft stored in hangars will be maintained during the planning period. A planning standard of 1,500 square feet per based aircraft stored in hangars was used to estimate gross area requirements, although individual needs may vary. As indicated in the aviation activity forecasts, the number of based aircraft at Albany is projected to increase by 17 aircraft (from 65 to 82) during the twenty-year planning period.

The data in **Table 3-8** suggests that the recent addition of the 42 hangar spaces will satisfy the projected demand of based aircraft well into the planning period. However, it is possible that growth in based aircraft may exceed current projections. For this reason, it is recommended that hangar development reserves be established to accommodate potential demand beyond the projected needs. The addition of competitively priced hangar space can significantly alter the development picture of an airport. Because existing market conditions and near-term potential generally drive private hangar investment, it is difficult to predict the depth or sustainability of current development trends. As noted earlier, the land base of the Albany Airport has been reduced through its history. At this point, all remaining developable portions of the airport should be reserved for aviation related uses. The efficient utilization of airport lands will be particularly important as the airport

approaches its landside capacity. The location, size, and configuration of the hangar development reserves will be addressed in the alternatives analyses (see Chapter Four).

AIRCRAFT PARKING AND TIEDOWN APRON

Aircraft parking apron should be provided for locally based aircraft which are not stored in hangars and for transient aircraft visiting the airport. It is estimated that 20 percent of locally based aircraft at Albany are currently parked in tiedown positions. This percentage is expected to remain relatively steady during the planning period. The airport currently has 55 light aircraft tiedowns on the main apron. As noted in **Table 3-8**, it is estimated that locally based aircraft will require 16 tiedown spaces by the end of the planning period.

FAA **Advisory Circular 150/5300-13** suggests a methodology by which itinerant parking requirements can be determined from knowledge of busy-day operations. At Albany Municipal Airport, the number of itinerant spaces was determined to be approximately 30 percent of busy day itinerant operations. The FAA planning criterion of 360 square yards per itinerant aircraft was applied to the number itinerant spaces to determine future itinerant ramp requirements. Locally based aircraft tiedowns are planned at 300 square yards per position. By the end of the twenty-year planning period, itinerant parking requirements are estimated to include 16 light aircraft tiedowns and 2 business aircraft (twin-engine drive through parking) positions.

Based on current forecasts and estimates of aircraft storage needs, it appears that the current quantity of aircraft parking (tiedowns) will be adequate to meet demand for local and itinerant parking through the planning period. Some minor changes in the configuration of the existing aircraft tiedown rows may be required to accommodate business aircraft parking positions. This may result in a slight net loss of light aircraft tiedowns, although it appears that this would not create significant constraints on existing facilities. The aircraft parking area requirements are summarized in **Table 3-8.**

As with aircraft hangars, reserve areas should be identified to accommodate any unanticipated demands for aircraft parking, which may exceed current projections. A development reserve area equal to 100 percent of the 20-year parking demand (32 light aircraft spaces, 2 business aircraft spaces) 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 (see Chapter Four).

Table 3-8: Apron & Hangar Facility Requirements Summary

Item	Existing Base Year (2000)	2005	2010	2020
Demand				
Based Aircraft	65	68	71	82
Itinerant GA Peak Day Aircraft[1]	10	11	13	16
Existing Facilities				
Light Aircraft Tiedowns (on-airport)	64			
Business Aircraft Parking Spaces	0[2]			
On-Airport Hangar Spaces Dedicated Aircraft Storage (est.) Overall Hangar Area (est.)	58 spaces[3] 60,000 sf[3] 96,000 sf[3]			
Total Apron Area (on airport) Total Apron Area (off airport)	30,500 sy 4,200 sy			
Projected Needs				
Itinerant Aircraft Parking (@ 360 sy each)		11 spaces / 3,960 sy	13 spaces / 4,680 sy	16 spaces / 5,760 sy
Locally-Based Tiedown Needs (@ 300 sy each)		14 spaces / 4,200 sy	14 spaces / 4,200 sy	16 spaces / 4,800 sy
Business Aircraft Parking (@ 600 sy each)		2 spaces / 1,200 sy	2 spaces / 1,200 sy	2 spaces / 1,200 sy
Total Apron Needs		27 spaces / 9,360 sy	29 spaces / 10,080 sy	34 spaces / 11,760 sy
Gross Hangar Space Requirements[4] (@ 1,500 sf per space)		54 Spaces / 81,000 sf	57 Spaces / 85,500 sf	66 Spaces / 99,000 sf

1. Assumes 30% of busy day itinerant aircraft operations.
2. No designated parking spaces exist for larger itinerant aircraft (twin-engine, turboprop, business jet, etc.) on the main apron. (aircraft are parked in a light aircraft tiedown row or directly in front of the FBO).
3. Estimate of existing hangar area dedicated for aircraft storage; overall hangar space, including large hangars (maintenance, etc.).
4. Assumes that 80% of future based aircraft will require hangar space.

FBO FACILITIES

The existing FBO facilities include office, classroom, and hangar space. The deteriorated condition of the building was noted in the facility inventory. The Consultant is currently in the process of conducting a building condition survey and analysis of city-owned buildings, including the main building housing the fixed base operator (FBO). In addition to basic renovation of existing space, the FBO has indicated that the depth of the hangar area is too limited to meet all maintenance needs. Expanding the hangar space may be considered as part of the building renovation process. Options for using other currently vacant hangar space may also be available to accommodate potential FBO space needs.

FBO facility requirements are driven primarily by market conditions and the particular needs of the FBO and its customers. At Albany, the FBO provides a variety of aircraft services from the existing office/hangar facilities. Because future FBO facility needs are difficult to quantify, and may differ greatly from one operation to another, the best planning approach available is to identify development reserves that could accommodate new or expanded FBO facilities. General areas for expanded operations, maintenance hangar, vehicle parking, and apron should be reserved. Based on the configuration of the land area at the airport, it appears that the area immediately adjacent (south) of the existing FBO building would be appropriately reserved for "future FBO development." A portion of the area has already been tentatively identified as the best location to site an aviation fuel storage and dispensing facility, which is an important part of FBO operations.

The airport should also be capable of accommodating a second FBO, should that interest develop. Although it appears unlikely that Albany will be able to support more than one FBO during the current planning period, the airport needs to provide equal access to prospective tenants, without discrimination. The City of Albany is currently in the process of developing an airport minimum standards document that will establish the requirements for all airport activities and address this type of development issue.

During the initial analysis of airfield facility requirements, airport fuel storage needs were addressed and subsequently incorporated into the alternatives analysis (see Appendix 3). Through discussions with the Consultant, FBO, City Fire Marshall, and City Public Works staff, it was determined that a single 12,000-gallon above ground tank for 100LL aviation gasoline will best serve current and near-term demand for aviation fuel storage at the airport. A development reserve capable of accommodating a second 12,000-gallon (or smaller) tank to increase storage capacity or add another fuel grade was also recommended. The new fuel facility was constructed in February 2000 at the outer edge of the main apron, adjacent to the FBO facilities. Some changes in apron configuration and aircraft parking near the FBO were required to accommodate the new fuel facility.

AGRICULTURAL AIRCRAFT FACILITIES

The airport does not have a dedicated agricultural aircraft facility and accommodates only a limited amount of agricultural aircraft activity. Application loading and equipment storage have been located near the south end of the main apron. There are currently no provisions for containment of spills or secondary containment.

Large-scale agricultural operations are not anticipated for Albany Municipal Airport. However, even limited agricultural operations have some site contamination potential. If agricultural operations are to continue at the airport, a designated AG aircraft parking/loading position should be developed. At a minimum, the area should include a concrete pad with some form of containment (catch basin, storage tank, etc.) to capture any spillage of application. The facilities needed to meet AG user needs would be minimal, although they should provide convenient access for both aircraft and support vehicles while being clear of other aircraft parking or fueling areas. When developed, all agricultural ground operations should be limited to the designated area. The aircraft loading pad should be a common use facility, available to all approved users; a small lease area for equipment and vehicle storage areas should be located adjacent to the pad. All equipment associated with the operations should be consolidated in the designated area.

SURFACE ACCESS REQUIREMENTS

Vehicle access to all existing on-airport facilities is provided by the airport main access road (Aviation Way) on the west side of the runway. Access to the airport terminal area appears to be adequate for the planning period, although extending and improving access beyond the airport terminal area will be required as part of new facility development near the southwest corner of the airport. The existing roadway is in fair to poor condition and will require full or partial resurfacing/reconstruction early in the planning period. The vehicle parking area directly adjacent to the FBO building also requires some reconstruction and resurfacing, although the number of parking spaces appears to be adequate. The repairs to the access road and the parking area adjacent to the FBO building are scheduled for construction in 2002.

The existing access road jogs sharply toward the runway as it passes the southwest corner of the FBO building and vehicle parking lot. This alignment reduces developable land east of the roadway for fueling, hangars or other airport-related developments. The jog in the gravel-surfaced section of the road appears to be too sharp for convenient emergency vehicle access to the south hangar area. A realignment of the access road, toward the western northern property line should be considered during the alternatives analysis. Paving the south access road extension would also be appropriate to eliminate gravel spilling onto the adjacent aircraft parking areas and reducing dust generation.

Vehicle parking in the terminal area appears to be adequate based on current needs. The vehicle parking area located north of the large hangar (39 spaces) is available to serve the adjacent north hangars, but may also be needed by a potential employee and/or customer parking if the hangar is renovated and leased. Vehicle

parking located immediately adjacent to the FBO (29 spaces) appears to be adequate for current and near-term demand. However, terminal area vehicle parking reserves should be provided nearby to allow for an expansion or reconfiguration of the FBO facilities or a general increase in vehicle parking demand. It appears that an overall parking area with 30 to 40 vehicle spaces would be adequate for employee and customer parking in the vicinity of the FBO.

Additional vehicle parking should be provided adjacent to new hangars south of the terminal area as development occurs. At some airports, local building codes require vehicle parking be provided as part of hangar construction. A ratio of one vehicle parking space per hangared aircraft is a reasonable planning standard for calculating parking requirements. The initial construction of 20 auto parking spaces would coincide with this standard, however a combination of fewer designated parking spaces and use of interior hangar space for vehicle parking would probably be reasonable.

Vehicle traffic on the airport consists mostly of light cars and trucks, commercial delivery trucks, and full-size tractor trailer combinations used for bulk delivery of aviation fuel. The new fixed-point fuel storage requires that adequate surface access be maintained within the terminal area. The primary vehicle access to the main apron and terminal area is currently provided through a 40-foot gate located north of the FBO building. The gate and roadway are wide enough to accommodate the large turning radius of large tractor-trailer. The minimal depth between the western airport property line, access road, fence lines, and airport buildings is a limiting factor in configuring roadway access, particularly for large trucks. Retaining a functional surface access route through the terminal area apron is a very important factor in terminal area planning.

SUPPORT FACILITIES

AVIATION FUEL STORAGE

Aviation gasoline (AVGAS) is available at Albany Municipal Airport. As noted previously, the airport was required to replace or upgrade the mobile fuel trucks with a storage system that complied with state fire codes. A 12,000-gallon above ground tank was installed in early 2000 and replaced the fuel trucks. The new fuel facility required a designated area for the storage tank, distribution equipment, and aircraft fueling positions.

A review of fuel records for Albany indicates that fuel sales have fluctuated from about 30,000 to 50,000 gallons per year since 1995. Based on recent estimates of air traffic, average fuel sales ranged 1.1 to 2.4 gallons sold per aircraft operation between 1995 and 1998. In 1998, there were 17,704 aircraft operations estimated and fuel sales of roughly 32,800 gallons (1.9 gallons/operation). Aircraft operations at Albany are expected to increase to more than 28,000 by the end of the 20-year planning period. For planning purposes, a ratio of 2 gallons per aircraft operation will provide a reasonable estimate future storage requirements. Based

on this ratio, fuel sales would increase to approximately 56,000 gallons by the end of the 20-year planning period.

By the end of the 20-year planning period, peak month operations are projected to be 2,826 (estimated to be 10% of annual operations). Using current sales ratios, peak month storage requirements would be approximately 5,600 gallons by the end of the planning period. With a storage capacity of 12,000 gallons, this level of activity would require restocking about every eight weeks based on peak month demand. The airport's fuel supplier is located in Salem, which allows deliveries with minimal lead time requirements.

It is anticipated that as events at the airport stabilize over the next few years, fueling activity will begin to increase, rather than remaining flat as it has over the last several years. As indicated in **Table 3-9,** the existing (planned) capacity of 12,000 gallons (AVGAS) appears to be adequate to meet projected demand levels, and levels well above projected demand during the current planning period.

The fuel sale levels at Albany, although lower than desired, are at the low end of the typical range for general aviation airports. A review of fuel sale patterns at several Oregon general aviation airports was conducted as part of the Independence State Airport Layout Plan Report (Faegre/Miller) in 1997. Fuel sales at Independence were relatively low, averaging 1.0 gallon per operation (32,000 gallons/32,773 operations), while several other airports had higher fuel sale ratios: Florence Municipal 3.3 gallons per operation; Grants Pass 2.5 gallons; Ashland 2.9 gallons; Salem 5.2 gallons; and Madras 8.7 gallons. In the case of Independence, many of the 124 based aircraft frequently purchased fuel at other airports rather than supporting the local FBO. A variety of operational, business, and market factors affect fuel sale volumes. Albany Municipal Airport appears to have a solid user base established that can be enhanced through the current planning period and beyond.

At the present time, Jet Fuel is not available at the airport and strong demand does not appear to exist. There are currently no turbine-powered aircraft based at the airport, and the runway length effectively limits itinerant business jet and turboprop activity. However, based on current engine research and emerging technologies, it appears that Jet Fuel may become more commonly used for a wide range of small general aviation aircraft within the next twenty years. Providing a reserve area for additional fuel storage will allow the airport to provide Jet Fuel if demand occurs.

Table 3-9: Fuel Storage Capacity Projections

	2005	2020
Projected Fuel Sales (AVGAS)	41,100 gallons	56,500 gallons
Planned Capacity	12,000 gallons	12,000 gallons
Inventory Turnover (annual)	3.4	4.7

AIRPORT UTILITIES

The existing utility service on the airport is considered to be adequate for current needs. Further expansion of aircraft facilities south of the main apron will require extensions of the water, electrical, and telephone lines that serve currently serve the terminal area. Electrical and telephone lines (existing and new) should be located underground where possible. Existing utility lines have were extended along the western edge of airport property to service new development on the southwest corner of the airport. Additional development in the area south of the main apron requires some expansion of the storm drainage system. The nearest outfall is located at the point where Cox Creek crosses I-5, approximately 300 feet north of the future South Hangar Area, although Cox Creek is located within 100 feet of the proposed development. The city installed an 18-inch outfall to Cox Creek with connections provided for four new T-hangars.

Potential development on east side of the runway may require limited utility and drainage improvements. The infrastructure needs for this part of the airport will be considered based on the development options presented.

The city has also indicated that a new trunk sanitary sewer line will be located in the vicinity of the existing sewer line crossing the airport. A utility corridor should be defined to ensure that all proposed surface developments are compatible with underground utility lines.

SECURITY

The airport has a combination of wire and chain-link fencing along its boundary and to separate airport operations areas. Fencing extends along the entire length of the airport access road, separating vehicles and pedestrians from active airfield areas. Several gates are located along the fence line to provide access for vehicles and pedestrians.

Aircraft theft and vandalism, and a variety of less serious incursions are not uncommon at general aviation airports. The security measures (fencing, gates, flood lighting, passive access control, etc.) in use at Albany are comparable to most small general aviation airports. Ensuring that gates are closed and locked and hangar and aircraft apron areas are adequately lighted are the best measures for minimizing incidents.

The new south hangar development also creates some security issues related to access and the physical separation from activities on the main apron. Providing security fencing and a combination locked gate adjacent to the hangars may be more effective in controlling access than installing a gate on the roadway near the south end of the terminal area. The new hangar area should be well lighted.

The existing chain-link fencing located along the east side of the access road should be extended (approximately 1,200 feet) from the FBO building to the south as part of the south airport improvements.

Additional flood lighting should be provided around new aircraft parking, fueling, and hangar areas to maintain adequate security.

FACILITY REQUIREMENTS SUMMARY

The facility requirements for Albany Municipal Airport are primarily related to maintaining existing airfield capabilities and improving facilities based on user demands. For the most part, the need for new or expanded facilities, such as aircraft hangars, will be market driven. However, as indicated previously, it is very important that the City of Albany be a proactive partner with the private sector in meeting the air transportation needs of the community. Until recently, the airport has experienced a prolonged period of minimal investment in new facilities, however, the basic infrastructure (airfield pavement, storm drainage, utilities, access, etc.) has been relatively well maintained. The City has invested over half a million dollars in capital improvements at the airport since the master plan update was started. During this same time, private investment at the airport has also occurred through the development of four new T-hangars. In addition, the City has a five year plan to repair or restore most of the infrastructure, buildings and pavement at the airport.

As a result, Albany Municipal Airport has the basic facilities capable of accommodating a wide range of user needs. **Table 3-10** summarizes some of the key issues identified during the facility requirements analysis at Albany Municipal Airport.

The forecasts of aviation activity contained in Chapter Two anticipate moderate growth in activity that will result in comparable facility needs beyond current capabilities. The existing airfield facilities have the ability to accommodate a significant increase in activity, without requiring major facility upgrades or expansion. Improvements in basic facilities such as access roads, utilities, and drainage will enable the remaining developable areas to become more attractive to potential tenants.

The City of Albany has a substantial investment in airfield pavement. Pavement-related needs anticipated during the 20-year planning period include normal preservation, overlays and major reconstruction. The

frequency of regular pavement maintenance (vegetation control, crack filling, and seal coats) will in part determine how quickly existing pavements deteriorate.

The projected twenty-year facility needs are summarized in **Table 3-11**. The next step in the planning process is to analyze alternatives that can accommodate these requirements.

Table 3-10: Major Facility Requirements Issues

Facility	Description
Runway	Existing length is adequate to accommodate 95 percent of general aviation fleet 12,500 pounds and less, although many multi-engine aircraft are unable to meet all runway length requirements during warmer temperatures. Runway extension reserves should be protected; options for a 300 to 600-foot runway extension may be considered.
Parallel Taxiway	Existing parallel taxiway separation meets FAA standard for ADG I (small airplanes) Exit locations appear to be adequate. Additional connection to fueling area from west parallel taxiway.
Aircraft Parking	The number of aircraft tiedowns appears to be adequate; designated parking positions for itinerant business aircraft are needed. Some aircraft parking reconfiguration may be required to accommodate itinerant business aircraft parking.
Aircraft Hangars & Other Airport Buildings	Hangar utilization for aircraft storage is expected to remain high during the planning period. Existing conventional hangars, currently out of service or underutilized, will be renovated. New hangar construction (42 units) would appear to accommodate demand well into the planning period. Hangar development reserves should be provided to accommodate additional demand potential. Renovation of FBO office and classroom space and construction of FBO maintenance hangar may be accommodated within existing terminal area.
Fuel Storage	12,000 gallon above ground tank will satisfy storage AVGAS needs through the planning period. Establish reserve for second storage tank.
AG Facilities	Common-use secondary containment area reserve.
Security	Improvements in apron and hangar flood lighting. Controlled access to existing and new aircraft storage areas.
Vehicle Parking	Designated auto parking areas/reserves needed adjacent to FBO and hangar areas.
Access Roads	Access road alignment (south of FBO) reduces developable area and limits emergency access. Existing airport access road (from Knox Butte connection to FBO) will require reconstruction/resurfacing early in planning period.

Table 3-11: Airport Facility Requirements Summary

Item	Short Term	Long Term
Runway	Pavement Maintenance[1]	Pavement Maintenance Pavement Overlay Runway Extension/Reserve
Taxiways	Pavement Maintenance	Pavement Maintenance Pavement Overlay Taxiways to New Development Areas
Main Apron	Pavement Maintenance	Pavement Maintenance Pavement Overlay Apron Development Reserves
Fueling Area	None	Pavement Maintenance Expanded Aircraft Fueling Positions Reserve for Second Fuel Tank
Tiedown Aprons	Pavement Maintenance Reconfiguration per Itinerant Business Aircraft Parking Needs	Pavement Maintenance Pavement Overlay Apron Development Reserve
Agricultural Facilities	Reserve for Operations and Lease Area	Same
Hangars	T-hangar and Conventional Hangar Development Areas	Development Reserves
Navigational Aids and Lighting	REIL (Runway 16 & 34) Flood Lighting (new hangar areas)	Replace VASI w/ PAPI (Rwy 16 & 34)
Airport Buildings	Maintenance on city –owned buildings	Same
Fuel Storage	Fuel Storage Reserve	Same
Utilities	Utilities extensions to South Hangar Area Define utility corridor for future City trunk sewer line crossing airport	Extend utilities to east airport development areas, if developed.
Airport Roadways	Extend and realign Airport Access Road to South Hangar Area; Reconstruct/resurface existing Airport Access Road	Pavement Maintenance
Security	Increased Flood Lighting; Fencing, access controls in new hangar areas	Same`

1. Vegetation control, crackfill, sealcoat

ALBANY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN REPORT
2000-2020

CHAPTER FOUR
Airport Development

CHAPTER FOUR

Airport Development Alternatives

INTRODUCTION

Airport Master Plan Alternatives And 2000 Development Summary

The master plan's initial evaluation of airfield facility development options began in late 1999 with fuel facilities and continued into early 2000 with a series of airport development alternatives. Through a process of evaluation and discussion, the planning advisory committee and city staff assisted the consultant in selecting a preferred alternative. A summary of the preferred alternative that resulted from this process is provided on Page 4-25. This analysis, in part, provided the general direction required to undertake the development projects in 2000. Several improvements were completed during the year 2000 construction season:

- East Parallel Taxiway and Parking Apron (9 light aircraft tiedowns)
- Airport-Linn County Fair & Expo Center Access
- Northwest Hangar Taxiway
- Aircraft Fuel Facility
- South Hangar Taxiways (2)
- T-Hangar Construction (2) – Privately Funded

These development items were included in conceptual form in the preliminary alternatives analyses presented in this chapter. During the process of design and construction the configuration of some facilities were modified. As a result, some of the descriptions and assumptions employed during the preliminary alternatives analysis (described in this chapter) were later modified. This is normal part of the design process, where planning concepts become more detailed. To clarify the description of the alternatives while maintaining the original sequence of events, facility improvements that were made after the original evaluations were

completed, are presented in Italics. All other descriptions are based on the conditions that existed when the actual evaluation was completed.

The three alternatives figures created in this chapter reflected the preliminary configuration of proposed facilities. Changes to these concepts were made based on input from the planning advisory committee, city staff, airport users, the Oregon Aviation Department and the FAA. The revised configurations were incorporated into the updated airport layout plan ALP. Both the elements of original preferred alternative, and subsequent facility improvements are depicted on the ALP. For convenience of review, the ALP drawing is presented at the end of this chapter. The full ALP drawing set and a detailed description of the plans is presented in Chapter Seven.

OVERVIEW

The three alternatives presented in this chapter contain numerous elements designed to address airport facility needs through the twenty-year planning period and beyond. Some development items present choices in location or configuration, while others may have only one feasible option. All airfield alternatives are based on airport reference code (ARC) B-I. The result of the alternative evaluation process will be the selection of a "preferred" development alternative. The preferred alternative may contain some elements of each of the three preliminary alternatives, may be entirely contained within one of the alternatives, or may be created with entirely new items identified during the evaluation process.

The facility requirements analysis conducted in the previous chapter identified facility needs expected to occur during the current twenty-year planning period. While some facility needs currently exist, others are expected to occur toward the end of the planning period. In addition, certain types of demand-driven needs such as aircraft hangars and land leases are difficult to predict because of market forces that can significantly alter demand projections.

It is important to recognize the need to plan beyond current projections of demand, without prematurely committing resources to developments that may not occur. As noted elsewhere during this project, the available developable land at Albany Municipal Airport is relatively scarce. For this reason, it is appropriate to identify reserve areas for the remaining developable lands that will allow the airport to fully realize its aviation development and financial potential. The precise timing for moving into reserve areas is not known at this time. However, the development reserves provide sufficient detail to allow the continued development of comparable facilities (i.e. hangars, aircraft apron, etc.). As future master plan updates are undertaken, the development reserves identified in this plan should be revalidated or otherwise modified to reflect conditions and market needs of that period.

Alternative 1 evaluates runway extension options and a limited amount of facility development on the east side of Runway 16-34. The elements in this alternative may be evaluated individually or together. Alternatives 2 and 3 identify proposed developments and reserves for the west side of the airport. For evaluation purposes,

separate development areas are designated north and south of the main sewer line that crosses the airport, south of the main apron. The west side alternatives are fundamentally similar from the terminal area to the north end of the airport. Although there are minor differences in facility layouts, the same combination of basic facilities are provided in both alternatives. From the terminal area south, the configuration of development items such as aircraft storage hangars and long-term development reserves, differ considerably. Because both alternatives are capable of accommodating short-term and long-term airport needs, the factors that elevate one above another may be minor.

It appears that the west side of the airport will be capable of accommodating aviation-related demand well beyond the twenty-year planning period. At some point beyond the current planning period, the airport would be expected to reach full utilization as the remaining land inventory is developed. The shrinking land base of the airport over the last twenty years illustrates the importance of defining aviation and aviation-related use areas and committing to that use. It is evident that the future of Albany Municipal Airport is heavily dependent on the effective use of the remaining lands west of Runway 16-34. For this reason, the west side alternatives identify proposed uses or development reserves for the entire area west of the runway. The existing airport access road will require resurfacing/reconstruction from the Knox Butte Road connection to the FBO building. Aside from an expansion of vehicle parking depicted in the alternatives, no changes in road configuration are anticipated.

1979 Master Plan Recommendations

The previous master plan contained several development recommendations that have since become unfeasible based on events or other factors. Among these were planned development of a large aircraft apron and a full length parallel taxiway east of Runway 16-34. These recommendations required the use of airport property, which has since been converted into alternative non-aviation uses. As a result, the property available to support aviation-related development on the east side of the runway is significantly less than assumed in previous planning analyses. The remaining developable land east of the runway is limited in size, would have limited capacity, and could likely be served by a partial-length parallel taxiway. Some changes in facility use have occurred since the last master plan. Although not specifically identified in the previous master plan, two conventional hangars were added north of the large conventional hangar where helicopter parking was designated on the airport layout plan. The recent construction of T-hangars south of the main apron follows the development recommendations defined in the previous master plan.

City-Owned Airport Buildings

The Building Condition Survey, prepared as part of this master plan update (See Appendix 2), provides an evaluation of the existing city-owned buildings on the airport, including the FBO building and four older aircraft hangars. The Survey evaluated the general condition of the structures and identified the key considerations and options available. As noted in the facility requirements analysis, a decision to renovate these buildings would be made on a case-by-case basis, reflecting a variety of factors including the cost of renovation, existing or anticipated market demand, and intended uses of each building. For some buildings, a range of renovation options (and costs) exist that reflect the spectrum of potential user needs. A summary of planning-level cost estimates for building improvements is provided in **Table 4-1**.

The west side development alternatives are not dependent on renovation of any particular building. A decision to demolish, rather than renovate any of these structures would result in the underlying ground becoming available for new development, as broadly defined in the alternatives (i.e., aviation use, aviation-related, etc.). Either option is compatible with the overall development alternative concepts described in this chapter.

Table 4-1: City-Owned Building Costs[1]

Building	Approximate Area (SF)	Minor Renovation	Major Renovation
FBO Building Offices	3,100	N/A	($65 SF) $261,950
FBO Hangar North Wing	6,200	N/A	($25 SF) $201,500
FBO Hangar South Wing	6,200	N/A	($50 SF) $403,000
FBO South Wing (Demolition)	6,200	N/A	($5 SF) $40,300
North T-Hangar	9,200	($5 SF) $59,800	N/A
Large Historic Hangar	8,000	($5 SF) $52,000	($50 SF) $520,000
Small Historic Hangar	1,200	N/A	($25 SF) $39,000
Quad Hangar	3,130	($5 SF) $20,350	($25 SF) $101,700

1. Overall costs include 30% contingency for construction, A/E design, permits, testing, etc., above basic unit costs.

Alternative 1

Alternative 1 combines two primary development elements: runway extension options and an east side apron designed to provide access to the adjacent Fair & Expo Center. The elements defined in Alternative 1 may be evaluated individually, although for planning purposes, they have been combined into a single alternative. **Table 4-3** summarizes the development costs for the primary elements of Alternative 1.

Runway Extension Options

Previous planning documents for the airport (1979 and 1984 airport layout plan drawings) have depicted runway extension reserves at both ends of the runway, although specific projects have not been included in the airport's capital improvement program (CIP). The facility requirements analysis conducted in the previous chapter evaluated a range of runway length issues. According to the FAA's computer model, the existing runway (3,004 feet) can accommodate approximately 95 percent of the small aircraft fleet (aircraft weighing 12,500 pounds and less. A length of 3,610 feet is required to accommodate 100 percent of the fleet, including a typical business turboprop such as the Beechcraft B90 or B100 King Air.

Although the activity needed to justify a runway extension may not materialize within the twenty-year planning period, demand driven events such as aircraft utilization can quickly change. Therefore, it may be prudent to continue protecting the potential to accommodate minor runway extensions through development reserves, in the event demand occurs, the expenditure can be justified, and funding obtained.

The FAA requires that all runway extension projects be supported by a documentation of need, including a minimum of 500 annual itinerant operations by aircraft unable to use the existing runway or that are otherwise limited by significant operational restrictions. The airport sponsor is required to identify specific users, aircraft types, number of operations, etc., before the project would be considered for FAA funding. The runway's current ability to accommodate a high percentage of the GA fleet suggests that an extension, while eligible for FAA funding (when fully documented), would be a relatively low federal funding priority based on competing airport project needs within the region.

The runway extensions are intended primarily to provide additional runway length for aircraft takeoffs. Aircraft takeoff runs would begin at the end of the extended pavement and the new pavement would also be available for aircraft rollout after landing on the runway from the opposite direction. The 325-foot (south) and 210-foot (north) extensions are the maximum lengths possible while meeting ADG I dimensional standards for runway safety area and object free area. **Table 4-2** summarizes the useable runway lengths associated with each of the extension options.

The south runway extension is 325 long feet long with a connection to the existing south extension of the parallel taxiway. A new aircraft holding area is also incorporated into the new taxiway connection. With the 325-foot extension, Cox Creek would be located approximately 240 feet from the end of the runway at its closest point.

Table 4-2: Runway Extension Options (Useable Runway Lengths)

Options	Total Runway Length	Takeoff Distance Rwy 34	Takeoff Distance Rwy 16	Landing Distance Rwy 34	Landing Distance Rwy 16
Current Configuration	3,004 feet	3,004 feet	3,004 feet	3,004 feet	3,004 feet
South Extension (325')	3,329 feet	3,329 feet	3,329 feet	3,004 feet	3,329 feet
North Extension (210')	3,214 feet	3,214 feet	3,214 feet	3,214 feet	3,004 feet
North & South Combined	3,539 feet	3,539 feet	3,539 feet	3,214 feet	3,329 feet

The north runway extension is 210 feet long and includes an extension of the parallel taxiway. The airport boundary fence and access road are the controlling obstruction for the north extension. The fence and access road would be located beyond the OFA, approximately 240 feet from the end of the runway, at its closest point. According to City wetland mapping, a small area of wetlands is located near the northwest corner of the proposed runway extension. If a north runway extension were pursued, the exact boundary, type and quality of wetland, and degree of potential impact would need to be evaluated and may require some level of mitigation.

As currently depicted the runway extension options will not require the relocation of the existing visual guidance indicators (VGI). However, a reconfiguration of the existing threshold lights (from the end to the sides of the runway) and relocation of the guidance sign(s) at the runway end would be required, in addition to providing new edge light fixtures for the new section(s) of runway.

Obstruction Clearance and RPZ Issues

The proposed changes in runway configuration would affect some elements of local airport and land use planning:

Runway Protection Zone (RPZ)

The addition of a runway extension with a displaced threshold would require the designation of arrival *and* departure runway protection zones (RPZ). The two RPZs would be located relative to the threshold location and the end of the useable runway. The arrival RPZ would begin 200 feet beyond the landing threshold (currently the existing runway end); the departure RPZ would begin 200 feet beyond the new runway end (end of useable pavement). The location of the departure RPZ would coincide with the inner portion of the new FAR Part 77 approach surface (see below). FAA standards for controlling activities within runway projection zones would apply to both RPZs.

The composition and density of ground activities within the RPZs would not change significantly with runway extensions and the addition of the arrival/departure RPZs. Based on a review of available aerial photography, two structures appear to be located within the existing Runway 16 RPZ; the addition of a departure RPZ associated with a 210-foot runway extension would increase this to three structures (none should exist). To the south, Highway 20, which is now outside the RPZ, would cross through the departure RPZ for Runway 34; no structures are located within the existing or reconfigured RPZs for Runway 34.

Property Acquisition Requirements

The City of Albany has historically used avigation easements, rather than property acquisition to control portions of the RPZs that extend beyond airport property. Although outright ownership of RPZs is always preferable, property acquisition is often a politically sensitive issue. Many airport sponsors unable to acquire property without use of eminent domain and condemnation, use avigation easements to control development around airports. The City has not indicated a desire to deviate from its use of avigation easements; therefore it is anticipated that additional easements, rather property acquisition would be required for any changes in the RPZs. The cost of acquiring easements depends on property valuation, permitted uses, etc. and is generally negotiated between the landowner and the airport sponsor.

Obstructions and Approach Surfaces

Because the runway extensions retain the existing landing thresholds, the *actual* aircraft flight paths, with slopes at or just below 20:1, would be maintained with no increase in obstruction penetrations. However, from an airspace planning perspective, Federal Air Regulation (FAR) Part 77 does not recognize displaced thresholds in defining approach surfaces. The FAR Part 77 approach surfaces begin 200 feet beyond the end of useable runway pavement, connecting to the end of the runway primary surface. An increase in useable runway length would result in a corresponding extension of the primary surface and an outward shift in the approach surface. A shift in the approach surface would lower the elevation of the surface over any given point on the ground. As a result, some objects not currently penetrating the current Part 77 approach surface may penetrate a new Part 77 approach surface.

The use of displaced thresholds on runways generally reflects a practical approach to addressing obstructions to runway approaches. For these runway extension options, the location of the displaced thresholds and corresponding approach slopes, would serve as the practical guide in limiting obstruction heights at the each end of the runway. Ideally, the standard Part 77 approach surface would be protected; in cases where this is not feasible, obstructions should not penetrate the actual approach surface for the displaced threshold.

Airport Overlay Zoning

As noted in Chapter Five, state land use planning guidelines require the development of airport overlay zoning to "promote a convenient and economic system of airports in the state and for land use planning to reduce risks to aircraft operations and nearby land uses." As described in Chapter 660 (section 660-013-0070, item 1) "A local government shall adopt an Airport Safety Overlay Zone to promote aviation safety by prohibiting structures, trees, and other objects of natural growth from penetrating airport imaginary surfaces."
The state guidelines identify standard FAR Part 77 airspace surfaces as the boundary for the overlay zone. Based on this standard, the prohibition of obstructions would apply to a shifted approach surface, regardless of the use of displaced thresholds. As a result, the proposed 210- or 325-foot runway extension would lower the corresponding approach surfaces (and allowable heights of obstructions) by 10.5 feet or 16.25 feet, respectively.

Airport Noise

The proposed runway extensions would not significantly change the size or shape of airport noise contours projected for the current runway configuration. With displaced thresholds, the changes would be further minimized because only the aircraft takeoff segments would be changed (landing paths would not be altered). For the runway end where an extension is added, the higher-level noise contours (located nearest the runway) may shift outward slightly (behind the aircraft), due a change in where aircraft begin their takeoff roll. At the opposite end of the runway, the contours actually could pull back slightly, as aircraft will typically be higher due to the increased distance from the initial point of takeoff.

East Apron

A new east parallel taxiway and parking apron was constructed in 2000. Although the configuration of the new apron is different than was originally presented in this alternative, the concept is similar. The narrative and graphic description presented below was generated prior to the design and construction of the new facilities. Changes to the original conceptual configuration were made during design. The actual configuration of the new taxiway and apron, and development reserves are depicted on the Airport Layout Plan (ALP) drawing presented at the end of this chapter.

Original Preliminary Alternative (10/99)

The proposed east aircraft apron option will provide aircraft parking and access to the adjacent Fair & Expo Center. The apron would be located within the triangular shaped area along the east side of the airport, near the segmented circle. As presently configured, the apron is divided into two phases. The first phase (approximately 6,700 square yards) provides 16 light aircraft tiedowns. The second phase of apron adds another 3,300 square yards and would increase the number of tiedown positions to 20. The apron would be connected to the runway by a single 150-foot access taxiway (just south of the existing segmented circle).

The segmented circle would be relocated approximately 300 feet south in order to accommodate the new apron. A small wetland area is identified on City wetland mapping, adjacent (southwest) to the existing segmented circle. The configuration of the apron and access taxiway is not expected to affect the wetland, as currently defined. However, the exact boundary, type and quality of wetland, should be verified prior to any construction.

A through-the-fence access lane would connect the apron to the adjacent Fair & Expo Center to tow aircraft off the airport for static aircraft displays and other events. The access should be limited only to aircraft under tow; taxiing under power off the airport is not recommended. Standard chain link fencing and locked gates should be provided between the airfield area (aircraft apron) and adjacent property, vehicle parking area and along Price Road on the eastern airport boundary.

> *"Construction of the east side taxiway will allow pilots to taxi over to the east side and park in the tie-downs provided. They can then access the Expo Center and Timber Linn Park, and even hike a bit to the new motel that opened last month, without crossing any of the controlled surfaces at the airport. The attractions at these facilities are often the type that encourage family participation, so tie-downs on the east side provide a safe location for both pilots and passengers to park and walk.*
>
> *In addition to removing the safety area incursions at the airport, the east side taxiway also provides an additional safety feature. Currently, the Albany Fire Department only has one access point to the airport via the access road. Station 13, the closest station located off of the Santiam Highway, currently responds to airport emergencies by getting on to the freeway (I-5) at Santiam and existing on Knox Butte Road. If the east side taxiway is constructed, we will be installing a vehicle gate for access to the tie-down area. This will provide not only a secondary access to the airport, but a faster access. The Fire Department timed the responses from Station 13 to the airport via Price Road and the proposed taxiway and via I-5 and the access road. The response time was approximately one minute faster via Price Road than the access road (3 minutes versus 4 minutes). In the situation where I-5 was blocked, as it would likely be if there were an incident at the airport, a Price Road entrance would save several minutes of response time."*[12]

Vehicle access to the east apron would be provided from Price Road, near the southwest corner of the Fair & Expo Center. A small vehicle parking area (13 spaces) is located adjacent to the apron. The area could be expanded if needed to provide additional parking spaces. Overhead flood lighting is recommended for both the vehicle parking area and the aircraft apron.

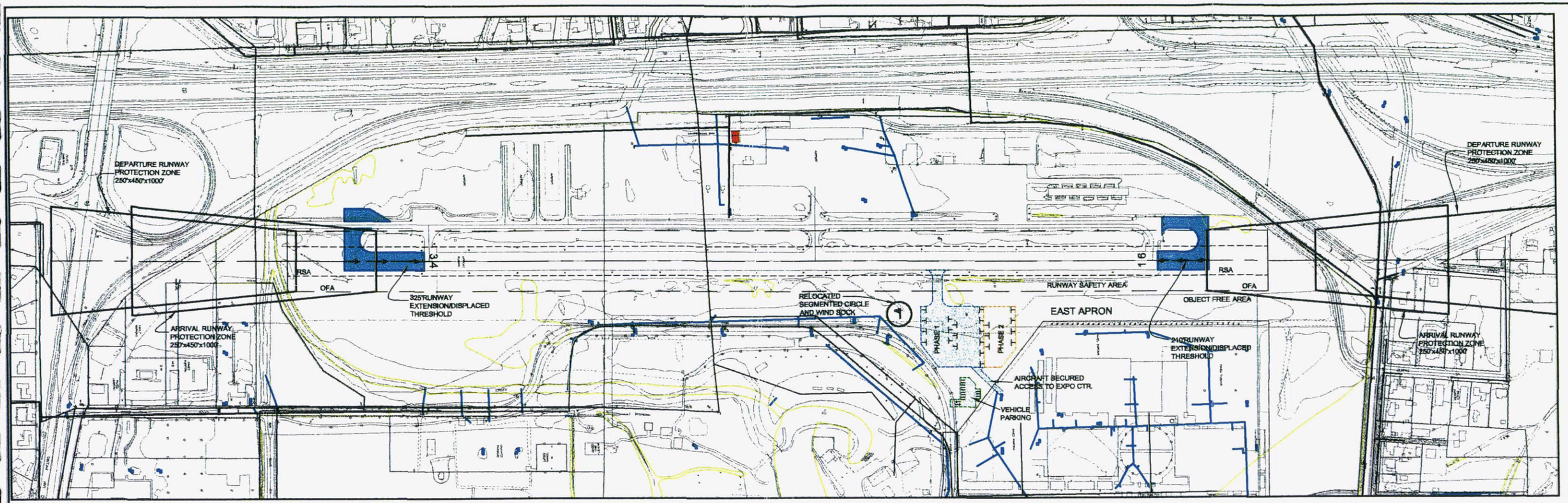
[12] Excerpt from correspondence - Glenda Radvansky, City of Albany to FAA, dated June 30, 2000.

Table 4- 3: Alternative 1 - Primary Features/Cost

(as originally presented - 10/99)

Item	Estimated Cost ($)**	
Runway Extension w/MIRL	South Runway Extension (325') $120,000	North Runway Extension (210') $85,000
East Apron (Phase 1) w/ Taxiway; Relocate Segmented. Circle	$188,000	

** Includes 30% Engineering & Contingency



LEGEND

- AUTO PARKING AREAS
- NEW AIRFIELD PAVEMENT
- ZONING
- WETLANDS
- SEWER
- STORM
- WATER

TRUE NORTH

MAGNETIC (18° – 1990)

200 0 200 400

SCALE OF FEET
SCALE: 1"=200'

City of Albany Oregon

VERIFY SCALES

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

NO.	DATE	BY	APPR	REVISIONS

CENTURY WEST
ENGINEERING CORPORATION
825 NE Multnomah Suite 425
Portland, Oregon 97232
503-231-6078 phone * 503-231-6482 fax

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
DM	KFP		1"=200'
DATE: 01/05/2000		PROJECT NO: 41007002.01.4107.ALT_01	

CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

ALTERNATIVE 1

DRAWING NO. 1

SHEET NO. 1

Alternative 2

The basic concept of **Alternative 2** is to consolidate commercial and business-related facilities between the main apron and the north end of the airport, using the area to the south to accommodate aircraft storage hangars and long-term aviation development reserves. The redevelopment of the north end of the airport provides an opportunity to improve the efficiency of existing developed areas and to improve the visual image of the airport along the main airport entrance. The relatively undeveloped south end of the airport provides a high level of flexibility to configure new facilities. This alternative requires the relocation of two existing structures (portable hangar on main apron and small conventional hangar north of "Quad" hangar). Electrical and telephone service extensions and connections are provided by the respective private utilities. Water and sewer line extensions are installed by the City of Albany. **Table 4-4** summarizes the key features of **Alternative 2**.

North Development Area

Two major facility improvements were made in the north development area in 2000. These included a new aircraft fuel facility that was constructed adjacent to the main apron and a reconstructed northwest hangar taxiway that connects to the main apron and the north end of the west parallel taxiway. The narrative and graphic description presented below was generated prior to the design and construction of the new facilities. Changes to the original conceptual configuration were made during design. The actual configuration of the facilities is depicted on the Airport Layout Plan (ALP) drawing presented at the end of this chapter.

Original Preliminary Alternative (10/99)

A development reserve for fixed base operator (FBO) facilities is identified for the area surrounding the FBO building and the main apron. Development options in the FBO reserve include full or partial demolition and/or renovation of the existing FBO building (as noted above), in addition to construction of a new maintenance hangar or other facilities. The area between the airport access road and the back of the main apron does not provide adequate depth to accommodate typical FBO facilities such as large maintenance hangars. If new facilities are developed, providing additional depth for buildings and a reconfiguration of the apron directly in front of the FBO may be required. The selection and timing of improvement options will be largely determined by the FBO, particularly as decisions relate to construction of new facilities and the cost-benefit of renovating existing space, and lease commitments. Local pilots have expressed an interest in having 24-hour access to restroom and telephone facilities at the airport. It appears that the terminal area would be the most central location available, with reasonable access to existing utility service lines. It may be possible to incorporate public restroom facilities into an overall FBO facility expansion/renovation or to develop a stand-alone facility, similar to that used at public parks, rest areas, etc.

An existing storm water line is located within the FBO development reserve, extending south toward the T-hangar area. A change in building configuration may require replacing or relocating all or part of the line, or

avoiding locating buildings over the line. The primary service vehicle (fuel trucks, emergency response, etc.) access for the airfield is located at the north end of the FBO building. This corridor should remain free of congestion, including structures, equipment, parked vehicles or aircraft.

A new fuel storage area is shown south of the FBO building (the City's preferred location when the conceptual alternative was developed). However, locating the storage tanks adjacent to the apron and new fuel pumps was later recommended. The development area south of the FBO development reserve will be reserved for aviation business related aviation tenants. The area south of the main apron is reserved to respond to demand for larger conventional hangar development and aircraft parking. The type and configuration of aircraft parking would depend on the proposed use of the lease area adjacent to the apron. The 2,800 square yard area would be capable of accommodating either fixed- or rotor-wing parking and hangar lease. Initially, the area directly in front of the hangar could be paved with a connection to the main apron; the remainder of the apron reserve would be developed as needed. An apron reserve (4,000 SY) is located immediately east of the proposed fuel pump location, to provide future 360-degree aircraft access to the fueling area and provide additional parking. A new access taxiway located near the southern end of the main apron will serve the fueling and FBO area.

The area between the "Quad" hangar and the large conventional hangar provides an area for a second FBO or other aviation related business. The section of main apron located directly in front of this area can be reconfigured, as needed based on specific development needs. The existing number of aircraft tiedowns (55) on the main apron exceeds projected long-term parking requirements during the planning period; considerable reconfiguration of the apron can be accommodated before significantly reducing capacity. Long-term tiedown capacity can also be increased through development of apron reserves located at the south end of the airport.

The small conventional hangar located north of the "Quad" hangar is designated as an historic structure. The location of the hangar significantly limits the development potential of the overall site (approximately 16,000 square feet). This alternative assumes that the hangar will be relocated elsewhere on the airport or demolished, as determined by local officials. Two smaller structures in this area (electrical and telephone communication buildings) are relatively new and considered difficult to relocate. Although their existing locations are not ideal, it appears that they can remain in place without significantly constraining the site development potential. As a result, the area immediately west of these two buildings does not have airfield access but would be suitable for a small office or warehouse (5,000 SF or less building footprint). Additional vehicle parking would be developed throughout the area on the east side of the airport access road.

The area north of the large conventional hangar would accommodate several medium size conventional hangars. A portion of the vehicle parking area immediately north of the large hangar would be reconfigured to accommodate a south-facing conventional hangar. Taxiway improvements in the area would include a new/reconstructed taxiway along the east side of the hangar row connecting to the parallel taxiway and the main apron. A second (outer) taxilane would be added when the development reserve was utilized. The area occupied by the existing open-door T-hangar is identified as a conventional hangar reserve. When the T-

hangar reaches the end of its useful life, it would be replaced by and a row of small/medium conventional hangars. The north conventional hangar area could immediately accommodate four or five hangars; with another five added in the development reserve.

It is assumed that the hangars in this area will be used primarily for storage and will not require an extension of sanitary sewer lines. A 700-foot (+-) connection to the existing water line running along the west side of the airport access road would serve the north hangar area. Electrical and telephone service lines are located nearby, running along the airport access road.

Existing storm water drainage in the north hangar area consists of a series of open ditches leading to an outfall located about 350 feet north of the runway. The outfall crosses under the airport access road, through the I-5 corridor, and continues to Waverly Lake. Existing surface drainage patterns will be altered by addition of new hangars and taxiway construction. Improvements in storm drainage would include a combination of surface ditches, catch basins and underground pipe. Although the actual configuration of the system will depend on a variety of design elements, it appears that approximately 500 linear feet of drain pipe with two or three catch basins would be needed to route the storm water to the existing outfall. Some of the existing drainage ditches can be retained, with small culverts at taxiway crossings.

South Development Area

Two south hangar taxiways and two T-hangars were constructed in 2000. The narrative and graphic description provided below was generated prior to the design and construction of the new facilities. Changes to the original conceptual configuration were made during design. The actual configuration of the new taxiways and hangar appear on the Airport Layout Plan (ALP) drawing presented at the end of this chapter.

Original Preliminary Alternative (10/99)

Hangar Area and Other Improvements

The development of new hangar facilities on the south half of the airport takes advantage of the surface access and utilities (water and electrical) currently serving the existing T-hangar development. Development of the new hangar rows will require normal site preparation and improvements in surface drainage, in addition to taxiway improvements and other amenities. The existing roadway serving this area is adequate to provide basic access, but should be realigned to maximize building development potential, widened and paved, with vehicle parking provided adjacent to the development areas. Depending on the configuration of vehicle parking areas, it appears that 65 to 130 spaces could be provided between the east side of the access road and a new fence line.

The hangar development area extends from the existing southern-most stub taxiway (Hangar Taxiway 1) to the utility corridor that crosses the airport. As currently configured, the area would accommodate three additional

10-unit T-hangars and two rows of small/medium conventional hangars (4 hangars per row, approximately 50' x 60' each). Four new conventional hangars can be accommodated immediately on the south side of Hangar Taxiway 1. Each new hangar row located north of the existing T-hangars requires a single 320-foot taxiway stub.

The south hangar area can accommodate approximately 46 additional light aircraft when fully developed. This exceeds projected growth in based aircraft during the twenty-year planning period. However, demand for hangar space at many airports often exceeds expectations and creates development pressures when not considered in long-term planning. The full build-out of the south hangar area would allow the airport to absorb more than a two-fold increase in based aircraft with minimal infrastructure improvements. This alternative provides the flexibility needed to respond to demand for a variety of hangar types through the planning period, or until the landside portions of the airport are fully developed, whichever occurs first.

Existing water and electrical service lines run along the western edge of the hangar area. According to city staff, the existing 12" water line that serves the south T-hangars provides adequate flow rates (approximately 2,000 gallons per minute) for aircraft storage hangars, but would not be adequate to support commercial development further to the south.

Improvements in surface drainage would be required with the grading and paving normally associated with hangar and taxiway construction. The existing system uses a 60-foot 15" lateral line that runs parallel to the access road along its east side. Catch basins with 12" PVC pipes connect to the lateral line on either side of the second most southerly taxiway. It is assumed that a similar design would be required at the end of each stub taxiway and adjacent hangar. The lateral line may be extended along the entire length of the hangar development, or shorter sections of pipe could be combined with a new outfall. It is anticipated that up to 600 linear feet of 15" storm water line would be needed, in addition to individual connector lines, catch basins, and manholes for the taxiways and hangar rows. The hangar rows located toward the north end of this area may be able to connect to the storm line running south from the main apron. Increasing the quantity of storm water runoff into the adjacent creek may require updating the airport's storm water control plan and/or permits.

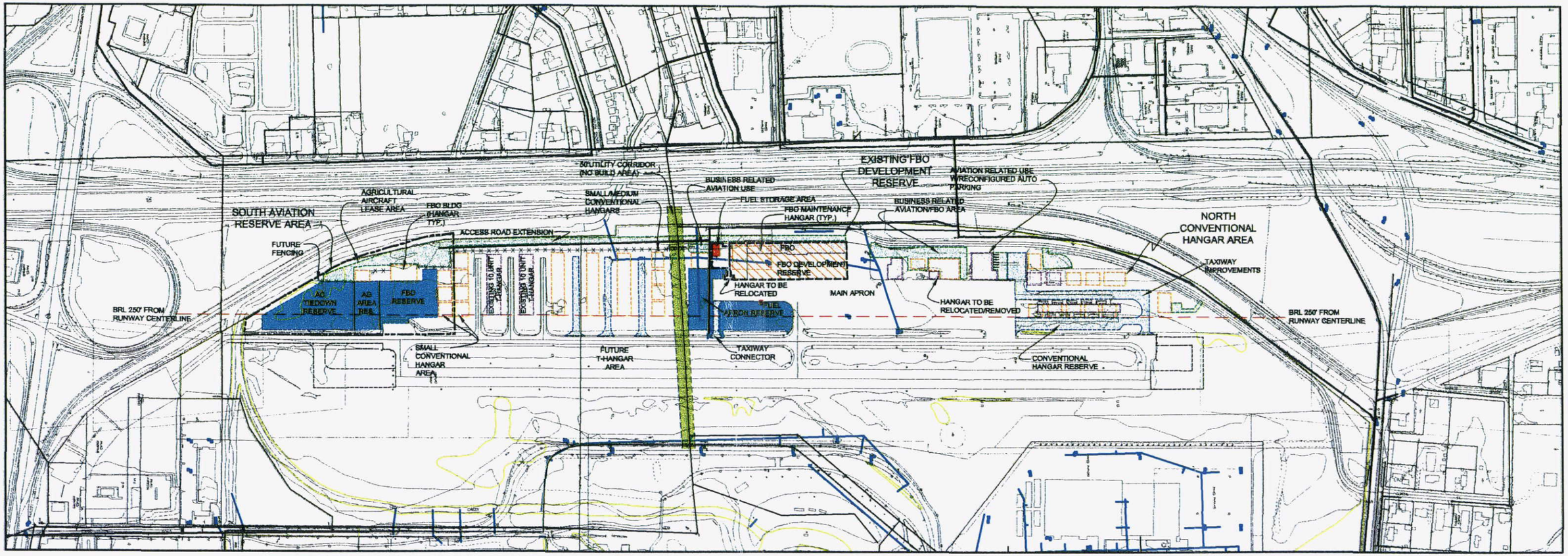
2nd FBO Reserve

The "South Aviation Reserve" is identified beyond the hangar area near south end of the airport. This area is reserved for long-term demand for aircraft parking apron, fixed base operator facilities and agricultural aircraft lease area. It is anticipated that aircraft tiedown apron and FBO development areas located near the main apron will be adequate to accommodate demand through the current planning period. However, the reserves will protect the long-term development needs associated with the facilities. Although no demand is currently indicated for developing a designated agricultural aircraft operations area, concerns over spill containment and other operational issues suggest that future AG operations on the airport should be limited to a designated area with appropriate containment facilities. The reserve includes area to develop a common use loading

area/parking apron and a lease area for equipment storage or hangar development. A 500-foot extension of the airport access road would be needed to reach the development reserve (from the south hangar area).

Expansion into the south development reserve would require further extension of water and sewer lines. It appears that water needs related just to fire protection for aircraft storage could be accommodated with an extension of the existing 12" line 500 feet beyond the south T-hangar. Commercial developments would likely require a water line loop running to the east at Price Road in order to provide adequate pressure and flow rates. The City should evaluate flow requirements and the ability to meet them through the existing system prior to entering the design stage of the infrastructure improvements. Extensions of electrical, sanitary sewer, and telephone service may also be required, depending on user needs. Storm drainage requirements for the area are expected to be similar to the existing T-hangar area to the north.

Wetland areas are identified on City wetland mapping near the southwest corner of the airport. If the south aviation reserve were developed, the exact boundary, type and quality of wetland, and degree of potential impact would need to be evaluated, and if appropriate, may require some level of mitigation.



LEGEND

- AUTO PARKING AREAS
- NEW AIRFIELD PAVEMENT
- ZONING
- WETLANDS
- SEWER
- STORM
- WATER

TRUE NORTH

MAGNETIC (18° – 1990)

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SCALE OF FEET
SCALE: 1"=200'

City of Albany Oregon

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PROJECT NO: 41007002.01.4107.ALT_02

CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

ALTERNATIVE 2

DRAWING NO. 2

SHEET NO. 2

Table 4- 4: Alternative 2 - Key Features
(as originally presented - 10/99)

Item	Development Area	Development Reserve
SOUTH DEVELOPMENT AREA		
Landside Facilities	(3) 10-unit T-hangars (8) Conventional hangars (3,000 sf +- each) 46 additional hangar spaces 1,200 LF access road construction (realign, widen, pave, parking)	6-Acre Development Reserve Aircraft tiedown apron; AG aircraft apron & lease area; FBO reserve; additional conventional hangars; vehicle parking and 500 lf access road extension
Airfield Pavement	3 – 320' X 25' Taxiways	Up to 13,000 square yards apron
Utility Extensions	None (existing water and electrical lines to hangar area; individual connections required); Storm drainage 600 lf extension of existing 15" lateral for hangar rows	500 lf water line extension for hangar use; Water line extension/looping (1,000 lf +-) for commercial activity; 1,300 lf sanitary sewer extensions to south reserve; Electrical and telephone line extensions; Storm drainage for developed areas
Environmental Issues	Storm water control planning required	Storm water control planning required Wetland identified in reserve
NORTH DEVELOPMENT AREA		
Landside Facilities	(5) Conventional hangars (3,000 sf +- each) 10+ additional hangar spaces FBO Facility Expansion/Renovation; Lease area for 2-3 large conventional hangars (10,000 sf +); expanded vehicle parking; non-aviation lease area	Additional FBO reserve or business-related aviation use (5) Conventional hangars (3,000 sf +- each) to replace existing open front T-hangar, when needed.
Airfield Pavement	Main Apron Access Taxiway (150' x 25') Apron Fuel Area Expansion (4,000 sy) North Hangar Apron Reconfig. (800 sy) North Hangar Taxiway (650' x 25')	Apron Reserve (2,800 sy) North Hangar Taxiway #2 (outer) (500'x25')
Utility Extensions	FBO Area: Replace/relocate storm water line - 300 lf North Hangar Area: 700 lf water line connection to existing line, new fire hydrant; 500 lf storm water to existing outfall	None required
Environmental Issues	Storm water control planning required	None Identified

Alternative 3

The basic concept of **Alternative 3** is to consolidate commercial and business-related aviation facilities between the main apron and the south T-hangar area. Aircraft storage hangars would be located south of the existing T-hangars and north of the main apron. The north section of the airport would also accommodate business or commercial tenants, including a limited amount of non-aviation or aviation related users that would not require access to airfield facilities.

Many of the infrastructure improvements identified in Alternative 2 are also required in Alternative 3. In general, it is assumed that T-hangar developments require basic water and electrical service. Conventional hangars often include bathroom facilities, although this often occurs when the cost of connecting to existing service lines is relatively low. Business or commercial users generally require sanitary sewer and telephone in addition to water and electrical. This alternative also requires the relocation of two existing structures (portable hangar on main apron and small conventional hangar north of Quad hangar). **Table 4-5** summarizes the key features of Alternative 3.

North Development Area

As noted in Alternative 2, two major facility improvements were made in the north development area in 2000. These included a new aircraft fuel facility that was constructed adjacent to the main apron and a reconstructed northwest hangar taxiway that connects to the main apron and the north end of the west parallel taxiway. The narrative and graphic description presented below was generated prior to the design and construction of the new facilities. Changes to the original conceptual configuration were made during design. The actual configuration of the facilities is depicted on the Airport Layout Plan (ALP) drawing presented at the end of this chapter.

Original Preliminary Alternative (10/99)

The proposed configuration of terminal area improvements and development reserves in Alternatives 2 and 3 are virtually identical. This is primarily due to the need to preserve a wide range of FBO facility options within the FBO Development Reserve. The development boundary for the terminal area extends from the major utility corridor to the south, to the north end of the FBO building. Minor changes in facility configurations can be accommodated within the development reserve without affecting adjacent development areas. As with Alternative 2, the existing storm water line located in front on the FBO building on the main apron may need to be relocated in order to accommodate changes in building configuration within the FBO reserve.

The area between the "Quad" hangar and the large hangar is available to accommodate aviation-related businesses or other commercial users. As described in Alternative 2, the small conventional hangar located

north of the "Quad" hangar would be relocated in order to accommodate site development, and a portion of this area would not have direct access to the main apron. The area would accommodate a combination of aviation-related facilities (hangars, etc.) and non-aviation or related facilities (office, storage, etc.).

The area north of the large conventional hangar would accommodate several small/medium conventional hangars along the existing row opposite the open door T-hangar. The existing 11-unit open front hangar would be replaced at the end of its useful life by a new T-hangar. In the full build-out configuration, the north hangar area could accommodate four or five additional conventional hangars and one 12-unit T-hangar, increasing net hangar capacity by approximately 11 aircraft. Taxiway improvements include a new/reconstructed 650-foot taxiway between the two hangar rows, connecting to the parallel taxiway and the main apron. A second (outer) taxilane would be added when the development reserve was utilized.

This alternative includes a small non-aviation or aviation-related development area at the north end of the airport, adjacent to the airport access road (behind the row of conventional hangars). This area provides approximately 14,000 square feet of developable space for users not requiring airfield access. The site has water, sewer, and electrical service lines located nearby. The existing paved vehicle parking area for the large hangar would also support this area.

The improvements in water service and storm water drainage described in Alternative 2 would be similar for this alternative. The development of aviation-related or non-aviation uses immediately west of the north hangar area, may also require a 200- to 300-foot extension of sanitary sewer and a separate water connection. City staff has indicated that the shallow depth of the sanitary sewer line that ends near the large historic hangar may not provide adequate gravity flow to permit further extension north. This potential design limitation may hinder the development of facilities requiring full utility service, although other options such as installing a small pump unit may be possible if a simple gravity feed line will not work.

South Development Area

As noted in the Alternative 2 description, two south hangar taxiways and two T-hangars were constructed in 2000. The narrative and graphic description provided below was generated prior to the design and construction of the new facilities. Changes to the original conceptual configuration were made during design. The actual configuration of the new taxiways and hangar appear on the Airport Layout Plan (ALP) drawing presented at the end of this chapter.

Original Preliminary Alternative (10/99)

2nd FBO Reserve

The area immediately south of the utility corridor includes an FBO development reserve, with aircraft parking apron (7,300 SY), aircraft fueling, and lease areas for large conventional hangars associated with FBO or business-related aviation users. The area provides more than 40,000 square feet of developable area west of the apron for hangars or other related structures. The area can also accommodate two north-facing small/medium conventional hangars at the south end of the apron. The FBO reserve located south of the utility corridor would require upgraded water service and extension of sanitary sewer, in addition to telephone and electrical service. Development of the area will require normal site preparation and expansion of storm drain coverage. Although there is no current indication of demand to develop a second FBO or additional apron area, the reserve provides a clearly designated area for future FBO needs.

Hangar Area and Other Improvements

Additional storage hangar sites are located south of the existing hangar taxiways. Two additional taxiway stubs would be added south of the existing taxiways. As currently configured, the area would accommodate one additional 10-unit T-hangar, an 8-unit T-hangar, and two rows of small/medium conventional hangars (3 or 4 hangars per row, approximately 50' x 60' each). This configuration can accommodate approximately 32 additional light aircraft, which exceeds current projections for growth in based aircraft during the twenty-year planning period. However, as noted in Alternative 2, demand for hangar space can exceed expectations and create development pressures when not considered in long-term planning. This alternative provides the flexibility needed to respond to demand for a variety of hangar types through the planning period, or until the landside portions of the airport are fully developed, whichever occurs first.

With new aircraft hangars located south of the existing two T-hangars, a 200-foot extension of the existing 12" water line would be required to provide basic fire protection to the new hangar rows. It is anticipated that up to 600 linear feet of 15" storm line would be needed, in addition to individual connector lines, catch basins, and manholes for the hangar rows and taxiways.

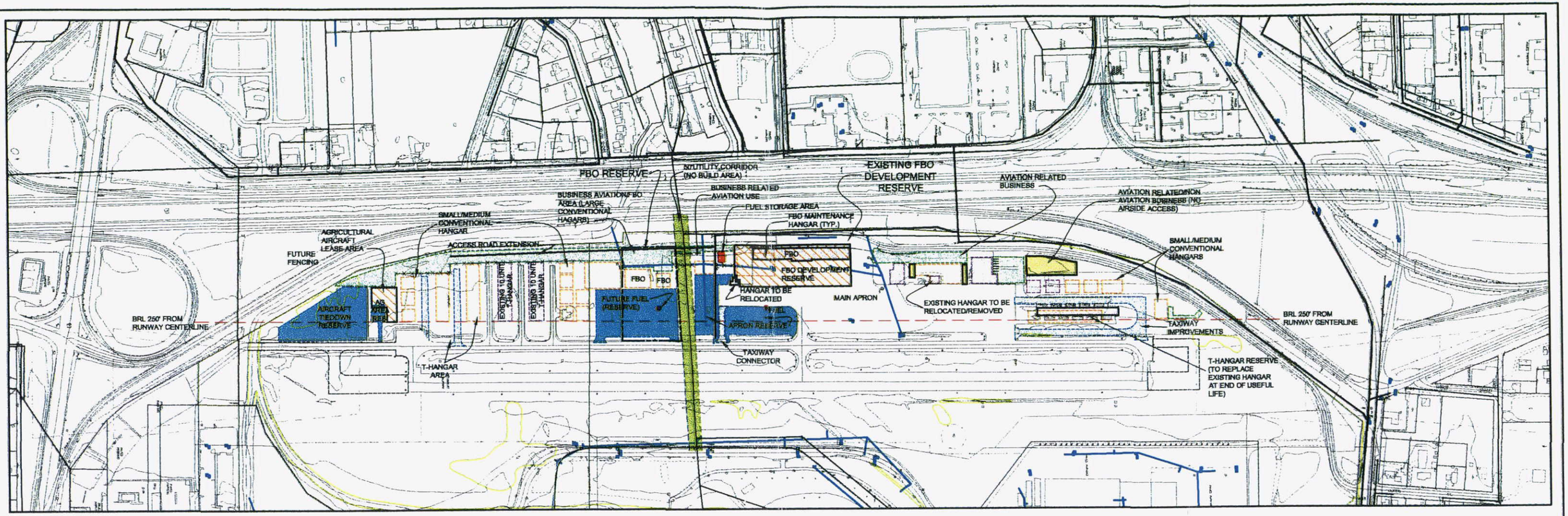
South Development Reserve

An aircraft tiedown apron reserve and an agricultural aircraft reserve are located at the southern end of the airport. These facilities would connect to the existing taxiway extension, near the south end of the runway. The airport access road would need to be extended to the south end of the airport to serve these hangar sites.

Expansion into the south development reserve would require the extension of water and electrical lines. It is assumed that adequate water service can be achieved (for aircraft storage hangars) by extending the existing 12" line serving the south T-hangar development. The City should evaluate flow requirements and the ability

to meet them through the existing system prior to entering the design stage of any infrastructure improvements. The development of new apron areas at the south end of the airport may require a separate storm water system and outfall, rather than connecting to the system serving the existing t-hangar area to the north. It is assumed that extending sanitary sewer to the south development reserve would not be justified based on typical user needs and the cost of extending the line.

Wetland areas are identified on City wetland mapping near the southwest corner of the airport. If the south aviation reserve is developed, the exact boundary, type and quality of wetland, and degree of potential impact would need to be evaluated, and if appropriate, may require some level of mitigation.



LEGEND

- AUTO PARKING AREAS
- NEW AIRFIELD PAVEMENT
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- WETLANDS
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- STORM
- WATER

TRUE NORTH

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CITY OF ALBANY
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DATE: 01/05/2000

PROJECT NO: 41007002.01.4107.ALT_03

CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

ALTERNATIVE 3

DRAWING NO. 3

SHEET NO. 3

Table 4- 5: Alternative 3 - Key Features
(as originally presented - 10/99)

Item	Development Area	Development Reserve
SOUTH DEVELOPMENT AREA		
Landside Facilities	(2) 10-unit T-hangars; (7) Conventional hangars (3,000 sf +- each) 34 additional hangar spaces 1,400 LF access road construction (realign, widen, pave, parking)	Two Development Reserves Aircraft tiedown apron; AG area; FBO lease area, apron reserve; conventional hangar lease areas; vehicle parking and 300 lf access road extension (to south reserve)
Airfield Pavement	2 – 320' X 25' Taxiways	Up to 13,000 square yards apron FBO and South development reserves
Utility Extensions	200 lf water line extension (to reach south hangar rows); 600 lf storm water line for hangars/taxiways; Electrical line extensions	500 LF Sanitary sewer extension to FBO Area; 500 LF Water Line Upgrade; Storm drainage for FBO and South development reserves
Environmental Issues	Storm water control planning required	Storm water control planning required Wetland identified in aircraft tiedown reserve
NORTH DEVELOPMENT AREA		
Landside Facilities	(4) Conventional hangars (3,000 sf +- each; 8+ additional hangar spaces) FBO Facility Expansion/Renovation Lease area for large conventional hangars, office space; expanded vehicle parking	(1) 12-unit T-hangar to replace existing open front T-hangar
Airfield Pavement	Main Apron Access Taxiway (150' x 25') and Apron Fuel Area Expansion (4,000 sy) North Hangar Taxiway (650' x 25')	Main Apron Reserve (2,800 sy) North Hangar Taxiway #2 (outer) (500'x25')
Utility Extensions	FBO Area: Replace/relocate storm water line – 300 lf North Hangar Area: 700 lf water line connection to existing line, new fire hydrant; 500 lf storm water to existing outfall; 300 lf sanitary sewer to non-aviation lease area	None required
Environmental Issues	Storm water control planning required	None Identified

PRELIMINARY ALTERNATIVES SUMMARY

As noted earlier, several individual items included in the preliminary alternative concepts were constructed in 2000. The development of these improvements is consistent with the conceptual nature of the facility layouts. Changes in the configuration of new facilities (as constructed) and future facilities are depicted on the Airport Layout Plan (ALP) drawing provided in Chapter Seven (Page 7-5).

Original Preliminary Alternatives Summary (10/99)

The primary features and development costs for the west side alternatives are presented below in **Table 4-6**. Although there is some difference in the cost of individual components, cost advantages alone do not appear to present a clear indication of preference. Therefore, the evaluation of the alternatives should focus on function, ease of implementation and overall effectiveness in accommodating demand for future aviation facilities. Selecting a preferred development concept and adding any necessary refinements is the next step in defining the preferred alternative for the airport. Once a preferred alternative concept is selected, a detailed capital improvement program will be prepared and the future facility improvements will be incorporated into the airport layout plan drawing.

Table 4- 6: West Airport Alternatives Summary
(as originally presented - 10/99)

Item	Alternative 2		Alternative 3	
T-Hangar Spaces Conventional Hangar	30 Aircraft 16 Aircraft 46 Aircraft		20 Aircraft 14 Aircraft 34 Aircraft	
Aircraft Apron (new)	4,000 SY		4,000 SY	
Apron Reserve	15,600 SY		16,000 SY	
Large Hangar Lease Area (not including FBO building reserve)	46,000 SF		76,000 SF	
Non-Aviation Lease Area	4,000 SF		18,000 SF	
Primary Development Items				
Taxiway Pavement (new)	4500 SY @ $24	$108,000	3800 SY @ $24	$91,000
Apron Pavement (new)	4300 SY @ $24	$103,000	4000 SY @ $24	$96,000
Reconstruct/Resurface Airport Access Road (2,250' x 20')	2,650 LF @ $14	$48,000	2,650 LF @ $14	$48,000
New Road Improvements	1200 LF @ $45	$54,000	1400 LF @ $45	$63,000
Water Extension	700 LF @ $65	$59,000	900 LF @ $65	$76,000
Storm Water	1400 LF @ 65	$118,000	1400 LF @ 65	$118,000
Sanitary Sewer Extension	0 LF @ $78	$0	300 LF @ $78	$30,000
Subtotal Prime Items		**$490,000**		**$522,000**

Note: costs include a 30% engineering and contingency factor. Figures rounded to nearest thousand.

PREFERRED AIRPORT DEVELOPMENT ALTERNATIVE

The components of the preferred alternative (described below) provided the planning direction needed for the city to move into the design and construction phases of specific facility improvements. Changes in facility configurations that occurred between definition of the preferred alternative and the actual design and construction of facilities are depicted on the ALP. This reflects the refinement of planning concepts that normally occurs as facilities are developed. This process will continue as other master plan-recommended facility improvements are made. Although some details of individual facilities have been refined, the overall development concept described below continues to provide a clear direction for future airport improvements.

Preferred Alternative Summary (2/00)

Three preliminary development alternatives were presented in the draft working paper to address airport facility needs through the twenty-year planning period. Input on the preliminary alternatives has been received from a variety of sources including city staff, the Airport Master Planning Advisory Committee, the Federal Aviation Administration (FAA), Oregon Aeronautics, airport users and the general public. A public workshop and advisory committee meeting were held on February 24, 2000 to discuss the preliminary alternatives. Based on those discussions and the comments provided to date, the planning advisory committee, consultant, and staff were successful in identifying the components of the preferred alternative.

In general, a preference was given to the development concept depicted in Alternative 2. This option locates aircraft storage hangars in the area south of the main apron, and locates aviation-related businesses both at the north and south ends of the airport's west side. Some refinements in specific facility configurations were recommended. Also, the components of Alternative 1 were included in the preferred alternative with some modifications.

Original Preferred Alternative Components (2/00)

The primary elements are described below and are depicted on the airport layout plan drawing:

Runway Extension Options – Runway extension reserves (same lengths as identified in Alternative 1) will be depicted on the ALP to preserve the option of extending the runway, should conditions warrant. Depicting the reserves is consistent with the last two updates of the ALP, which also depicted reserves for runway extensions. Runway extension projects will not be included in the 20-year capital improvement program for the airport and the existing runway protection zones and FAR Part 77 approach surfaces will reflect the current runway configuration.

East Side Aviation Facilities – *The initial east side development constructed in 2000 included a small aircraft parking apron (9 tiedowns) and a partial length (475-foot) parallel taxiway. These existing facilities and modified east-side development reserves are depicted on the ALP.*

The apron will be developed in phases, which would provide approximately the same number of tiedowns as originally depicted in Alternative 1. The existing segmented circle will not be relocated until the second phase of apron construction (to the location depicted in Alternative 1). Due to concerns about aircraft runway crossings, city staff preferred an east side parallel taxiway with a single connection at the end of Runway 16. The parallel taxiway would connect with the parking apron at its north end. No vehicle parking will be provided adjacent to the parking apron. The remaining portion of the triangle abutting the Fair & Expo Center would be designated as an airport-related lease area.

During the review of preliminary alternatives, individual advisory committee members and the general public expressed interest in considering development of the southeast corner of the airport. This portion of the airport (west of Price Road) was incorporated into the adjacent city park since the last airport master plan was completed. As a result, city staff originally directed the consultant not to include this area in the preliminary development alternatives for the airport. Following a discussion of the issue, the planning advisory committee requested that city engineering and parks staff investigate the option for making this area available for airport use. Upon further review, the City Council has indicated that this area is to be held in reserve for the airport. The City Parks Department will continue to use the area as overflow parking until a developer expresses interest. The area will be depicted on the ALP as business related aviation use.

South Hangar Area – *Two hangar taxiways and two T-hangars (22 spaces) were constructed in 2000, as originally depicted in the Alternative 2. These improvements are depicted on the ALP as existing facilities.*

The development of hangar rows from Alternative 2 is modified slightly to allow two additional T-hangars at each end of the development; additional stub taxiways are added for each hangar row (five new stub taxiways, five two-side hangar rows, one one-side hangar row, when fully developed). The southern-most row of small conventional hangars will be shifted slightly south to accommodate an additional taxiway stub. The reconfigured area would provide capacity for approximately 56 additional aircraft. Vehicle parking areas would be added along the access road. City staff requested that future security fencing be located on the west side of the access road, rather than along the back of the hangars. A single security gate would be located just south of the FBO building to control access to the southern portion of the airport.

South Airport Development Reserve – The reserve is slightly reduced in size to accommodate the reconfigured hangar area. The reserve would be available to accommodate a variety of aviation-related uses including aircraft parking and an FBO area. No utility extensions to the south reserve are planned during the current twenty-year planning period. Agricultural related uses could be established in this area if the operation is approved by the City Council and a study is conducted and the area is designed in such a way to meet separation standards and design requirements.

FBO Development Reserve – The FBO development reserve depicted in Alternative 2 will be incorporated into the preferred alternative. The area located between the main apron and utility corridor will be available for aviation-related users. The new fuel storage system will be located at the outer edge of the main apron, which will allow the area immediately south of the FBO building to accommodate other aviation-related uses. Apron reserves are located along the eastern and southern sides of the main apron, adjacent to the FBO area.

North Hangar Area – *A new taxiway serving the northwest hangar area was constructed in 2000. The taxiway extends from the north end of the main apron between the shade hangar and the row of conventional hangars, before turning east and connecting to the west parallel taxiway.*

The facility configuration from Alternative 3 was preferred for this area. The existing T-hangar area will be reserved for that use when the current building reaches the end of its useful life. Taxiway improvements will also be required to serve the hangars. The remaining area will accommodate a combination of small/medium conventional hangars and aviation-related uses. The area located between the Quad hangar and the large historic hangar is identified for aviation-related business use, including a second FBO site.

PREFERRED ALTERNATIVES SUMMARY (2/00)

The preferred development alternative is capable of accommodating all forecast demand during the twenty-year planning period. Through the initiative of the City of Albany, some elements of the preferred alternative have already been constructed. These incremental improvements are the first step toward full implementation of the preferred alternative. The recommended facility configuration presented in the master plan update should be used as a guide to plan and develop facilities in a manner that compliments the overall capabilities of the airport. The flexibility of this plan provides the City of Albany with the tools necessary to allow the airport to be effectively managed through the current planning period and beyond.

ALBANY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN REPORT
2000-2020

CHAPTER FIVE
Land Use And Noise Compatibility

CHAPTER FIVE

Land Use and Noise Compatibility

SUMMARY

As part of the master plan update for Albany Municipal Airport, updated noise contours were generated based on current and twenty-year forecast activity, as described in Chapter Two. As noted in the forecast analyses, the updated projections of air traffic at the airport are considerably lower than the 1979 airport master plan forecast. As a result, the updated noise contours are considerably smaller than previously depicted and the level of noise exposure is lower than previously projected.

Upon review of the updated contours, no residences were identified within the current or forecast 65, 70 or 75 DNL noise contours for the airport. These contours are contained entirely within airport property, or extend slightly over the adjacent fairgrounds, park and freeway interchanges. Both the current and 20-year 60 DNL contours extend north of the airport over mixed use (residential, commercial, etc.) development, and along the east and west sides the airport. The current and 20-year 55 DNL contours extend both north and south of the airport, over areas of residential, commercial and light industrial developments located east of I-5. It is noted that the airport, the runway, and the primary aircraft arrival and departure flight tracks are located within close proximity of the I-5 corridor, which is a significant source of noise. The majority of residential areas located within the airport's 55 DNL noise contours are also located within several hundred feet of the I-5 corridor and noise footprint.

As noted in **Table 5-1**, all land uses are considered to be compatible (by federal standards) with noise levels below 65 DNL. Based on these established land use compatibility guidelines, the existing and projected twenty-year aircraft noise levels generated at Albany Municipal Airport do not create significant noise impacts on areas surrounding the airport. However, based on Oregon Department of Environmental Quality airport noise and land use planning guidelines local land use jurisdictions should discourage development of

incompatible or noise-sensitive land uses within the within the 55 DNL and higher noise contours.[13] The 55 DNL contours define the "Airport Noise Impact Boundary" for use on local land use planning activities.

At most general aviation airports, noise complaints from nearby neighbors are often associated with single events such as low flying aircraft, repetitive training activity, or the occasional operation of a particularly loud aircraft. Every airport and community can benefit from voluntary noise abatement measures where pilots "fly friendly" by avoiding direct overflights of known noise-sensitive areas, maintaining a standard traffic pattern configuration and altitude, and making departure turns at or above an established altitude, such as 500 feet. It is recognized that on occasion a pilot may deviate from these procedures in order to maintain safe flight, but if followed most of the time, the perceived impacts within adjacent neighborhoods can be reduced.

Since the noise contours tend to closely follow the primary arrival and departure flight tracks for the runway, controlling close-in development can also help to protect approach surfaces and runway protection zones located at each end of the runway. As noted in the earlier land use evaluation, development of an airport overlay zone, which coincides with the FAR Part 77 airspace surfaces, is required per current state land use planning guidelines, adopted in February 1999.[14] As both the airport sponsor and primary land use authority, the City of Albany is responsible for coordinating the development and adoption of an airport overlay zone with adjacent land use jurisdictions.

INTRODUCTION

Noise is most often defined as 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 developed to relate sound to the sensitivity of the human ear. The A-weighted decibel scale (dBA) is calibrated to the faintest sound audible to the average young human ear. The human ear often judges an increase of 10 decibels as a doubling of sound.

The difficulty 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, research has shown that individual responses to noise are difficult to predict. Some people are annoyed by each perceivable noise event, while others show little concern over the most disruptive of events. However, predicting the responses of groups of people is possible. As a result, community response, not individual response, has emerged as the prime index of aircraft noise measurement.

[12] Oregon Administrative Rules Chapter 660, Division

[13] Oregon Land Conservation and Development Department

DNL METHODOLOGY

A methodology has been devised to relate measurable sound from a variety of sources to community response. Termed "Day-Night Average Sound Level" (DNL), this metric has been adopted by the U.S. Environmental Protection Agency, Department of Housing and Urban Development, Oregon Department of Environmental Quality (DEQ), and the Federal Aviation Administration to use in evaluating noise impacts.

The basic unit in the computation of DNL is the sound exposure level (SEL). A SEL is computed by adding the dBA level for each second of a noise event above a certain threshold. For example, a noise monitor located in a residential area with a background noise level of 45 dBA receives the sound impulses of an approaching aircraft and records the dBA reading for each second of the event as the aircraft approaches and departs the site. Each of these one-second readings is then added logarithmically to compute the SEL. Because of the logarithmic calculation, noise levels below 10 dBA of the maximum level are significant in terms of DNL value. A comparison between individual aircraft takeoff noise levels and common noise levels is presented in **Figure 5-0**.

The computation of an airport DNL involves the addition, weighting, and averaging of each SEL to achieve a DNL level at particular location. The SEL of each noise event occurring between the hours of 10:00 p.m. and 7:00 a.m. is automatically weighted by adding 10 dBA to the SEL to account for the assumed additional irritation perceived during that period. At Albany, activity distribution is estimated to be 95 percent daytime and 5 percent nighttime. Estimates of runway use, percentage of touch-and-go operations, and aircraft fleet mix are then factored into the model. All SELs are then averaged over a given time period (day, week, year) to achieve a level characteristic of the total noise environment.

Stated simply, a DNL is approximately equal to the average dBA level during an entire time period, with 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 both an area with very few high-noise events and an area with many low-level events.

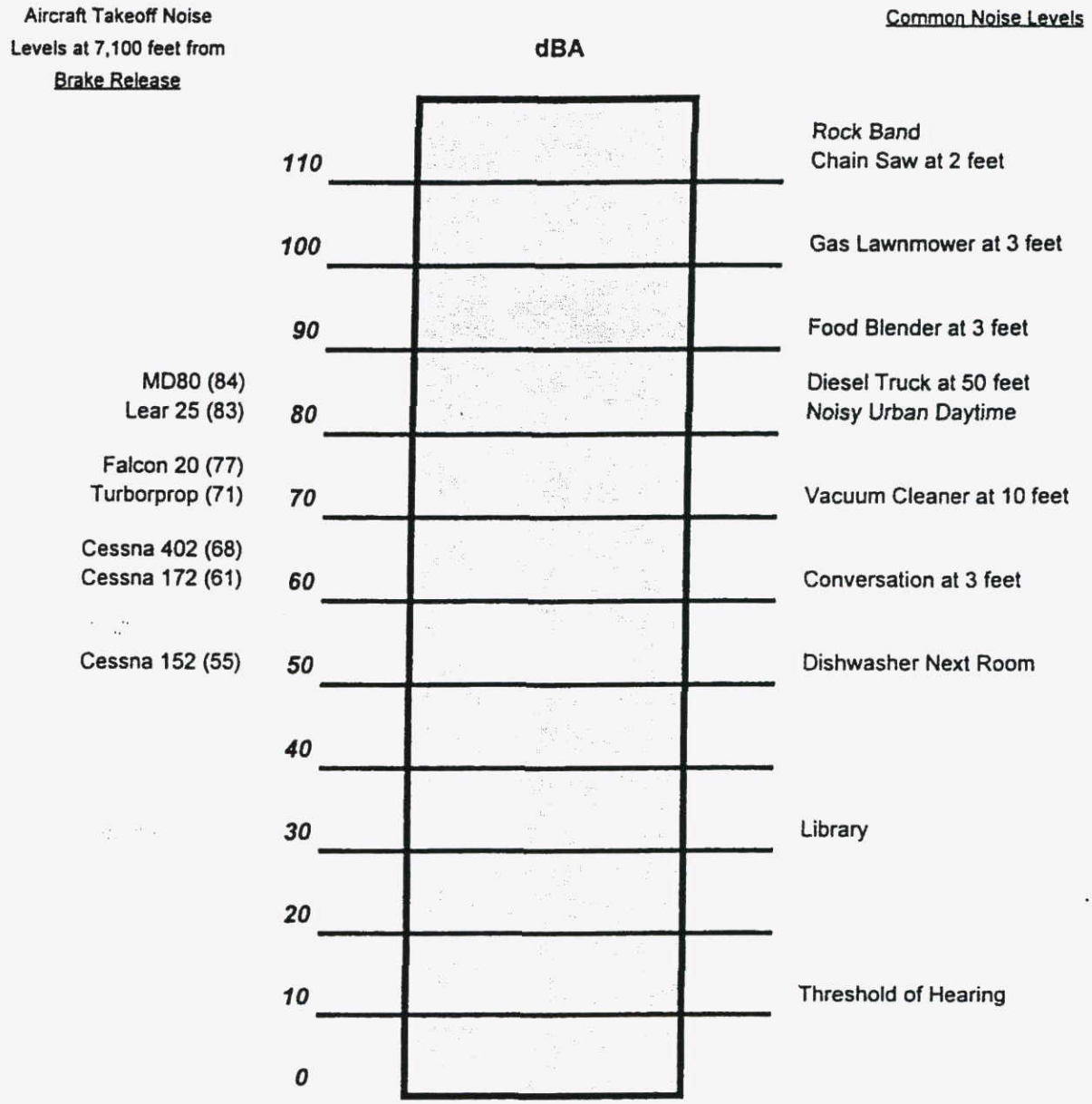


Figure 5-0
Typical Noise Levels on dBA Scale

NOISE CONTOURS

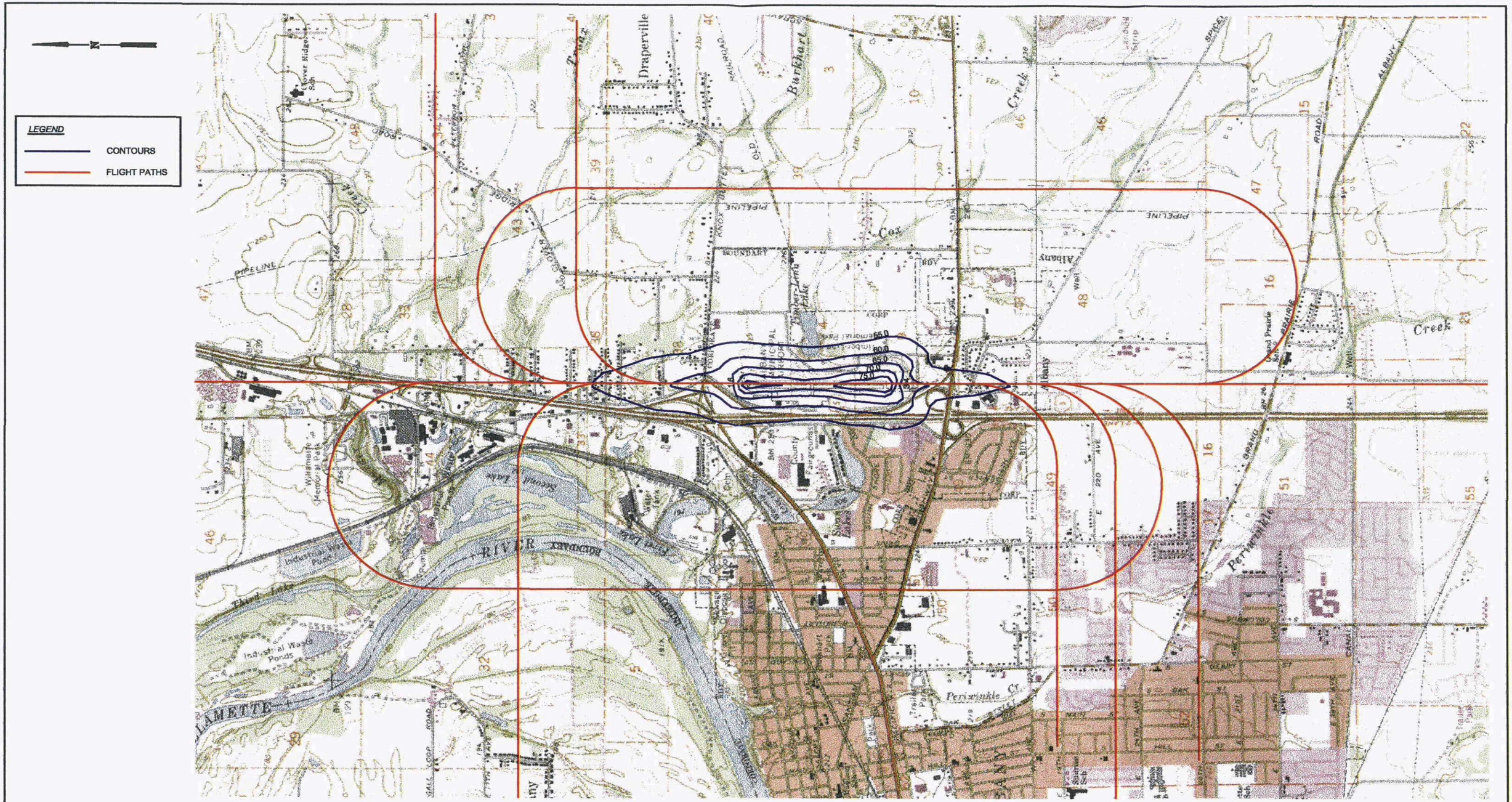
Aircraft noise contours were generated using the FAA's Integrated Noise Model (INM) (Version 5.3). The noise contours depicted begin at 55 DNL, and in 5 DNL increments, increasing to 75 DNL. Noise impacts on adjacent land uses are discussed in the "Compatible Land Use" section of this chapter. As described below, the existing and twenty-year 65, 70, and 75 DNL contours do not extend over any noise-sensitive land uses and therefore do not create significant impacts on the surrounding community. As indicated in **Table 5-1**, all land uses, including residential are considered to be compatible with noise levels below 65 DNL. The noise contours are depicted on **Figure 5-2** (2000) and **Figure 5-3** (2020).

A review of the noise contours generated in the 1979 Airport Master Plan reveals a significant difference in noise exposure at the airport. The 1979 master plan forecast for year 2000 is nearly seven times greater than current activity levels. This results in significantly larger noise contours than are now depicted the updated contours. As noted in earlier land use evaluations, local planning jurisdictions have been using the 1979-generated noise contours as a primary guide in evaluating noise and land compatibility issues. The earlier contours are obsolete and should be replaced with the updated versions for use in local land use planning.

Aircraft flight tracks for Albany Municipal Airport are also depicted on **Figures 5-2 and 5-3**. These tracks represent the most common arrival, departure and touch & go paths for aircraft operating at the airport. The location of these tracks were determined by direct observation, with additional information provided by local aircraft operators. While some aircraft may deviate from these tracks, most of the aircraft use these paths in and out of the immediate airport area.

2000 NOISE CONTOURS

The 65 DNL contour is contained almost entirely within airport property boundaries, with only a small portion extending beyond the eastern boundary of the airport, about 250 to 450 feet from runway centerline (over the Fair & Expo Center and Timber-Linn Memorial Park). The land located at the southeast corner of the airport (west of Price Road) is currently designated as part of the adjacent park; the 65 and 70 DNL contours extend over this area. Most outdoor recreational uses are compatible with these noise levels, although sound reinforcement is recommended for some activities. The 70 DNL contour is contained entirely within airport property boundaries, extending 200 to 300 feet beyond the runway ends, and outward about 100 to 300 feet to the sides of the runway. The 75 DNL contours are 800 to 1,200 feet long, each located at the runway ends, entirely within airport property boundaries. The discontinuous shapes of the 75 DNL contours on Runway 16-34 illustrate the highest concentration of noise at the runway ends where aircraft generally begin their takeoff roles with application of takeoff power.



NOTE: NOISE ANALYSES CONDUCTED BY ARON FAEGRE AND ASSOCIATES, PORTLAND, OREGON. THE NOISE CONTOURS WERE GENERATED USING THE FAA INTEGRATED NOISE MODEL (INM) VERSION 5.2 BASED ON THE UPDATED FORECASTS OF AIRCRAFT ACTIVITY CONTAINED IN THE 1999-2000 AIRPORT MASTER PLAN UPDATE (CENTURY WEST ENGINEERING)

PLAN VIEW—NOISE CONTOURS (1 / X–X)
SCALE: 1"= 1000'

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

NO.	DATE	BY	APPR.	REVISIONS

CENTURY WEST
ENGINEERING CORPORATION
825 NE Multnomah Suite 425
Portland, Oregon 97232
503-231-6078 phone * 503-231-6482 fax

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SCALE:
DM	JLM		1"=1000'

DATE: 12/3/99
PROJECT No: 41007002.01.7b

CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

AIRPORT MASTER PLAN UPDATE
2000 NOISE CONTOURS

FIGURE NO.
5—1

The 60 DNL contour extends approximately 700 north of Knox Butte Road (just south of Dunlap Avenue) and toward the southern airport property line. A small area of mixed-use development is located north of the airport, between Knox Butte Road and Dunlap Avenue, east of Century Drive. This area appears to have three or four structures located within the current 60 DNL contour, although it is not known whether any of these are in residential use. The 60 DNL contour also extends off airport property to the east (over the Fair & Expo Center and Timber-Linn Memorial Park) and along the western edge of the airport, approximately 400 to 600 feet from the runway centerline.

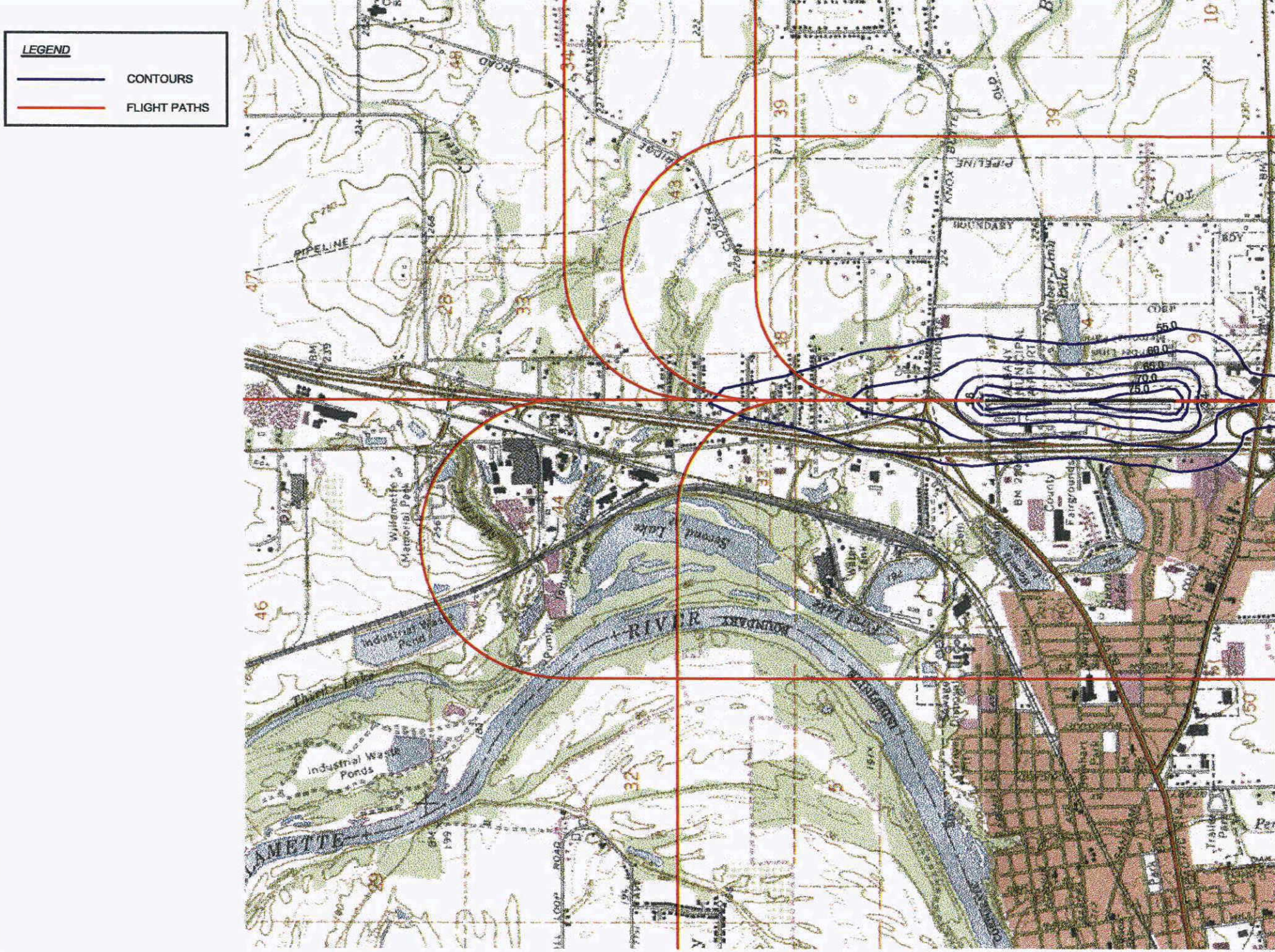
The 55 DNL contour for extends approximately 2,400 feet beyond the northern airport property line (to Eleanor Avenue) and 1,700 feet beyond the south property line (to Spicer Drive SE and Circle Drive SE), just north and east of Home Depot and the abandoned T&R restaurant. Existing uses located within the 55 DNL contour include a limited amount of low-to-moderate density residential, including a mobile home park; two RV parks, commercial, light industrial, and major highway/roadway corridors north and south of the airport. The 55 DNL contour extends outward approximately 800 to 1,000 feet to the east and west (over the Fair & Expo Center, Timber-Linn Memorial Park and across I-5) of Runway 16-34. The existing motels located on Price Road near Highway 20 are partially located within the 55 DNL contour. The new motel sites located off Knox Butte Road, immediately northeast of the airport are located entirely within the 55 DNL contour and a portion appears to be located within the 60 DNL contour.

2020 NOISE CONTOURS

The general shape of the 2020 noise contours does not change from the current contours. The overall size of the contours grows as the result of increased traffic levels. However, as with the current noise levels, the 2020 noise contours do not create any significant compatibility issues with any existing adjacent land uses.

The 65 DNL contour is contained almost entirely within airport property boundaries, with only a small portion extending beyond the eastern boundary of the airport, about 300 to 500 feet from runway centerline (over the Fair & Expo Center and Timber-Linn Memorial Park). The 70 DNL contour is contained almost entirely within airport property boundaries, just reaching Price Road at its nearest point near the southern one-third of the runway. The 70 DNL extends approximately 200 to 300 feet beyond the runway ends, and outward about 100 to 250 feet to the sides of the runway. The park area located adjacent to the southeast corner of the airport (west of Price Road) has 65 and 70 DNL contours extending over the area. The 75 DNL contours are 1,100 to 1,500 feet long, each located at the runway ends, entirely within airport property boundaries.

The 60 DNL contour extends approximately 1,300 north of Knox Butte Road (just north of Dunlap Avenue) and slightly north of Highway 20. The 60 DNL contour also extends off airport property to the east and west, approximately 600 to 800 feet from the runway centerline.



NOTE: NOISE ANALYSES CONDUCTED BY ARON FAEGRE AND ASSOCIATES, PORTLAND, OREGON. THE NOISE CONTOURS WERE GENERATED USING THE FAA INTEGRATED NOISE MODEL (INM) VERSION 5.2 BASED ON THE UPDATED FORECASTS OF AIRCRAFT ACTIVITY CONTAINED IN THE 1999-2000 AIRPORT MASTER PLAN UPDATE (CENTURY WEST ENGINEERING)

PLAN VIEW–NOISE CONTOURS 1/X–X

SCALE: 1"= 1000'

The 55 DNL contour extends approximately 3,500 feet beyond the northern airport property line (near Dian Avenue) and 2,200 feet beyond the south property line, beyond the Home Depot and the abandoned T&R restaurant. The 55 DNL contour extends outward approximately 900 to 1,100 feet east and west of Runway 16-34. The larger twenty-year 55 DNL contour encompass more residential development north and south of the airport.

COMPATIBLE LAND USE

The compatibility of existing and planned uses in the vicinity of an airport is generally associated with the level of noise and safety impacts related to the airport. Compatibility or incompatibility of land use is determined by comparing the DNL noise contour with existing and potential land uses. The FAA has developed guidelines for land-use compatibility based on noise levels and the nature of the land use being impacted. Commercial, industrial, and most public uses are considered compatible with airport operations, as long as they are consistent with performance standards of Federal Aviation Regulation (FAR) **Part 77** relative to height and safety. Residential use is compatible in areas below the 65 DNL noise contour. **Table 5-1** summarizes the federal land-use compatibility guidelines.

The airport is surrounded primarily by public use, industrial and commercial zoning, with some residential zoning located to the north and south. Based on current and twenty-year projections of aircraft activity, none of the existing land uses surrounding the airport are considered to be incompatible with the airport operations.

In addition to federal guidelines, the State of Oregon DEQ has corresponding guidelines for noise compatibility and requires that an "Airport Noise Impact Boundary" be included in Airport Master Plans, with contours depicted down to 55 DNL. While 55 DNL establishes the parameters of the study area, federal guidelines provide that noise-sensitive land uses located in areas with impacts below 65 DNL are considered compatible with aviation activity. Like the FAA, DEQ recommends mitigation measures for noise-sensitive land uses lying in areas with impacts exceeding 65 DNL. No such land uses exist presently or are projected to exist within the 65 DNL contour at Albany during the twenty-year planning period.

Table 5-1: Land Use Compatibility With Day-Night Average Sound Levels

Land Use	Yearly Day-Night Average Sound Level (DNL) In Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 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
Governmental 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	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

Table 5-1 (Continued)

Land Use	Below 65	65-70	70-75	75-80	80-85	Over 85
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
Amusements, 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; measures to achieve NLR or 25, 30, or 35 dB must be incorporated into design and construction of the structure.

NOTES:

1. Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor Noise Levels Reduction (NLR) of at least 25dB and 30dB 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.
2. 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.
3. 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.
4. 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.
5. Land-use compatible, provided special sound reinforcement systems are installed.
6. Residential buildings require an NLR of 25.
7. Residential buildings require an NLR of 30.
8. Residential buildings not permitted.

SOURCE: Federal Aviation Regulations, Part 150, Airport Noise Compatibility Planning, dated January 18, 1985.

OFF-AIRPORT LAND USE, JURISDICTION AND ZONING; PROJECTED DEVELOPMENT

The following summary of land uses surrounding Albany Municipal Airport was prepared by Gazeley & Associates, in conjunction with Century West Engineering.

OFF-AIRPORT LAND USE PATTERNS IN VICINITY

While the airport property is within the City of Albany City limits and Urban Growth Boundary (UGB), the lands surrounding the airfield fall under four different jurisdictions, including the City of Albany, the City of Millersburg, Linn County, and Benton County. This results in a wide range of existing and allowable uses in very close proximity to the airport. This chapter provides an inventory of existing land uses and planning designations in the vicinity of the subject airfield. These land uses will be reviewed for compatibility with the Albany Municipal Airport in conjunction with a review of updated airport airspace mapping, when those are completed later in this project.

Table 5-2 illustrates the land use patterns abutting the airport, and also describes those which are located farther out, but which are within the runway's existing Approach and Conical Surfaces (within about 10,000 feet of the runway). Please note, use patterns are typically listed according to proximity to the airport - uses nearest the airport property, generally appear first.

Table 5-2: Off Airport Land Use Patterns in Vicinity

Direction	Land Use Patterns	Jurisdiction
North	Knox Butte Road	
	Vacant Commercial (Gas Station), Services	City of Albany
	Commercial	
	Single-Family Residential (SFR), RV Park	
	SFR, Agriculture	Linn County
Northeast	SFR, RV Park	City of Albany and Linn County
	Motel	
	Limited Industrial, Commercial, Residential	
East	Park-access road (Dogwood Avenue)	
	Public (Fairgrounds, City Park)	City of Albany
	RV Park, Limited Industrial, Commercial	City of Albany and Linn County
	SFR, Agriculture	Linn County
Southeast	Commercial (RV / Auto Sales)	City of Albany

	Various Commercial / Retail Limited Industrial and SFR	City of Albany and Linn County
South	Commercial (Motels, Restaurant) Highway 20 Public (State Police), SFR 4-Story Hotel Commercial (Home Depot) SFR, Limited Industrial Agriculture, Limited Industrial	City of Albany City of Albany, Linn County City of Albany Linn County
Southwest	I-5 Freeway Interchange SFR **Public (Several Schools) Commercial (Freeway Interchange and "spot zones") SFR and Trailer Park	City of Albany
West	Interstate 5 SFR, **Public (Schools, Parks, Open Space) Limited Industrial, Commercial (Bowling, Cellular One, Dep't Stores), Freeway Interchange Commercial (Restaurants, Gas) Various Commercial, Industrial, SFR	City of Albany
Northwest	I-5 Freeway Interchange SFR and Trailer Park Industrial and Commercial (RV Repair, U-Haul, etc.) Riparian Floodplain / Open Space/Agriculture	City of Millersburg Benton County

NOTES:

1. The Northwesterly boundary of the Conical Surface also borders, or may just intercept, the eastern-most portion of the "North Albany" residential neighborhood. This will be further reviewed when updated airspace imaginary surfaces are defined during the master plan update.

**2. The preponderance of public schools, ranging from Elementary to Junior and Senior High Schools, which lie below the southwest sector of the runway's imaginary surfaces, stands out as the one of the most notable considerations with respect to land uses currently existing in the airport's vicinity. As many as six (6), and possibly more, public schools are located within this portion of the Conical and Approach Surfaces.

EXISTING LAND USE REGULATIONS, BOUNDARIES, ORDINANCES SUMMARY

Albany Municipal Airport is located in the City of Albany's Limited Industrial (LI) Zone. Airports are a Conditional Use in the LI Zone. Zoning in which aviation-related development and activities are "permitted outright" as opposed to "conditionally permitted" are recommended for airport property. This is also advisable in the case of Albany Municipal Airport. Because "Airport Development" or similar zoning is recommended for the subject property, a discussion of the property development standards of the currently applicable, LI zoning has not been included in this analysis.

The northerly approximately two-thirds (58.77 acres) of the airport property has been identified as a Historic District, and is on the National Register of Historic Places. The consultant has reviewed records from the U.S. Department of Interior, *National Park Service*, which indicate that the State of Oregon approved the nomination of this property to the National Register in February of 1998. This historic designation affects two buildings (hangars) and two additional structures. City of Albany Planning personnel informed the consultant in telephone communications that the City is in the process of amending the Zoning Code to include the Airport property in its existing Historic Overlay District. This will cause the northerly portion of the airfield to fall under the jurisdiction of the Historic Overlay District section of the Zoning Ordinance, which requires review by the Landmarks Advisory Commission of any proposal to either: A) Alter the exterior appearance of a historic landmark; or B) Perform new construction within the Historic Overlay District. For exterior alterations, an applicant must demonstrate that either:

1) The proposal will more closely approximate the historical character, appearance or material composition of the original structure than the existing structure; or

2) The proposal is compatible with the historic characteristics of the area and with the existing structure in massing, size, scale, materials and architectural features.

For new construction, the Code contains specific decision criteria tailored to the geography, socio-economics, and other characteristics of the individual existing Overlay Districts. Because the airport is not yet recognized by the Code as a Historic Overlay District, no specific decision criteria have been adopted for the airport. Repair, maintenance, and replacement with comparable materials, including but not limited to a change in paint color, are examples of activities which are exempted from the Historic review requirements.

As discussed above, the airport environs are composed of lands in several different jurisdictions, encompassing countless variations in commercial, residential, and industrial zoning districts and regulations. Comprehensive Plan Designations and Zoning are the tools for identifying generally where future developments of various types will occur. Types of development and activities which involve high numbers of people in a small

geographic area, and those which are considered as particularly "noise-sensitive" are generally less compatible with airport operations than are less densely-populated and less sensitive uses.

In addition to that which already exists southwest of the airport, there is some potential for additional, relatively dense residential development near the subject facility. City of Albany RS 6.5 zoning abuts the airport on its east side, though this small area appears to be substantially committed to public use, consisting of a City park. However, additional RS 6.5-zoned lands occur within a mile of the runway, to the north, west and east. Significant acreage (hundreds of acres) are also located outside the Albany City limits, but inside the UGB. The City's Comprehensive Plan designation of Urban Residential Reserve (URR) calls for RS 6.5 zoning on this land as well, upon annexation. The RS 6.5 district allows 6-8 residential dwelling units per acre.

An Albany Planning official stated that a significant portion of the URR Zoned land in the area east of Interstate 5, which the current plan targets for RS 6.5 zoning, may be considered for a higher-density designation, along the lines of 10 to 20 dwelling units per acre, during the City's pending Periodic Review analyses and changes. These areas will also be considered for mixed residential and commercial uses. In addition to the concerns discussed above relative to high-density development in this area, additional residential development on this side of I-5 will eventually result in the demand for school facilities in this area. Those should, at a minimum, be located outside of the Albany Municipal Airport's runway Approach Surface and beyond the twenty year 55 dNL noise contour.

Linn County lands in the vicinity, and within Albany's UGB, are predominantly zoned Linn County Urban Growth Management (UGM) 5 acre minimum and UGB 20 acre minimum (though the City of Albany's Comprehensive Plan has its own designation - URR - for these lands, as discussed above). Outside the Albany UGB are Linn County, Exclusive Farm Use (EFU) Zoned lands with an 80 acre minimum lot size. Urban levels of residential, commercial, and/or industrial uses are prohibited outside of urban growth boundaries, but rural level commercial and industrial activities, and those associated with farming, can be allowed.

Benton County's share of the airfield's imaginary surface coverage is zoned "Exclusive Farm Use, Flood Plain Management Overlay" (the overlay due to its proximity to the Willamette River). It is doubtful that any development, which is significant to the continued operations of the Albany Municipal Airport, will occur here, due to environmental constraints and strict land use regulations associated with the Exclusive Farm Use Zone.

The area within Millersburg's jurisdiction ranges in zoning and uses from medium to high density residential with commercial and light industrial juxtaposed, to Heavy Industrial Zoning and uses which encompass, at least on the City's Zone Map, the most land area under the study area (in the Approach and Conical Surfaces). Any Heavy Industrial Zoned land in the City of Millersburg which may be the subject of future development proposals should be determined to be either inside or outside of the ground area affected by the airport's

imaginary surfaces. If the intended use is inside those, it should be demonstrated to be compatible with airport operations.

City of Albany land west and southwest of the airfield, which has not been specifically addressed thus far in this section, is significantly developed in an array of urban-density residential, commercial, public and industrial uses. Any level of infill which may occur in this area within the planning horizon would not be expected to have any significant adverse impact upon the operations of the Albany Municipal Airport. Recommendations relating specifically to compliance with State regulations regarding airports, as well as to general compatibility of existing and future surrounding land uses, will be contained in forthcoming chapters of this report.

The City of Albany's Comprehensive Plan and Zoning Ordinance contain language that is generally supportive of the airport, including a standard Airport Approach Overlay Ordinance. As is often the case, this overlay is not depicted on the City's Zone Map, but a poor quality depiction of the overlay boundaries, without any information relative to underlying transportation or land use patterns corresponding to the overlain area, is provided in the Zoning Code. The City of Millersburg has minor references in support of the airport in its Plan, but it has not adopted an Airport Overlay Ordinance. Millersburg is currently implementing a copy of the City of Albany's Overlay Ordinance. Millersburg's Zone Map does not recognize the Airport Overlay Zone. Benton County acknowledges in their Plan and Zoning Code the Corvallis Municipal Airport, including an extensive Overlay Ordinance, but no such recognition is provided for the County's role in the overlay zoning for Albany Municipal Airport.

Finally, Linn County's Transportation Plan is generally supportive of the Albany Airport, and Overlay Zoning is in place, although the mapping is identical to the City of Albany's, and is for all intents and purposes not clearly legible. Also like Albany, the Airport Overlay Zone is not included on the Linn County zone map. Adoption of Airport Overlay Zone Ordinances, and clear and legible mapping of the same, is recommended for all jurisdictions affected by the Albany Municipal Airport imaginary surfaces. In addition to Airport Approach Overlay zoning, runway ends are provided with runway protection zones (RPZ's), and aviation easements are also in place to "prevent non-compatible land uses and protect aircraft approaches" (Linn County Regional Airport Feasibility Study and Site Investigation, Section 3.1, Page 3-7).

As noted earlier, the Airport Master Plan will include updated drawings including the Airspace Plan, which depicts airport imaginary surfaces. The boundaries defined in the updated drawings should be used by all jurisdictions for use in defining airport overlay zoning surrounding Albany Municipal Airport.

JURISDICTION	HAVE OVERLAY ZONING?	ADEQUATE? IF NO, WHY?
Albany	Ordinance YES, Map POOR	Map needs better legibility and relation to what's on ground; Ordinance needs review against State regulations.
Linn County	Ordinance YES, Map POOR	Map needs better legibility and relation to what's on ground; Ordinance needs review against State regulations.
Millersburg	Ordinance NO, Map NO	Needs to Adopt Adequate Airport Overlay Ordinance, incorporate same into Zone Map
Benton County	Ordinance NO*, Map NO	*The Ordinance for Benton Co. may be adequate, if it recognized the Albany Municipal Airport; pending review against State requirements and language which may be specific to Corvallis. M.A. Zone Map should reflect the Albany Municipal Airport Overlay.

PROJECTED LAND USE DEVELOPMENT TRENDS SUMMARY

Potential future uses and trends which may affect the airport and its environs, include, but may not necessarily be limited to: the continued operations of the Fairgrounds and Expo Center; and the potential intensification of use over what is envisioned by the current Albany Comprehensive Plan for acreage. Nearby areas located within the City of Albany UGB are slated for residential development (at a density of 6-8 units per acre). This "up-zoning" might mean densities as high as 10 to 20 units per acre on much of the current, rural land in the Albany UGB to the south, east, and northeast of the runway. Mixed commercial and residential uses are also ultimately envisioned for these areas.

Additionally, new north-south and east-west "connector" streets are projected in the airport vicinity by the City of Albany's "East I-5 Vision Statement." The continuation of existing commercial and limited or light industrial and manufacturing uses south of the airport is also discussed in the Vision Statement. Beyond those factors discussed in the above paragraphs, considering the level of existing development, resource zone protections, and State-mandated regulations pertaining to land use around public and certain private airports, no additional development trends are anticipated by the planners of the subject jurisdictions as foreseeably having an adverse effect upon the continued operations of Albany Municipal Airport.

A summary of local government's responsibilities under LCDC Airport Planning Rules, OAR 660-13, and ORS 836.600.630 is contained in Appendix 5.

ALBANY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN REPORT
2000-2020

CHAPTER SIX
Financial Management and Development Program

CHAPTER SIX

Financial Management And Development Program

The analyses conducted in the previous chapters have evaluated airport development need based on forecast changes in aircraft activity, environmental factors, and operational efficiency. One of the most important elements of the master planning process is the application of basic economic, financial and management rationale so that the feasibility of the implementation can be assured.

Historically, funding of major capital projects at the airport has been through Federal Aviation Trust Fund monies, local funding, and private investment. The primary source for airport development funds has historically been through aviation user fees. In cases where federal grant monies and local funds are not sufficient to conduct a particular project or group of projects, other funding sources may need to be pursued, or the project deferred until adequate funding may be obtained.

AIRPORT DEVELOPMENT SCHEDULE AND COST ESTIMATES

The analyses presented in Chapter Five described the airport's overall development needs for the next twenty years. However, for subsequent feasibility analyses, details need to be included for these capital expenditures. This has been accomplished by applying estimates of cost for projects within the development program. Cost estimates for each project are based on year-2000 dollars. A 30 percent contingency overhead for engineering, administration, and unforeseen circumstances has been included in the estimated component and total costs. In future years, as the plan is carried out, these cost estimates can continue to assist management by adjusting the 2000-based figures for subsequent inflation. This may be accomplished by converting the interim change in the United States Consumer Price Index (USCPI) or Engineering News Record (ENR) 20-city Construction Cost into a multiplier ratio through the following formula:

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

Where:

X = USCPI/ENR in any given future year

Y = Change Ratio

I = Current Index (USCPI or ENR)

USCPI	ENR Construction Cost Index
178.0	6232.73
(1982-1984 = 100)	(20 City: 1913 = 100)
June 2001	August 7, 2000

Multiplying the change ratio (Y) times any 2000-based cost figures presented in this study will yield the adjusted dollar amounts appropriate in any future year evaluation.

Before summarizing capital costs, two important points should be emphasized. First, the staging of development projects is based upon projected airport activity levels. 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.

Secondly, due to the conceptual nature of a master plan, implementation of recommended capital projects will occur following further refinement of design and cost estimates through architectural or engineering analyses. Capital costs presented in this chapter should be viewed only as estimates, subject to subsequent refinement. Nevertheless, these estimates are considered accurate for performing the feasibility analysis in this chapter.

A summary of development costs during the twenty-year master plan is presented in **Table 6-1**. The distribution of project types within the CIP is summarized in **Table 6-2** and detailed in **Table 6-4**. **Table 6-3** provides a listing of the major capital projects included in the twenty-year CIP, including each project's eligibility for FAA funding. The FAA will not typically participate in vehicle parking, hangar development, building renovations, utilities, or costs associated with non-aviation developments.

Through a combination of user demand, availability of federal funding, and continued private investment, several capital improvement projects were completed in 2000:

- East Parallel Taxiway and Parking Apron (9 light aircraft tiedowns)
- Airport-Linn County Fair & Expo Center Access
- Northwest Hangar Taxiway
- Aircraft Fuel Facility (12,000 gallon above ground tank)
- Two South Hangar Taxiways
- Utility Extensions and Stormwater Improvements
- Two 11-unit T-Hangars – Privately Funded

The master plan update provides a list of project priorities, which will be used by the City and FAA in scheduling future capital projects. The capital spending in 2000 was approximately $500,000 and addressed both current demands and some previously deferred projects. The Short Term phase of the capital improvement program includes the highest priority projects to be conducted during the first five years. The City's planned renovation of several airport buildings accounts for approximately 72 percent of the Short Term project dollars and 43 percent overall. Long Term projects are expected to occur beyond the next five years, although changes in demand or other conditions could accelerate or slow demand for some improvements.

Table 6-1: Summary of Development Costs

Short Term (2000-2004)	$1,307,814
Long Term (2005-2020)	$1,350,544
Total Development Costs	**$2,658,358**

Table 6-2: Summary of CIP Projects by Type

Project Type	Percentage of 20-Year CIP
Preserve/Resurface Existing Airfield Pavement	26%
New/Reconstructed Pavement	13%
NAVAIDS, Lighting, Weather	6%
Building Related Improvements	43%
Other Items (access roads, fencing, utilities, etc.)	12%
Total	**100%**

Table 6-3
20-Year Capital Improvement Program
Albany Municipal Airport

Project	Qty.	Unit	Unit $	Total Cost*	FAA Eligible	Local / State**
Short Term Projects (0-5 Years) * **						
Year 2001						
Slurry Seal Main Apron (inner section)	8,233	SY	$2	$16,466	$14,819	$1,647
Slurry Seal Main Apron (mid section)	14,744	SY	$2	$29,488	$26,539	$2,949
Slurry Seal Main Apron (outer section)	5,333	SY	$2	$10,666	$9,599	$1,067
Rehab FBO Building - Phase I (classrooms)	1	LS	$150,000	$150,000	$0	$150,000
Year 2001 Subtotal				**$206,620**	**$50,958**	**$155,662**
Year 2002						
Automated Vehicle Access Gate (South)	1	ea	$12,500	$12,500	$11,250	$1,250
Airport Access Road Resurface/Reconstruct	2,650	LF	$25	$66,250	$59,625	$6,625
Perimeter Fencing (south hangar area)	1,700	LF	$15	$25,500	$22,950	$2,550
Rehab. Quad Hangar (minor renovation)	3,130	SF	$16	$48,828	$0	$48,828
Demo FBO S. Hangar Bays	6,200	SF	$7	$40,300	$0	$40,300
Year 2002 Subtotal				**$193,378**	**$93,825**	**$99,553**
Year 2003						
Rehab Large Hangar	8,000	SF	$65	$520,000	$0	$520,000
Year 2003 Subtotal				**$520,000**	**$0**	**$520,000**
Year 2004 & 2005						
REIL - Rwy 16, 34	2	ea	$15,000	$30,000	$27,000	$3,000
Rehab. FBO Bldg - Phase II (remaining interior space)	2,000	SF	$85	$169,000	$0	$169,000
Acquire Property - Rwy 16 RPZ	1.0	acres	$25,000	$25,000	$22,500	$2,500
Airport Access Road - South Extension	1,200	LF	$45	$54,000	$48,600	$5,400
Slurry Seal N. Hangar Apron and Taxiways	1,860	SY	$2	$3,720	$3,348	$372
Slurry Seal South Taxiway	1,046	SY	$2	$2,092	$1,883	$209
Main Apron Connecting Taxiway (south of fuel area)	360	SY	$24	$8,640	$7,776	$864
Demo/Relocate Small Hangar (north of Quad hngr.)	1,200	SF	$7	$7,800	$0	$7,800
Year 2004-2005 Subtotal				**$300,252**	**$111,107**	**$189,145**
Total Short Term Projects				**$1,220,250**	**$255,890**	**$964,360**

* Project costs include 30% engineering and contingency.

** State funding may be available for eligible pavement maintenance or preservation projects

*** Funding decisions to be made by City and FAA on a project-by-project basis.

Table 6-3 (continued)
20-Year Capital Improvement Program
Albany Municipal Airport

Project	Qty.	Unit	Unit $	Total Cost*	FAA Eligible	Local / State**
Long Term Projects (6-20 Years) * **						
Construct S. Stub Taxiways (1) w/storm drainage	712	SY	$24	$27,088	$24,379	$2,709
Rehab. FBO Bldg - Phase III (north hangar bays)	6,200	SF	$33	$201,500	$0	$201,500
Extend Water to South Hangars	2,000	LF	$50	$100,000	$0	$100,000
Automated Vehicle Access Gate (North)	1	ea	$12,500	$12,500	$11,250	$1,250
Extend Water to North Hangars	700	LF	$50	$35,000	$0	$35,000
Slurry Seal Main Apron (inner section)	8,233	SY	$2	$16,466	$14,819	$1,647
Slurry Seal Main Apron (mid section)	14,744	SY	$2	$29,488	$26,539	$2,949
Slurry Seal Main Apron (outer section)	5,333	SY	$2	$10,666	$9,599	$1,067
Slurry Seal West Parallel Taxiway	13,782	SY	$2	$27,564	$24,808	$2,756
Slurry Seal Runway	25,000	SY	$2	$50,000	$45,000	$5,000
Slurry Seal East Parallel Taxiway & Apron	12,000	SY	$2	$24,000	$21,600	$2,400
Main Apron - South Expansion	4,500	SY	$24	$108,000	$97,200	$10,800
Main Apron - East Expansion (Fuel Area)	2,800	SY	$24	$67,200	$60,480	$6,720
Automated Weather Observation (AWOS/ASOS/NEXWOS)	1	ea	$50,000	$50,000	$45,000	$5,000
PAPI (replace existing VASI)	2	ea	$15,000	$30,000	$27,000	$3,000
Apron Flood Lighting	4	ea	$6,000	$24,000	$21,600	$2,400
East Side Tiedown Apron - Phase II	2,930	SY	$24	$70,320	$63,288	$7,032
Relocate Segmented Circle	1	ea	$10,000	$10,000	$9,000	$1,000
Resurface Main Apron (all sections) (2" AC)	28,310	SY	$6	$169,860	$152,874	$16,986
Resurface Runway (2" AC)	25,000	SY	$6	$150,000	$135,000	$15,000
Resurface West Parallel Taxiway/South Txy. (2" AC)	13,782	SY	$6	$82,692	$74,423	$8,269
Total Long Term Projects				**$1,296,344**	**$863,860**	**$432,484**
TOTAL SHORT & LONG TERM PROJECTS				**$2,516,594**	**$1,119,749**	**$1,396,845**

* Project costs include 30% engineering and contingency.

** State funding may be available for eligible pavement maintenance or preservation projects

*** Funding decisions to be made by City and FAA on a project-by-project basis.

Table 6-4
CIP Projects by Category
Albany Municipal Airport

Project	Qty.	Unit	Unit $	Total Cost*	FAA Eligible	Local / State**
Short Term Projects (0-5 Years) * **						
Preserve/Resurface Existing Pavement						
Slurry Seal Main Apron (inner section)	8,233	SY	$2	$16,466	$14,819	$1,647
Slurry Seal Main Apron (mid section)	14,744	SY	$2	$29,488	$26,539	$2,949
Slurry Seal Main Apron (outer section)	5,333	SY	$2	$10,666	$9,599	$1,067
Slurry Seal N. Hangar Apron and Taxiways	1,860	SY	$2	$3,720	$3,348	$372
Slurry Seal South Taxiway	1,046	SY	$2	$2,092	$1,883	$209
Subtotal				**$62,432**	**$56,189**	**$6,243**
New or Reconstructed Airfield Pavement						
Main Apron Connecting Taxiway (south of fuel area)	360	SY	$24	$8,640	$7,776	$864
Subtotal				**$8,640**	**$7,776**	**$864**
NAVAIDS, Lighting, Marking						
REIL - Rwy 16, 34	2	ea	$15,000	$30,000	$27,000	$3,000
Subtotal				**$30,000**	**$27,000**	**$3,000**
Building Related Improvements						
Rehab Reliant Building - Phase 1 (classrooms)	1	LS	$150,000	$150,000	$0	$150,000
Rehab. Quad Hangar (minor renovation)	3,130	SF	$16	$48,828	$0	$48,828
Rehab Large Hangar	8,000	SF	$65	$520,000	$0	$520,000
Demo Reliant S. Hangar Bays	6,200	SF	$7	$40,300	$0	$40,300
Demo/Relocate Small Hangar (north of Quad hngr.)	1,200	SF	$7	$7,800	$0	$7,800
Rehab. Reliant Bldg - Phase II (remaining interior space)	2,000	SF	$85	$169,000	$0	$169,000
Subtotal				**$935,928**	**$0**	**$935,928**
Other Items						
Airport Access Road Resurface/Reconstruct	2,650	LF	$25	$66,250	$59,625	$6,625
Perimeter Fencing (south hangar area)	1,700	LF	$15	$25,500	$22,950	$2,550
Acquire Property - Rwy 16 RPZ	1.0	acres	$25,000	$25,000	$22,500	$2,500
Airport Access Road - South Extension	1,200	LF	$45	$54,000	$48,600	$5,400
Automated Vehicle Access Gate (South)	1	ea	$12,500	$12,500	$11,250	$1,250
Subtotal				**$183,250**	**$164,925**	**$18,325**
Total Short Term Projects				**$1,220,250**	**$255,890**	**$964,360**

* Project costs include 30% engineering and contingency.

** State funding may be available for eligible pavement maintenance or preservation projects

*** Funding decisions to be made by City and FAA on a project-by-project basis.

Table 6-4 (continued)
CIP Projects by Category
Albany Municipal Airport

Project	Qty.	Unit	Unit $	Total Cost*	FAA Eligible	Local / State**
Long Term Projects (6-20 Years) * **						
Preserve/Resurface Existing Pavement						
Slurry Seal Main Apron (inner section)	8,233	SY	$2	$16,466	$14,819	$1,647
Slurry Seal Main Apron (mid section)	14,744	SY	$2	$29,488	$26,539	$2,949
Slurry Seal Main Apron (outer section)	5,333	SY	$2	$10,666	$9,599	$1,067
Slurry Seal West Parallel Taxiway	13,782	SY	$2	$27,564	$24,808	$2,756
Slurry Seal Runway	25,000	SY	$2	$50,000	$45,000	$5,000
Slurry Seal East Parallel Taxiway & Apron	12,000	SY	$2	$24,000	$21,600	$2,400
Resurface Main Apron (all sections) (2" AC)	28,310	SY	$6	$169,860	$152,874	$16,986
Resurface Runway (2" AC)	25,000	SY	$6	$150,000	$135,000	$15,000
Resurface West Parallel Taxiway/South Txy. (2" AC)	13,782	SY	$6	$82,692	$74,423	$8,269
Subtotal				**$560,736**	**$504,662**	**$56,074**
New or Reconstructed Airfield Pavement						
Construct S. Stub Taxiways (1) w/storm drainage	712	SY	$24	$27,088	$24,379	$2,709
Main Apron - South Expansion	4,500	SY	$24	$108,000	$97,200	$10,800
Main Apron - East Expansion (Fuel Area)	2,800	SY	$24	$67,200	$60,480	$6,720
East Side Tiedown Apron - Phase II	2,930	SY	$24	$70,320	$63,288	$7,032
Subtotal				**$272,608**	**$245,347**	**$27,261**
NAVAIDS, Lighting, Marking						
PAPI (replace existing VASI)	2	ea	$15,000	$30,000	$27,000	$3,000
Automated Weather Observation (AWOS/ASOS/NEXWOS)	1	ea	$50,000	$50,000	$45,000	$5,000
Apron Flood Lighting	4	ea	$6,000	$24,000	$21,600	$2,400
Relocate Segmented Circle	1	ea	$10,000	$10,000	$9,000	$1,000
Subtotal				**$114,000**	**$102,600**	**$11,400**
Building Related Improvements						
Rehab. Reliant Bldg - Phase III (north hangar bays)	6,200	SF	$33	$201,500	$0	$201,500
Subtotal				**$201,500**	**$0**	**$201,500**
Other Items						
Automated Vehicle Access Gate (North)	1	ea	$12,500	$12,500	$11,250	$1,250
Extend Water to North Hangars	700	LF	$50	$35,000	$0	$35,000
Extend Water to South Hangars	2,000	LF	$50	$100,000	$0	$100,000
Subtotal				**$147,500**	**$11,250**	**$136,250**
Total Long Term Projects				**$1,296,344**	**$863,860**	**$432,484**
TOTAL SHORT & LONG TERM PROJECTS				**$2,516,594**	**$1,119,749**	**$1,396,845**

* Project costs include 30% engineering and contingency.

** State funding may be available for eligible pavement maintenance or preservation projects

*** Funding decisions to be made by City and FAA on a project-by-project basis.

FINANCING OF DEVELOPMENT PROGRAM

FEDERAL GRANTS

A primary source of potential funding identified in this plan is the Federal Airport Improvement Program (AIP). As proposed, approximately half of the airport's 20-year CIP 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 under appropriations set by Congress to all airports in the United States that have certified eligibility. The funds are distributed through grants administered by the Federal Aviation Administration (FAA).

Under current guidelines, the airport sponsor receives 90 percent participation on eligible projects. According to FAA guidelines, Albany Municipal Airport is eligible under the Airport Improvement Program (AIP) to receive discretionary grants. It should be recognized that although many of the projects are eligible for federal funding, it is unlikely that AIP grant monies will be available every year. The limitations of AIP funding will dictate in large part, the actual schedule for completing airport improvement projects through the planning period. As a result, many projects included in the twenty-year CIP may be deferred beyond the twenty-year time frame. However, federal grants are expected to continue playing a significant role in the financing of the airport's projected capital expenditures.

STATE FUNDING

The State of Oregon Aeronautics is currently developing a funding program to assist local airport sponsors with pavement maintenance and associated improvements (crack filling, repair, sealcoats, etc.), which have not traditionally been eligible for FAA funding. The Oregon State Legislature's approval of an aviation fuel tax increase in 1999 provides funds that are dedicated to specific pavement-related airport projects. The level of annual or periodic funding is unknown at this time and may vary depending on revenue generation. Although this funding is not expected to be adequate to address all airfield pavement maintenance funding needs, the City should work closely with the state to integrate any available funds into the airport's long term pavement maintenance program.

FINANCING THE LOCAL SHARE OF CAPITAL IMPROVEMENTS

Several airport improvement projects identified in the master plan are not eligible for federal funding. These consist primarily of renovations to city-owned buildings and extension of utilities to the north and south hangar

areas. Projects associated with improvements to city-owned buildings (FBO Building, Quad Hangar, Large Hangar, Small Hangar) are estimated at more than $1.1 million. As indicated in the Building Condition Survey (see Appendix 2), the type and cost of building renovation could vary considerably based on prospective tenant needs. For planning purposes, relatively conservative estimates of cost have been made, based in part on the unknown long term use of the buildings. As currently estimated, these projects account for the largest portion local capital project resources and therefore should be carefully undertaken.

One potential source for funding building improvements is the revenue generated through the sale of city-owned land adjacent to the airport. The portion of this "one-time" revenue source that will ultimately be directed toward airport improvements has not been determined by local officials.

For larger projects such as building construction or infrastructure improvements, airports often use local bonds for funding. However, it appears that Albany has not used bonding for airport improvements in the recent past. However unlikely, the use of local bond issues should be evaluated as part of the City's overall airport funding program. A description of bond types, which are often used by airports to fund capital projects is presented below.

Another option for local funding may be the use of Impact Fees or the establishment of a utility district to allow infrastructure improvements to be made once sufficient facility development demand occurs.

LOCAL BONDS

General Obligation (GO) bonds are a common form of municipal/borough bonds in which payment is secured by the full faith, credit, and taxing power of the issuing agency. GO bonds are instruments of credit and, because of the community guarantee, reduce the available debt level of the sponsoring community. This type of bond uses taxes to retire the debt and the key element becomes the approval of the electorate of a tax levy to support airport development. If approved, GO bonds are typically issued at a lower interest rate than other types of bonds.

Self-liquidating general obligation bonds are secured by the issuing agency and also require voter approval. They are retired by the adequate cash flow from the operation of the facility. Since the credit of the local government bears the ultimate risk of default, the bond issue is still considered, for the purpose of financial analysis, as part of the debt burden of the community. Therefore, this method of financing may result in a higher rate of interest on all bonds sold by the community. The amount of increase of the interest rate depends in part upon the degree of exposure risk of the bond. Exposure risk occurs when there is insufficient net operating income to cover debt service plus coverage requirements, thus forcing the community to absorb the residual.

Revenue Bonds are payable solely from the revenue of a particular project or from operating income of the borrowing agency. Generally, they fall outside constitutional and statutory limitations and in many cases, do

not require electorate approval. Because of the limitations on other public bonds, airport sponsors are increasingly turning to revenue bonds whenever possible. However, revenue bonds typically carry a higher rate of interest because they lack the guarantees of other municipal bonds. Revenue bonds also require that the borrower must maintain specific coverage ratios between income and debt service. This often requires that surplus cash, which might otherwise be available for use in funding operations or improvements, be maintained in reserve.

THIRD PARTY SUPPORT

Private development on the airport is expected to consist of hangar construction, expanded fixed base operator facilities or other airport-related business, and other tenant-sponsored projects.

AIRPORT RATES AND FEES

The primary aviation use rates and fees used at Albany Municipal Airport are summarized in **Table 6-5**. 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 6-5: Existing Rates and Fees - Albany Municipal Airport

Aviation Use Ground Leases (Hangars)	$0.19 per square foot
City-Owned T-Hangar Rental	$40 per month (open front hangar)
Based Aircraft Tiedowns	$25 per month
Itinerant Aircraft Tiedowns	$3 per day
Fuel Flowage Fee	$0.10 per gallon

Source: City of Albany Financial Data (2000)

CASH FLOW ANALYSIS

Based on data provided by the City and noted assumptions on future events, a projection of airport operating revenues and expenses for the twenty-year planning period is presented in **Table 6-6.** According to city financial data, an operating deficit of approximately $30,000 currently exists at Albany Municipal Airport. The annual deficit is expected to increase significantly when the City resumes an annual $75,000 charge for equipment/building replacement. The general operating position of the airport is expected to improve as specific facility improvements occur and overall airport activity increases, although the substantial equipment/building replacement charge will continue to push expenditures beyond the airport's long term revenue projections through the planning period. The structure of the replacement fund should be reviewed by local officials in relation to potential one-time property sales revenues, economic development fund or general fund transfers for the airport. 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.

It is expected that airport revenues will increase during the planning period as additional airport lands are leased for development. The rate of private development/investment will be partly dependent on local market conditions and the ability of the City to fund basic infrastructure improvements. Operational expenses at the airport are expected to increase at a modest rate (3 percent annually).

Table 6-6
Albany Municipal Airport
Airport Revenue and Expense Projections for Operations (does not include capital spending)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Airport Revenues										
Land Leases	$5,840	$8,515	$8,771	$9,034	$9,875	$13,492	$13,897	$14,314	$14,743	$15,886
Building Rent	$5,280	$7,680	$8,880	$27,146	$27,961	$30,757	$31,680	$32,630	$33,609	$34,617
FBO	$9,552	$13,000	$13,000	$13,000	$13,000	$18,000	$18,540	$19,096	$19,669	$20,259
Tiedowns	$1,400	$1,470	$1,544	$1,621	$1,702	$1,787	$1,876	$1,970	$2,068	$2,172
Fuel Flowage	$7,000	$7,350	$7,718	$8,103	$8,509	$8,934	$9,381	$9,850	$10,342	$10,859
Misc.	$3,300	$3,399	$3,501	$3,606	$3,714	$3,826	$3,940	$4,059	$4,180	$4,306
Interest Income	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Total Operating Revenues	**$33,372**	**$42,414**	**$44,413**	**$63,510**	**$65,760**	**$77,796**	**$80,314**	**$82,918**	**$85,612**	**$89,099**
Airport Expenses										
Bldg. Mnt.	$9,000	$9,270	$9,548	$9,835	$10,130	$10,433	$10,746	$11,069	$11,401	$11,743
Grd, Mnt. & Mowing	$9,000	$12,000	$12,360	$12,731	$13,113	$13,506	$13,911	$14,329	$14,758	$15,201
Power	$2,000	$2,060	$2,122	$2,185	$2,251	$2,319	$2,388	$2,460	$2,534	$2,610
City Staff	$32,000	$35,000	$36,050	$37,132	$38,245	$39,393	$40,575	$41,792	$43,046	$44,337
Misc. Admin, Supplies	$8,500	$11,670	$12,020	$12,381	$12,752	$13,135	$13,529	$13,935	$14,353	$14,783
Equip. Replacement Fund		$0	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000
Total Operating Expenses	**$60,500**	**$70,000**	**$147,100**	**$149,263**	**$151,491**	**$153,786**	**$156,149**	**$158,584**	**$161,091**	**$163,674**
Operating Surplus (Deficit)	***($27,128)***	***($27,586)***	***($102,687)***	***($85,753)***	***($85,731)***	***($75,990)***	***($75,835)***	***($75,665)***	***($75,479)***	***($74,575)***
Accumulated Cash Flow from Ops.		*($54,714)*	*($157,401)*	*($243,154)*	*($328,885)*	*($404,875)*	*($480,710)*	*($556,376)*	*($631,855)*	*($706,430)*

Does not include cash balance forward total, general fund or economic development fund transfers

Does not include land sale revenues.

Does not include federal/state grants or local match for capital improvements.

Table 6-6
Albany Municipal Airport
Airport Revenue and Expense Projections for Operations (does not include capital spending)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Airport Revenues										
Land Leases	$17,474	$17,998	$19,303	$19,883	$20,479	$26,727	$27,529	$28,355	$30,095	$30,998
Building Rent	$38,079	$39,221	$40,398	$41,610	$42,858	$47,144	$48,558	$50,015	$51,515	$53,061
FBO	$22,285	$22,954	$23,642	$24,352	$25,082	$27,590	$28,418	$29,270	$30,149	$31,053
Tiedowns	$2,280	$2,394	$2,514	$2,640	$2,772	$2,910	$3,056	$3,209	$3,369	$3,538
Fuel Flowage	$11,402	$11,972	$12,571	$13,200	$13,860	$14,552	$15,280	$16,044	$16,846	$17,689
Misc.	$4,435	$4,568	$4,705	$4,846	$4,992	$5,141	$5,296	$5,454	$5,618	$5,787
Interest Income	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Total Operating Revenues	**$96,956**	**$100,108**	**$104,134**	**$107,529**	**$111,042**	**$125,065**	**$129,137**	**$133,347**	**$138,593**	**$143,125**
Airport Expenses										
Bldg. Mnt.	$12,095	$12,458	$12,832	$13,217	$13,613	$14,022	$14,442	$14,876	$15,322	$15,782
Grd, Mnt.	$15,657	$16,127	$16,611	$17,109	$17,622	$18,151	$18,696	$19,256	$19,834	$20,429
Power	$2,688	$2,768	$2,852	$2,937	$3,025	$3,116	$3,209	$3,306	$3,405	$3,507
City Staff	$45,667	$47,037	$48,448	$49,902	$51,399	$52,941	$54,529	$56,165	$57,850	$59,585
Misc.	$15,227	$15,684	$16,154	$16,639	$17,138	$17,652	$18,181	$18,727	$19,289	$19,867
Equip. Replacement Fund	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000
Total Operating Expenses	**$166,334**	**$169,074**	**$171,896**	**$174,803**	**$177,797**	**$180,881**	**$184,058**	**$187,329**	**$190,699**	**$194,170**
Operating Surplus (Deficit)	***($69,378)***	***($68,966)***	***($67,763)***	***($67,274)***	***($66,755)***	***($55,816)***	***($54,921)***	***($53,982)***	***($52,107)***	***($51,045)***
Accumulated Cash Flow from Ops.	*($775,808)*	*($844,774)*	*($912,537)*	*($979,810)*	*($1,046,566)*	*($1,102,382)*	*($1,157,303)*	*($1,211,285)*	*($1,263,392)*	*($1,314,437)*

Does not include land sale revenues.

Does not include federal/state grants or local match for capital improvements.

Does not include cash balance forward total, general fund or economic development fund transfers

Table 6-6
Albany Municipal Airport
Airport Revenue and Expense Projections for Operations (does not include capital spending)

REVENUE ASSUMPTIONS

A. Land Leases increase at 3% per year (inflation factor) with specific bumps for additional leases (see below) and general rate increases (10%) in 2005, 2010, and 2015.

1. [2001] New 11-unit T-hangar ground lease (initial revenue $2,500/yr ($0.19 sf))
2. [2004] New conventional hangar ground lease (initial revenue $570/yr ($0.19 sf))
3. [2005] New 11-unit T-hangar ground lease (initial revenue $2,630/yr ($0.20)
4. [2009] New conventional hangar ground lease (initial revenue $700/yr ($0.23 sf))
5. [2012] New conventional hangar ground lease (initial revenue $765/yr ($0.26 sf))
6. [2015] East-Side Aviation Related ground lease (initial revenue $4200/yr ($0.28 sf/@15000sf))
7. [2018] New conventional hangar ground lease (initial revenue $890/yr ($0.30 sf))

B. Building Rents increase at 3% per year (inflation factor) with specific bumps for additional leases (see below) and general rate increases (10%) in 2005, 2010, and 2015.

1. [2001] Quad hangar space rental (assumes $100/month x 2 AC after minor renovation)
2. [2002] Quad hangar (assumes fully utilized hangar space rental $100/month x 3 AC)
3. [2003] City projects large hangar income to begin (initial projection: $18,000 per year)

C. FBO Income

1. [2001] Increase following minor renovation of classroom space (assumes 9,400 sf mixed use @ $1.38 sf)
2. [2001-2004] Initital rate held fixed for first fours years., followed by 3% per year (inflation factor)
3. [2005] Rent increase following Phase 2 renovation (assumes 9,400 sf mixed use @ $1.91 sf)
4. [2006-2009] Increase @ 3% per year (inflation factor)
5. [2010] Rental Rate Increase @ 10%
6. [2015] Rental Rate Increase @ 10%

D. Aircraft Tiedowns - Increase a 5% per year (assumes rate increases, minor increase in number of based aircraft, and inflation factor)

E. Fuel Flowage - Increase a 5% per year (assumes rate increases, increase gallons sold, and inflation factor)

F. Misc. Income - Increase a 3% per year (inflation factor)

G. Interest Income - Flat $1000/year (requires further evaluation)

Note: Future changes in airport rates and fees will require special action by the City Council.

EXPENSE ASSUMPTIONS

Operating Expenses assumed to increase at 3% per year (inflation factor)

ALBANY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN REPORT
2000-2020

CHAPTER SEVEN
Airport Layout Plans

CHAPTER SEVEN

Airport Layout Plans

In Chapter Four, Airport Development Alternatives, an evaluation was made of future options for airside and landside development at Albany Municipal Airport. This effort has resulted in the selection of airport development alternatives that will accommodate the facility requirements projected through the current twenty-year planning period, and beyond. The purpose of this chapter is to describe in narrative and graphic form, the recommended airport development contained in the twenty-year master plan. Reduced-size copies of the drawings are included at the end of this chapter.

A set of plans, referred to as the Airport Layout Plans, have been prepared to graphically depict recommendations for airport layout, land use, and possible disposition of obstructions located within the runway protection zones, approaches, or other airfield imaginary surfaces. The set of plans includes:

Drawing 1 - Airport Layout Plan
Drawing 2 - Terminal Area Plan
Drawing 3 - Runway Protection Zone Plan and Profile
Drawing 4 - Airport Airspace Drawing
Drawing 5 - Airport Land Use Plan with 2020 Noise Contours

Federal Aviation Administration **Advisory Circular (AC) 150/5300-13, Change 5 Airport Design,** provides criteria for runways, taxiways, and other airside facilities, in addition to recommended format and content of airport layout plan drawing sets. **Federal Air Regulation (FAR) Part 77 - Objects Affecting Navigable Airspace,** provides criteria for establishing and depicting the airspace imaginary surfaces surrounding the airport.

AIRPORT LAYOUT PLAN

The Airport Layout Plan (ALP) presents the existing and ultimate airport layout and depicts the improvements, which are recommended to meet forecast aviation demand. Airport and Runway data tables provide additional information on existing conditions and dimensions.

The existing 3,004 x 75-foot runway length is retained, with the area located beyond each runway end reserved for potential runway extensions. All airspace planning, runway protection zones, and development set backs are based on the current runway length. Other than normal maintenance and replacement, no upgrades of the primary runway-parallel taxiway system are identified.

The primary landside improvements at Albany Municipal Airport are located along the west side of the airport. The primary improvements include the terminal area /FBO area; the north hangar area; and the south hangar area.

Improvements to terminal area facilities include a designated FBO Development Reserve. Although improvements to the existing FBO building are anticipated within the current planning period, this development reserve would also accommodate expanded FBO facilities including a large maintenance hangar and new public restrooms. The airport's new fuel facility is located adjacent to the main apron with an area reserved to accommodate a second fuel tank, if required. Minor expansions to the main apron are depicted along its eastern and southern edges. A second taxiway connection to the parallel taxiway is also identified at the (existing) southeast corner of the main apron. The portable hangar located at the south end of the main apron will be relocated. The airport access road that extends from the FBO building to the south hangar area will be widened and paved, with vehicle parking, security fencing and an access control gate added.

Recent improvements made on the east side of the runway include a partial-length parallel taxiway and aircraft apron adjacent to the Fair & Expo Center. An additional aircraft parking reserve is identified to provide additional parking capacity, if needed. A small area located east of the planned parking apron is identified as aviation-related lease. The southeast corner of the airport, along Price Road, is identified as potential aviation development area.

The development at the south end of the airport will continue with a linear expansion of T-hangar and small conventional hangar rows. The area currently accommodates four T-hangars. When fully developed this area will require three additional stub taxiways connecting to the parallel taxiway. Utility and storm drainage improvements are also planned for this area.

Aviation-related development reserves are identified further to the south including areas for a possible second FBO and additional aircraft parking. Agricultural-related uses could be established in this area if the operation is approved by the City Council and a study is conducted and the area is designed in such a way to meet separation standards and design requirements.

Development north of the terminal area consists primarily of infill and redevelopment of aviation related uses. The area between the Large Hangar and Quad Hangar is identified for business-related aviation development, which could include expanded FBO facilities. The "Small Hangar" located between the Quad and Large hangars is in relatively poor condition and significantly limits the development potential of the site. This

hangar will be relocated elsewhere on the airport or removed. The City plans to renovate the Large hangar and the Quad hangar to put the buildings back into aviation use. The northwest hangar area taxiway was reconstructed in 2000 and connects to the parallel taxiway. This area will continue to accommodate small/medium conventional hangars. Utility and storm drainage improvements are also planned for this area.

TERMINAL AREA PLAN

The Terminal Area Plan provides a larger scale view of facilities and improvements on the western side of the airfield. The drawing provides additional detail for hangar, apron, and terminal area facilities. As noted above, the primary focus on the west side of the airport will be to improve efficiency and maximize the use of limited development space.

AIRSPACE DRAWING

The Airport Airspace Drawing for Albany Municipal Airport was developed based on **Federal Air Regulations (FAR) Part 77, Objects Affecting Navigable Airspace.** In order to protect the airspace and approaches to each runway, federal criteria has been established for use by local planning and land use jurisdictions to control the height of objects in the vicinity of airports. The Part 77 Drawing graphically depicts in plan view, the imaginary surfaces for the airport. Obstruction data was obtained from the 1978 Airspace Plan and other available sources. Several towers are located in the vicinity of the airport, but they do not appear to penetrate any airspace surfaces. There are no terrain penetrations to airspace surfaces.

Vehicles traveling on the airport access road penetrate the Runway 16 approach surface by less than one foot (240 feet beyond the beginning of the 20:1 approach surface). The elevation of the road plus standard 15-foot vehicle is listed as 237 feet mean sea level. Realigning the roadway outside the RPZ does not appear to be feasible. Power lines located south of Highway 20 are marked with fluorescent globes. Vehicles traveling on Highway 20 and on the I-5 interchange are below the 20:1 approach surface for Runway 34. Several tall trees located south of Highway 20 appear to be slightly below the 20:1 approach surface. Avigation easements should be maintained to control the height of trees in the approach surface. Portions of the Interstate 5 and Highway 20 interchange do not appear to penetrate the approach surface.

RUNWAY PROTECTION ZONE PLAN AND PROFILE

The runway protection zone drawing provides plan and profile views for each runway end. Obstructions identified and numbered on the Airspace Plan, have also been added to this drawing. The runway profiles also provide elevation data and the approach slope, which correspond with each runway protection zone. The City should continue ensure that easements are in place for all portions of the Runway 16 and 34 protection zones not in City ownership.

The Runway 16 protection zone has the airport access road, an I-5 northbound exit and on-ramp, Century Drive, and Knox Butte Road located within its boundaries. The Runway 34 protection zone has a portion of the I-5/Highway 20 interchange located within its boundaries although no penetrations to the approach surface exists. Realigning these roadways outside the RPZs is not considered feasible.

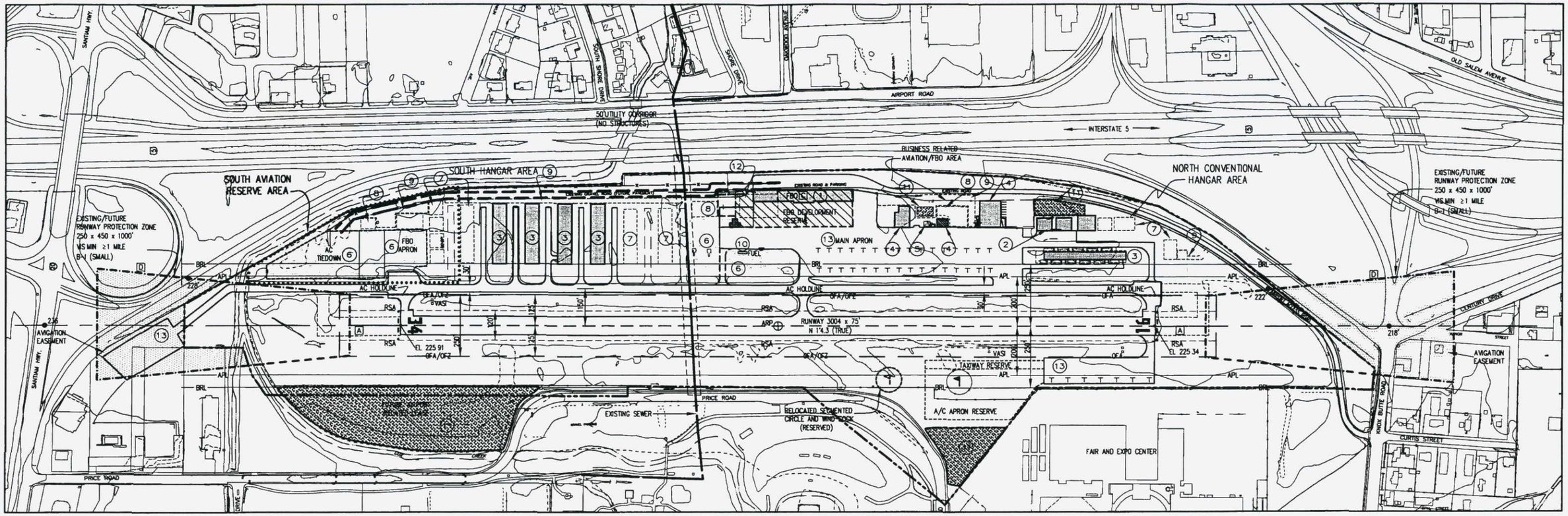
AIRPORT LAND USE PLAN (WITH 2020 NOISE CONTOURS)

The Airport Land Use Plan drawing depicts existing zoning in the vicinity of the airport and noise contours for the year 2020. The noise contours represent the level of noise exposure anticipated in twenty years, based on updated activity forecasts, aircraft mix, and runway use patterns. Additional information, including current noise contours and a description of the noise methodology utilized, is presented in Chapter Five, Land Use and Noise Compatibility.

As noted in Chapter Five, the airport is surrounded by a variety of land uses and zoning include public use, commercial, limited industrial, residential, and agriculture. The airport is located entirely within the City of Albany urban growth boundary and is zoned "Limited Industrial." Airports are recognized as a conditional uses in LI zones. The airport is bordered (on three sides) by a state highway, a busy local surface street, and an interstate highway. These transportation corridors effectively limit airport expansion, but also do provide an effective buffer between the airport and adjacent land uses.

The 2020 noise contours do not create any significant compatibility issues with any existing adjacent land uses. The 65 DNL contour is contained almost entirely within airport property boundaries, with only a small portion extending beyond the eastern boundary of the airport, about 300 to 500 feet from runway centerline (over the Fair & Expo Center and Timber-Linn Memorial Park). The 70 DNL contour is contained almost entirely within airport property boundaries, just reaching Price Road at its nearest point near the southern one-third of the runway. The 70 DNL extends approximately 200 to 300 feet beyond the runway ends, and outward about 100 to 250 feet to the sides of the runway. The park area located adjacent to the southeast corner of the airport (west of Price Road) has 65 and 70 DNL contours extending over the area. The 75 DNL contours are 1,100 to 1,500 feet long, each located at the runway ends, entirely within airport property boundaries.

The 60 DNL contour extends approximately 1,300 north of Knox Butte Road (just north of Dunlap Avenue) and slightly north of Highway 20. The 60 DNL contour also extends off airport property to the east and west, approximately 600 to 800 feet from the runway centerline. Efforts should be made by local land use authorities to limit new residential development in areas expected be beneath future contours.



NOTES:

- [A] RUNWAY EXTENSION RESERVES
- [B] AIRPLANE DESIGN GROUP I (SMALL AIRCRAFT EXCLUSIVELY)
- [C] EXISTING FBO BUILDING MAY BE REMOVED
- [D] GPS APPROACH WITH VISIBILITY MINIMUMS ≥ 1 MILE WITH CIRCLE-TO-LAND MINIMA AND VISUAL FINAL APPROACH SEGMENT
- [E] CITY OF ALBANY RECORDS

MODIFICATIONS TO FAA DESIGN STANDARDS

ITEM	OBSTRUCTION/DESCRIPTION

AIRPORT DATA

ITEM	EXISTING	FUTURE
DATUM FOR ALL ITEMS	NAD 83/NAVD 88	SAME
AIRPORT ELEVATION (MSL)	225 91	SAME
AIRPORT REFERENCE POINT	N 44 38 16 1325 W 123°03 34 015	SAME
MEAN MAXIMUM DAILY TEMPERATURE	82 F	SAME
AIRPORT REFERENCE CODE	B-I (SMALL)	SAME
NPIAS ROLE	GENERAL AVIATION	SAME
LAND OWNED IN FEE (ACRES)	111	SAME
AIRPORT CODE	S12	SAME

LEGEND

ITEM	EXISTING	FUTURE
FACILITIES		
BUILDINGS		
AVIGATION EASEMENT		
PERIMETER FENCE	-X-X-	
AIRPORT PROPERTY LINE		
BUILDING RESTRICTION LINE	BRL	SAME
AIRCRAFT PARKING LIMIT	APL	SAME
BUILDINGS TO BE REMOVED/RELOCATED		SAME
TOPOGRAPHIC CONTOURS (10 FT)		-
WIND CONE/WIND TEE		
AIRPORT REFERENCE POINT		
THRESHOLD LIGHTS		
ROTATING BEACON		
VASI		TO BE REPLACED WITH PAPI
REIL		
WETLANDS		

RUNWAY DATA

ITEM		RUNWAY 16-34 EXISTING	RUNWAY 16-34 FUTURE
LENGTH AND WIDTH		3004 x 75	SAME
EFFECTIVE GRADIENT		0 02%	SAME
PAVEMENT STRENGTH (000)		S30 D-43-DT71	12 5#
PAVEMENT SURFACE		ASPHALT	SAME
RUNWAY SAFETY AREA		3484 x 120	SAME
OBJECT FREE AREA		3484 x 250	SAME
OBSTACLE FREE ZONE		3404 x 250	SAME
CRITICAL AIRCRAFT		C-421	BE100
APPROACH TYPE [B]	16	VISUAL	SAME
	34	VISUAL	SAME
APPROACH SLOPE: REQUIRED/CLEAR [B]	16	20:1/19:1	SAME
	34	20:1/19:1	SAME
APPROACH AND LANDING AIDS [B]	16	VASI	GPS PAPI
	34	VASI	GPS PAPI REIL
RUNWAY END COORDINATES	16 Latitude	N44 38 01 306	SAME
	16 Longitude	W123 03 33 984	SAME
	34 Latitude	N44 38 30 959	SAME
	34 Longitude	W123 03 34 046	SAME
RUNWAY LIGHTING		MIRL	SAME
TAXIWAY LIGHTING		REFLECTORS	SAME
RUNWAY MARKING		VISUAL	SAME
WIND COVERAGE (%) - 15 MPH [E]		99% EST	SAME

BUILDINGS AND FACILITIES

1	FBO	13	AIRCRAFT & PARKING APRON (EXISTING)
2	HANGAR (SMALL CONVENTIONAL)	14	
3	HANGAR (T-HANGAR)	15	
4	HANGAR (LARGE/MED CONVENTIONAL)	16	
5	ELECTRONIC BUILDINGS	17	
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		

DECLARED DISTANCES

	EXISTING 16	EXISTING 34	FUTURE 16	FUTURE 34
DISPLACED THRESHOLD (Approach end)	0	0	0	0
TAKEOFF RUN AVAILABLE (TORA)	3004	3004	3004	3004
TAKEOFF DISTANCE AVAILABLE (TODA)	3004	3004	3004	3004
ACCELERATE - STOP DISTANCE AVAILABLE (ASDA)	3004	3004	3004	3004
LANDING DISTANCE AVAILABLE (LDA)	3004	3004	3004	3004

TRUE NORTH
MAGNETIC (18.3° - 2001)

200 0 200 400
SCALE OF FEET
SCALE: 1 =200

CITY OF Albany OREGON

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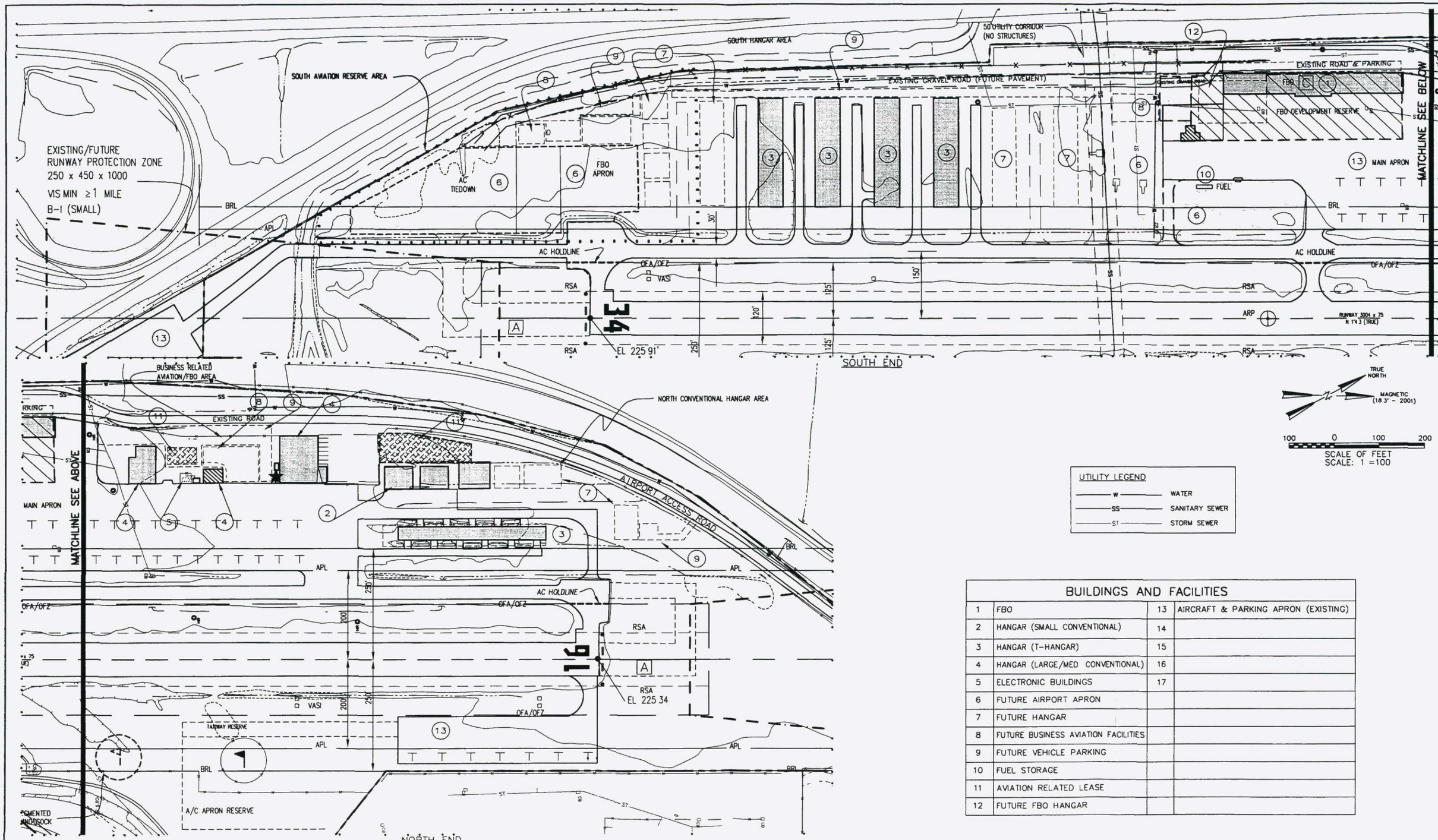
CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

AIRPORT LAYOUT PLAN

DRAWING NO 1 OF 5
SHEET NO



UTILITY LEGEND

W	WATER
SS	SANITARY SEWER
ST	STORM SEWER

BUILDINGS AND FACILITIES			
1	FBO	13	AIRCRAFT & PARKING APRON (EXISTING)
2	HANGAR (SMALL CONVENTIONAL)	14	
3	HANGAR (T-HANGAR)	15	
4	HANGAR (LARGE/MED CONVENTIONAL)	16	
5	ELECTRONIC BUILDINGS	17	
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		

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CITY OF ALBANY
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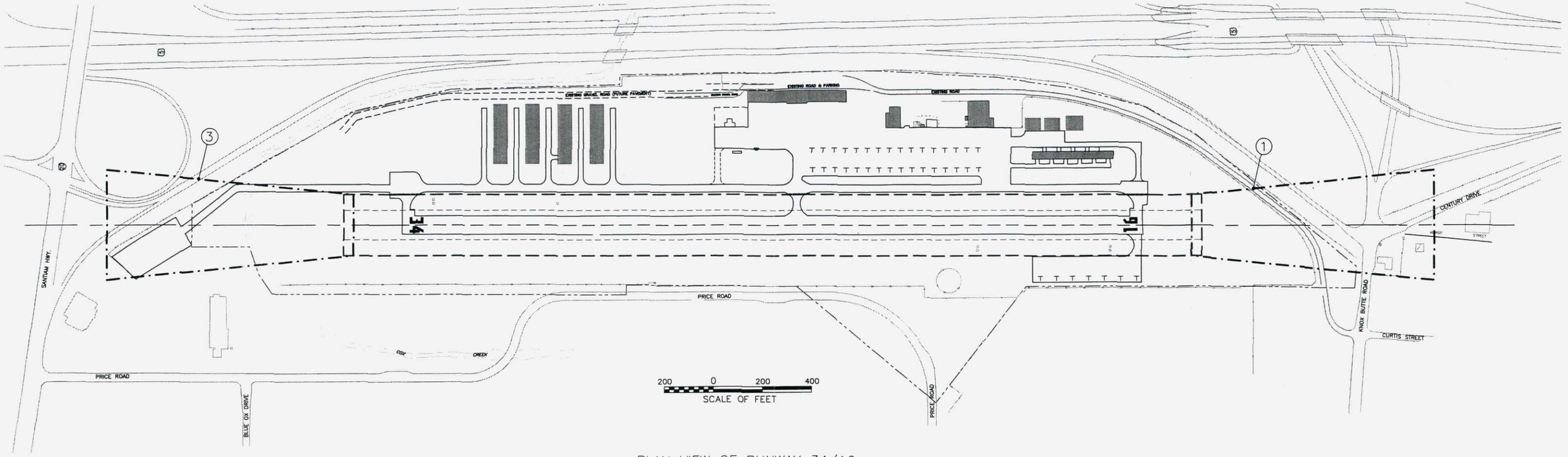
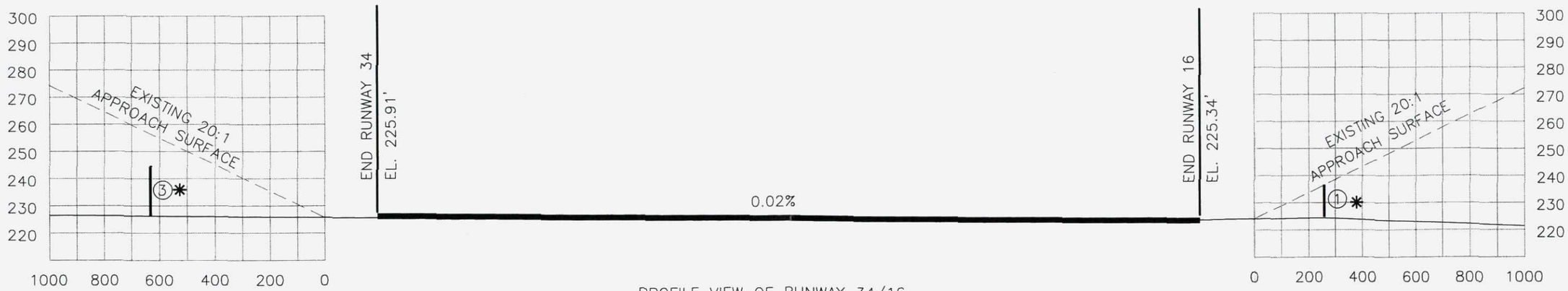
TERMINAL AREA PLAN

DRAWING NO 2 OF 5
SHEET NO



PLAN VIEW OF RUNWAY 34/16



PROFILE VIEW OF RUNWAY 34/16

200 0 200 400
SCALE OF FEET
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=100'

TRUE NORTH
MAGNETIC (18.3° - 2001)

*NOTE:
OBSTRUCTION TABLE LOCATED ON AIRPORT AIRSPACE PLAN
PLAN SHEET 4 OF 5

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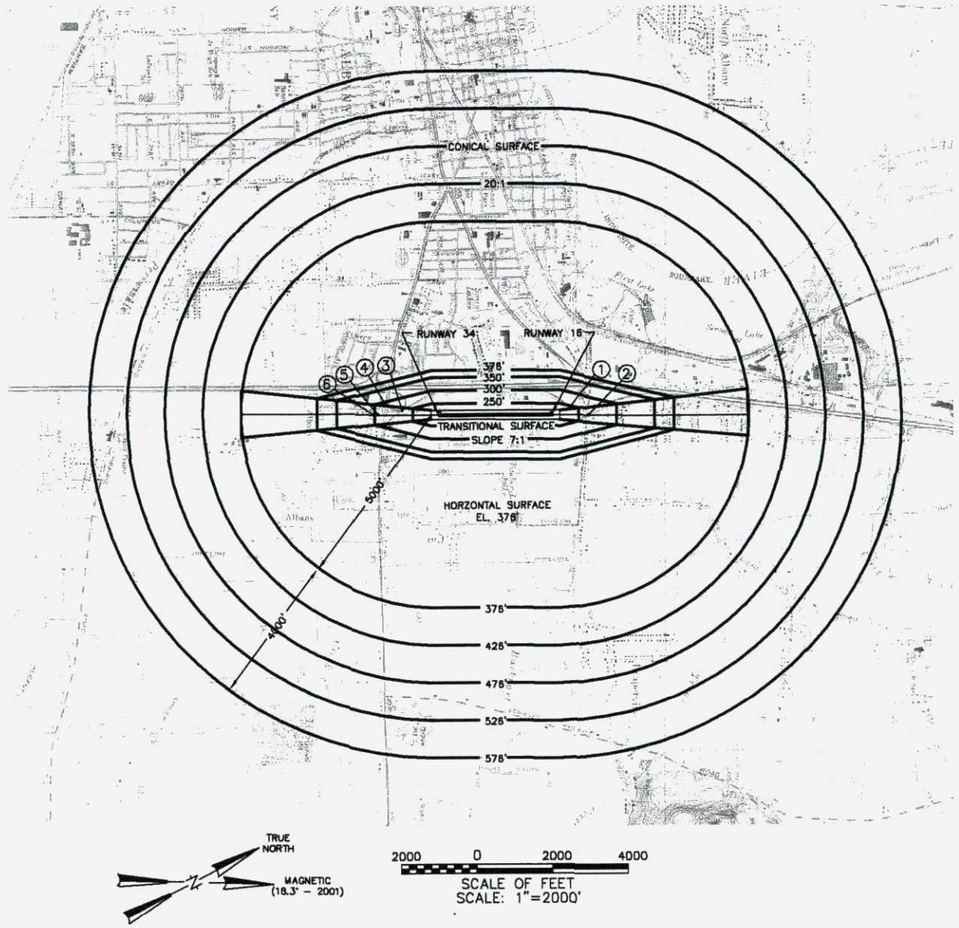
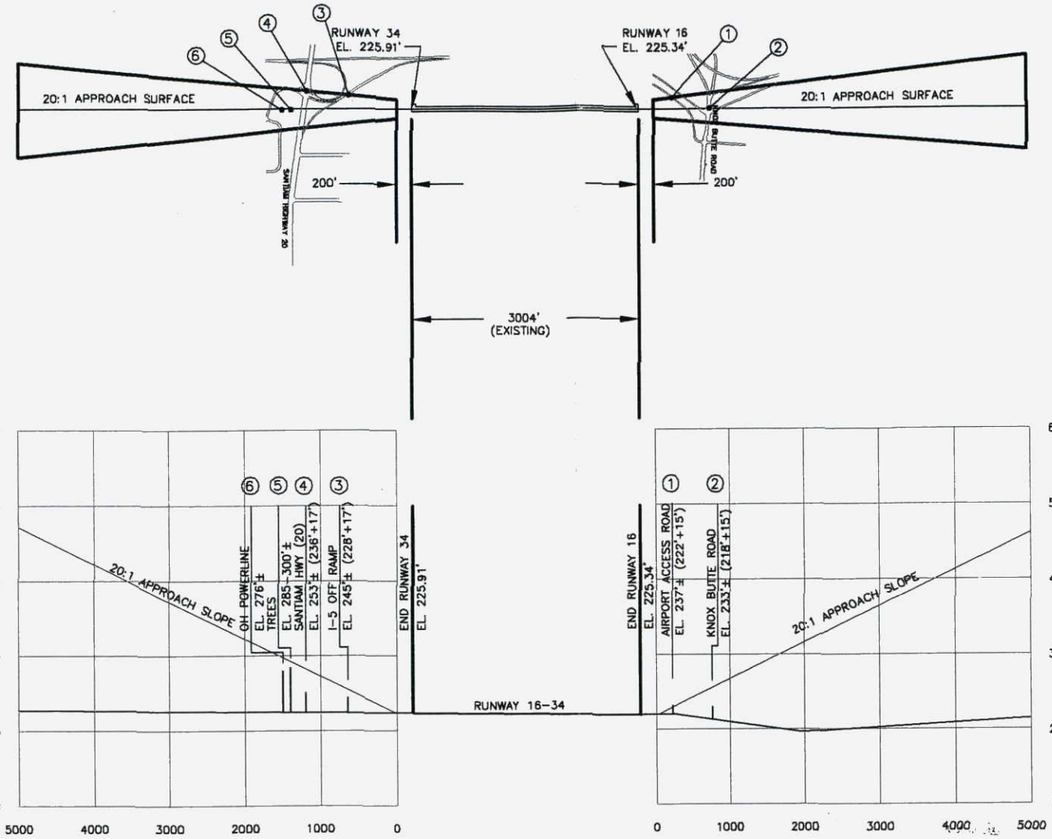
CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

RUNWAY PROTECTION ZONE PLAN AND PROFILE

DRAWING NO. 3 OF 5
SHEET NO.





NO.	ITEM	PART 77 SURFACE	MSL ELEV	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (ESTIMATED)	AIRPORT PROPERTY	DISPOSITION
1	AIRPORT ACCESS ROAD	APPROACH (RWY 16)	237'±	150'	440'±	≤1	YES	NONE
2	KNOX BUTTE ROAD	APPROACH (RWY 16)	230'±	0'	950'±	0	NO	NONE
* 3	I-5 OFF RAMP	APPROACH (RWY 34)	245'±	120'	850'±	0	NO	NONE
* 4	SANTIAM HWY (20)	APPROACH (RWY 34)	253'±	230'	1200'±	0	NO	NONE
* 5	TREES (LOCATED S. OF HWY 20)	APPROACH (RWY 34)	285-300"±	0'	1525'±	0	NO	MAINTAIN TOP ELEV. OF TREES
* 6	OH POWERLINE	APPROACH (RWY 34)	276'±	0'	1600'±	0	NO	MARKED
7								
8								
9								
10								

* NO CURRENT OBSTRUCTION - REFERENCE ONLY

NOTE: SURVEYED AIRPORT ELEVATION 225.91'; PUBLISHED AIRPORT ELEVATION IS 226 FEET MEAN SEA LEVEL (MSL)

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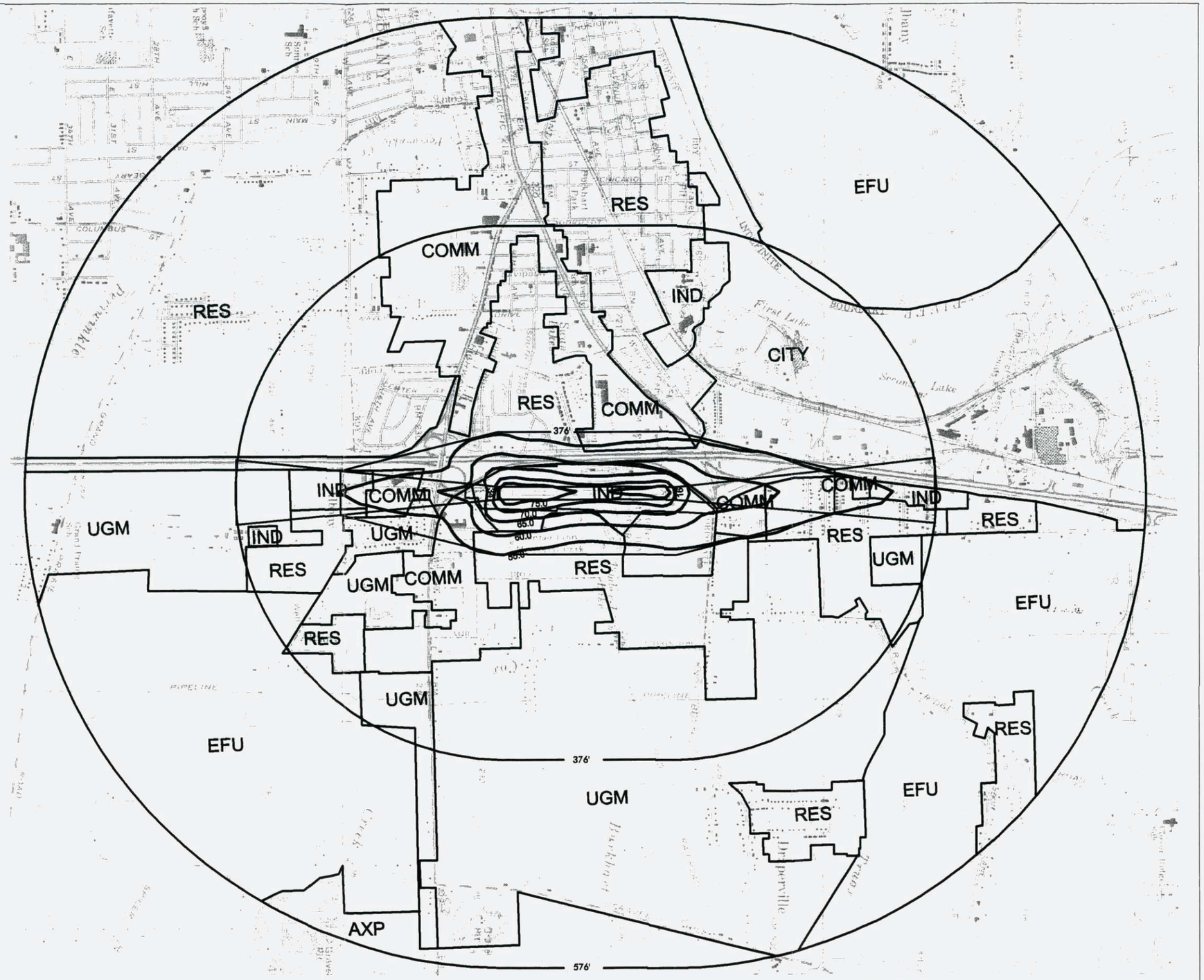
CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

AIRPORT AIRSPACE PLAN

DRAWING NO. 4 OF 5
SHEET NO.

LEGEND	
———	NOISE CONTOURS
CITY	CITY ZONE
RES	RESIDENTIAL
UGM	URBAN GROWTH MANAGEMENT
EFU	EXCLUSIVE FARM USE
COMM	COMMERCIAL
IND	INDUSTRIAL
AXP	AGGREGATE

The Albany urban area contains numerous zones including commercial, residential, industrial, etc. The zoning divisions in this area are too numerous to depict at this scale. See City of Albany zoning map and ordinance zoning information for specific parcels.



TRUE NORTH
MAGNETIC (18.3° – 2001)

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

NOTE:
NOISE ANALYSES CONDUCTED BY ARON FAEGRE AND ASSOCIATES, PORTLAND, OREGON. THE NOISE CONTOURS WERE GENERATED USING THE FAA INTEGRATED NOISE MODEL (INM) VERSION 5.2 BASED ON THE UPDATED FORECASTS OF AIRCRAFT ACTIVITY CONTAINED IN THE 1999-2000 AIRPORT MASTER PLAN UPDATE (CENTURY WEST ENGINEERING)

ZONING INFORMATION SOURCE IS CITY OF ALBANY ZONING MAP, LINN COUNTY ZONING MAP, AND BENTON COUNTY ZONING MAP.

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CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

AIRPORT LAND USE PLAN WITH 2020 NOISE CONTOURS

DRAWING NO. 5 OF 5
SHEET NO. .

Albany Municipal Airport
Airport Master Plan Update
Appendices

Glossary of Aviation Terms
Appendix 1 - FAA Airport Design Printouts
Appendix 2 - Airport Building Condition Survey
Appendix 3 - Airport Fuel Alternatives
Appendix 4 - Airport Taxiway Bridge Memo
Appendix 5 - LCDC Airport Planning Rules Summary
Appendix 6 - Advisory Committee & Other Meeting Minutes

GLOSSARY OF AVIATION TERMS

Glossary of Aviation Terms

The following glossary of aviation terms was compiled from entries provided by David Miller, Century West Engineering; Chris Corich, W&H Pacific; and Gary Viehdorfer, Oregon Department of Aviation for use in aviation planning projects.

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 - All regularly scheduled airline activity performed by airlines certificated in accordance with Federal Aviation Regulations (FAR Part 121 or 127).

Air Taxi - Operations of aircraft "for hire" for specific trips, commonly referred to an aircraft available for charter.

Aircraft Approach Category - A grouping of aircraft based how fast they come in for landing. As a rule of thumb, slower approach speeds mean smaller airport dimensions and faster speeds mean larger dimensions from runway widths to the separation between runways and taxiways.

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 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) – International aviation organization.

Airline - A scheduled air carrier certificated under Part 121 of the Federal Aviation Regulations.

Airplane Design Group - A grouping of airplanes based on wingspan. 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
Group II:	49 feet up to, but not including 79 feet
Group III:	79 feet up to, but not including 118 feet
Group IV:	118 feet up to, but not including 171 feet
Group V:	171 feet up to, but not including 214 feet
Group VI:	214 feet up to, but not including 262 feet

Airport - A landing area regularly used by aircraft for receiving or discharging passengers or cargo, including heliports and seaplane bases.

Airport Categories – The following categories are used to describe public use airports in Oregon. For additional information, see the **Oregon Aviation Plan.**

Category 1 – Commercial Airports
Category 2 – Business Aviation or High Activity General Aviation Airports
Category 3 – Regional General Aviation Airports
Category 4 – Community General Aviation Airports
Category 5 – Low Activity General Aviation Airports

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 provides 90% of funding for eligible airport improvement projects. The local sponsor of the project (i.e., airport owner) has to come up with the remaining 10% 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 or so. An ALP is prepared using FAA design standards.

Airport Reference Code (ARC) - An FAA airport coding system. The system looks at the types of aircraft which use an airport most often and then based upon the characteristics of those airplanes (approach speed and wing span), assigns a code. The code is then used to determine how the airport is designed and what design standards are used. An airport designed for a Piper Cub (an aircraft in the A-I approach/design group) would take less room than a Boeing 747 (an aircraft in the D-V approach/design group).

Airports District Office (ADO) - The "local" office of the FAA that coordinates planning and construction projects. Staff in the ADO is typically assigned to a particular state, i.e., Oregon, Idaho, or Washington. The ADO for Oregon, Washington and Idaho is located in Renton, Washington.

Airspace - The area above the ground in which aircraft travel. It is divided into corridors, routes, and restricted zones for the control and safety of traffic.

Annual Service Volume (ASV) - An estimate of how many airplanes and airport can handle based upon the number and types of runways, the aircraft mix (big vs. small, etc), and the weather conditions. Annual service volume is one of the bench marks used to determine when an airport is getting so busy that a new runway or taxiway are needed.

Approach End of Runway - The end of the runway a pilot tries to land - could be thought of as the "landing end" of the runway. Which end a pilot uses depends upon the winds. Pilots almost always try and land into the wind and will line up on the runway that best aligns with the wind.

Approach Surface - Also FAR Part 77 Approach or Obstacle Clearance Approach - An imaginary (invisible) surface which rises off the ends of a runway which must be kept clear to provide airspace for an airplane to land or take off in. The size of the approach surface will vary depending upon how big and

how fast the airplanes are, and whether or not the runway has an instrument approach for landing in bad weather.

Apron - An area on an airport designated for the parking, loading, fueling, or servicing of aircraft (also referred to as tarmac and ramp).

ARFF - Aircraft Rescue and Fire Fighting, i.e., an on airport fire station.

Automated Weather Observation System (AWOS) – An automated weather observation system providing on-site weather data to support instrument approaches.

AVGAS - Gasoline used in airplanes with piston engines.

Avigation Easement - A form of limited property right purchase that establishes legal land use control prohibiting incompatible development of areas required for airports or airport-related purposes.

Based Aircraft - Aircraft stationed at an airport on an annual basis. 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.

Charter - Operations of aircraft "for hire" for specific trips, commonly referred to an aircraft available for charter.

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.

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.

Crosswind - When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft. Sometimes used in reference to a runway as in "runway 7/25 is the crosswind runway" meaning that it is not the runway normally used for the prevailing wind condition.

DNL - Day-night sound levels, a method of measuring noise exposure.

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 from the Airport & Airways Trust Fund to commercial service airport sponsors based on enplanements or cargo landed weights.

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 Aviation Regulations which establish standards for determining obstructions in navigable airspace. FAR stands for Federal Aviation Regulations, Part 77 refers to the section in the regulations, i.e., #77. FAR Part 77 is commonly used to refer to imaginary surfaces, the primary, transitional, horizontal, conical, and approach surfaces. These surfaces vary with the size and type of airport.

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 engine repair, or radio repair).

Fixed Wing - A plane with one or more "fixed wings" as opposed to a helicopter that is sometimes called a rotary wing aircraft.

Flight Service Station (FSS) - An office where a pilot can call (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.

Global Positioning System (GPS) - GPS is a system of navigating which uses satellites to establish the location and altitude of an aircraft. The FAA recently embraced GPS as a system with potential for application in traveling from point A to point B as well as for use in making landing approaches.

High Intensity Runway Lights (HIRL) - High intensity (i.e., very bright) lights are used on instrument runways where landings are made in foggy weather. The bright runway lights help pilots to see the runway when visibility is poor.

Home Built Aircraft - An aircraft built by an amateur; not an FAA Certified factory built aircraft.

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. Its perimeter is constructed by swinging arcs (circles) with a radius of 5,000 feet for all runways designated as utility or general; and 10,000 feet for all other runways from the center of each end of the primary surface and connecting the adjacent arc by straight lines. The resulting shape looks like a football stadium. It could also be described as a rectangle with half circles on each end with the runway in the middle.

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 a system used to guide a plane in for a landing in bad weather. Sometimes referred to as a precision instrument approach, it is m designed to provide an exact approach path for alignment and descent of aircraft. Generally consists of a localizer, glide slope, outer marker, middle marker, and approach lights. This type of precision instrument system is being replaced by Microwave Landing Systems (MLS).

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 systems to help a pilot land in bad weather.

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.

Landing Area - That part of the movement area intended for the landing and takeoff of aircraft.

Large Aircraft - An aircraft that weighs more than 12,500 lbs.

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.

LORAN C - A navigation system using land based radio signals which allows a person to tell where they are and how fast they are moving, but not how high you are off the ground. (See GPS)

MALSR - Medium-intensity Approach Lighting System with Runway alignment indicator lights. An airport lighting facility 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 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. It was touted as the replacement for the ILS but never achieved this status.

Minimums - Weather condition requirements established for a particular operation or type of operation.

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.

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.

Nondirectional Beacon (NDB) - Non-Directional Beacon which transmits a signal on which a pilot may "home" using equipment installed in the aircraft.

Non-Precision Instrument Approach - A non-precision instrument approach provides guidance to pilots trying to land in bad weather. It does not provide the "precision" guidance of a precision instrument approach.

OAD – Oregon Aeronautics Division.

Obstruction - An object (tree, house, road, phone pole, etc) that penetrates an imaginary surface described in FAR Part 77.

Passenger Facility Charge (PFC) - Public agencies controlling a commercial service airport can charge enplaning passengers using the airport a $1, $2, or $3 facility charge. Public agencies must apply to the FAA and meet certain requirements in order to impose a PFC.

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 served by a "precision" instrument approach landing system. The precision landing systems allows property equipped airplanes and trained pilots to land in bad weather.

Precision Instrument Approach - A precision instrument approach is a system which helps guide pilots in for a landing in thick fog and provides "precise" guidance as opposed to a non-precision approach that is less precise.

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.

Rotorcraft - A helicopter.

Runway End Identifier Lights (REILs) - These are distinctive flashing lights that help a pilot identify the runway.

Runway Protection Zone (RPZ) - An area off the end of the runway that is intended to be clear in case an aircraft lands short of the runway. The size is small for airports serving only small airplanes and gets bigger for airports serving large airplanes. The RPZ used to be known as a clear zone – which was a good descriptive term because you wanted to keep it clear.

Segmented Circle - A system of visual indicators designed to show a pilot in the air which direction the airplanes fly in the landing pattern at that airport.

Small Aircraft - An aircraft that weighs less than 12,500 lbs.

T-Hangar - An aircraft storage hangar that resembles the shape of a "T."

Tiedown - A place where an aircraft is parked and "tied down." Surface can be grass, gravel or paved.

Traffic Pattern - The flow of traffic that is prescribed for aircraft landing, taxiing, or taking off from an airport.

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.

Transport Airport - An airport designed and constructed to serve large commercial airliners. Portland International and SEATAC are good examples of transport airports.

Utility Airport - An airport designed and constructed to serve small planes. Aurora State Airport in Oregon, Nampa Airport in Idaho, or Arlington Airport in Washington are examples of utility airports.

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.

Wind Rose - A diagram indicating the prevalence of winds from various directions in relation to existing or proposed runway alignments.

APPENDIX 1
FAA AIRPORT DESIGN
PRINTOUTS

Albany Municipal Airport
Runway 16-34

AIRPORT AND RUNWAY DATA

Airport elevation	222 feet
Mean daily maximum temperature of the hottest month	82.00 F.
Maximum difference in runway centerline elevation	2 feet
Length of haul for airplanes of more than 60,000 pounds	500 miles
Dry runways	

RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Small airplanes with approach speeds of less than 30 knots	310 feet
Small airplanes with approach speeds of less than 50 knots	820 feet
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	2490 feet
95 percent of these small airplanes	3040 feet
100 percent of these small airplanes	3610 feet
Small airplanes with 10 or more passenger seats	4160 feet
Large airplanes of 60,000 pounds or less	
75 percent of these large airplanes at 60 percent useful load	4640 feet
75 percent of these large airplanes at 90 percent useful load	6190 feet
100 percent of these large airplanes at 60 percent useful load	5180 feet
100 percent of these large airplanes at 90 percent useful load	7710 feet
Airplanes of more than 60,000 pounds	Approximately 5090 feet

REFERENCE: Chapter 2 of AC 150/5325-4A, Runway Length Requirements for Airport Design, no Changes included.

Albany Municipal Airport
Runway 16-34

AIRPORT DESIGN AIRPLANE AND AIRPORT DATA

Aircraft Approach Category B
Airplane Design Group I (Small Airplanes Exclusively)
Airplane wingspan . . . . . 45.90 feet
Primary runway end approach visibility minimums are not lower than 1 mile
Other runway end approach visibility minimums are not lower than 1 mile
Airplane undercarriage width (1.15 x main gear track) . . . 14.95 feet

RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS

	Airplane Group/ARC	
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is not treated as a factor:		
VFR operations with no intervening taxiway		700 feet
VFR operations with one intervening taxiway		700 feet
VFR operations with two intervening taxiways		700 feet
IFR approach and departure with approach to near threshold		2500 feet less 100 ft for each 500 ft of threshold stagger to a minimum of 1000 feet.
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is treated as a factor:		
VFR operations		2500 feet
IFR departures		2500 feet
IFR approach and departure with approach to near threshold		2500 feet
IFR approach and departure with approach to far threshold		2500 feet plus 100 feet for each 500 feet of threshold stagger.
IFR approaches		3400 feet
Runway centerline to parallel taxiway/taxilane centerline	147.9	150 feet
Runway centerline to edge of aircraft parking	125.0	125 feet
Runway width		60 feet
Runway shoulder width		10 feet
Runway blast pad width		80 feet
Runway blast pad length		60 feet
Runway safety area width		120 feet
Runway safety area length beyond each runway end or stopway end, whichever is greater		240 feet
Runway object free area width		250 feet
Runway object free area length beyond each runway end or stopway end, whichever is greater		240 feet
Clearway width		500 feet
Stopway width		60 feet
Obstacle free zone (OFZ):		
Runway OFZ width		250 feet
Runway OFZ length beyond each runway end		200 feet
Inner-approach OFZ width		250 feet
Inner-approach OFZ length beyond approach light system		200 feet
Inner-approach OFZ slope from 200 feet beyond threshold		50:1
Inner-transitional OFZ slope		0:1
Runway protection zone at the primary runway end:		

Width 200 feet from runway end		250 feet
Width 1200 feet from runway end		450 feet
Length		1000 feet

Runway protection zone at other runway end:

Width 200 feet from runway end		250 feet
Width 1200 feet from runway end		450 feet
Length		1000 feet

Departure runway protection zone:

Width 200 feet from the far end of TORA		250 feet
Width 1200 feet from the far end of TORA		450 feet
Length		1000 feet

Threshold surface at primary runway end:

Distance out from threshold to start of surface		0 feet
Width of surface at start of trapezoidal section		250 feet
Width of surface at end of trapezoidal section		700 feet
Length of trapezoidal section		2250 feet
Length of rectangular section		2750 feet
Slope of surface		20:1

Threshold surface at other runway end:

Distance out from threshold to start of surface		0 feet
Width of surface at start of trapezoidal section		250 feet
Width of surface at end of trapezoidal section		700 feet
Length of trapezoidal section		2250 feet
Length of rectangular section		2750 feet
Slope of surface		20:1

Taxiway centerline to parallel taxiway/taxilane centerline	65.1	69 feet
Taxiway centerline to fixed or movable object	42.2	44.5 feet
Taxilane centerline to parallel taxilane centerline	60.5	64 feet
Taxilane centerline to fixed or movable object	37.5	39.5 feet
Taxiway width	25.0	25 feet
Taxiway shoulder width		10 feet
Taxiway safety area width	45.9	49 feet
Taxiway object free area width	84.3	89 feet
Taxilane object free area width	75.1	79 feet
Taxiway edge safety margin		5 feet
Taxiway wingtip clearance	19.2	20 feet
Taxilane wingtip clearance	14.6	15 feet

REFERENCE: AC 150/5300-13, Airport Design, including Changes 1 through 4.

Albany Municipal Airport
Runway 16-34

DECLARED DISTANCE LENGTHS (feet)

Aircraft Approach Category B
Airplane Design Group I (Small Airplanes Exclusively)
Runway 16 approach visibility minimums are not lower than 1 mile
Runway 34 approach visibility minimums are not lower than 1 mile

	Runway 16 and 34	
Runway length	3004	3004
Stopway length	0	0
Clearway length	0	0
Runway safety area length beyond the stop end of runway	240	240
Runway object free area length beyond the stop end of runway	240	240

The following distances are positive in the direction of aircraft operations and negative in the opposite direction:

Distance from:		
the departure end of runway to the beginning of clearway	0	0
the departure end of runway to the beginning of departure RPZ	200	200
the approach end of runway to the start of takeoff	0	0
the approach end of runway to the threshold	0	0
the end of approach RPZ to the approach end of runway	200	200

The following lengths are standard RSA and ROFA lengths:

Runway safety area length to be provided:		
beyond the stop end of ASDA	240	240
beyond the stop end of LDA	240	240
before the approach end of LDA	240	240
Runway object free area length to be provided:		
beyond the stop end of ASDA	240	240
beyond the stop end of LDA	240	240
before the approach end of LDA	240	240

The following declared distances are for Approach Category A and B airplanes of 12,500 pounds or less maximum certificated takeoff weight exclusively.

	Runway 16 (feet)	Runway 34 (feet)
Takeoff run available (TORA)	3004	3004
Takeoff distance available (TODA)	3004	3004
Accelerate-stop distance available (ASDA)	3004	3004
Landing distance available (LDA)	3004	3004
Usable stopway length	0	0
Distance from the stop end of LDA to runway end	0	0
Distance from the departure end of TORA to RPZ	200	200
Distance from the approach RPZ to the threshold	200	200

REFERENCE: Appendix 14 of AC 150/5300-13, Airport Design, including Changes 1 through 4.

APPENDIX 2
AIRPORT BUILDING CONDITION SURVEY

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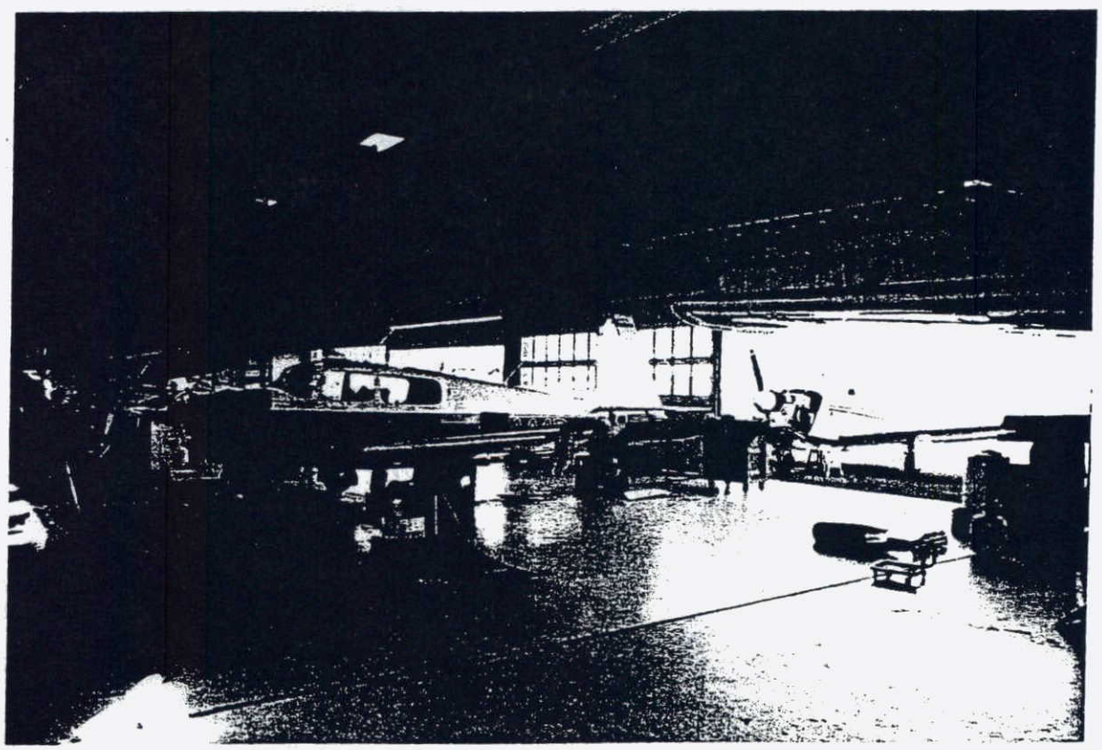
PROJECT MEMORANDUM
ALBANY AIRPORT MASTER PLAN
Building Condition Survey (Draft) November 19, 1999

This memorandum provides a report on a preliminary structural visual evaluation inspection of the Albany Airport city-owned buildings. The survey was conducted by Aron Faegre, AIA, PE, on September 21, 1999. The survey was performed to provide general commentary concerning building code, ADA, fire and life safety, seismic, maintenance, repairs, life expectancy, and re-use potential for each building. Where appropriate, comments are also provided on the impacts of historic designation of certain buildings.

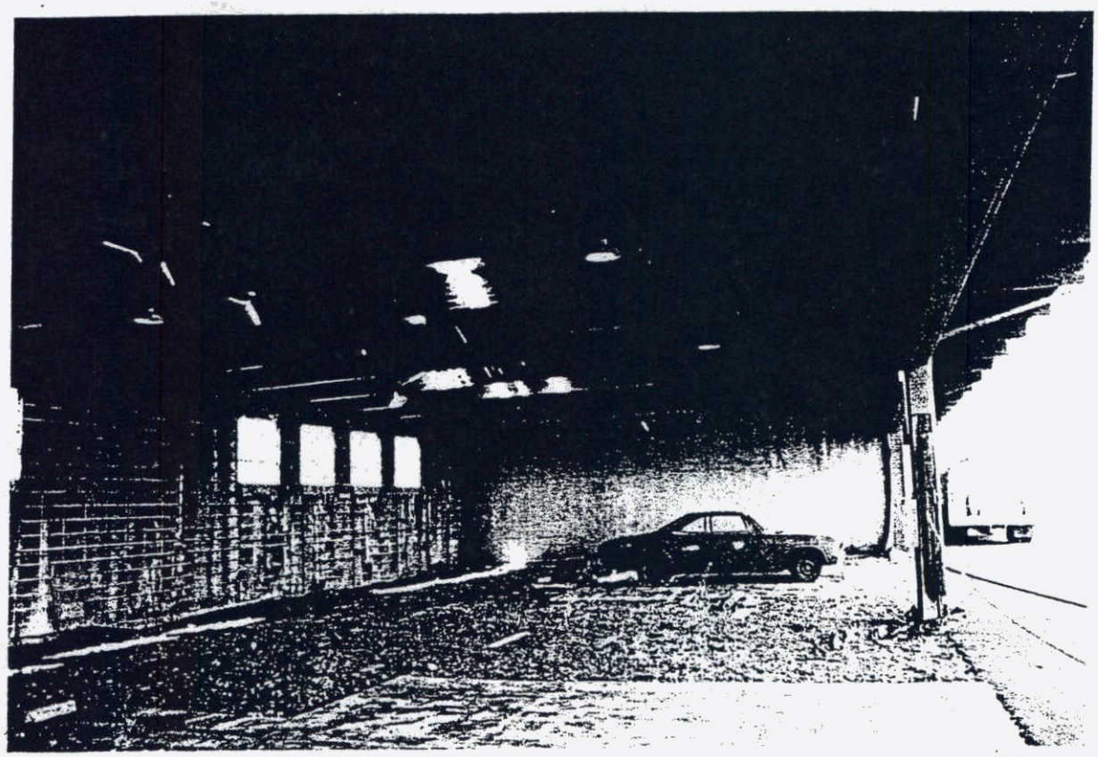
This building condition survey has utilized information provided in the report "Albany Municipal Airport Building Inspection Report", prepared by Community Development-Building Division, including Fire Department, dated December, 1998.

1.0 RELIANT AVIATION BUILDING

1.1 General Commentary: The Reliant Aviation Building consists of an aircraft service and repair building of approximately 15,555 sf. The maintenance hangar spaces typically are 40' wide x 41' long, with a door opening of approximately 38'-6" x 9'-9" high. This door size is suitable only for small single-engine aircraft up to Beechcraft Bonanza or Cessna 182 size. The



building is currently occupied, with the exception of the south three hangar bays which are blocked off with warning tape and a notice that that area is considered unoccupiable and hazardous due to a rotting roof. The southern three hangar bays have major failure in the roof deck system. The City is aware of this but is awaiting the work on the airport master plan prior to determining whether to repair these hangar bays or demolish them.



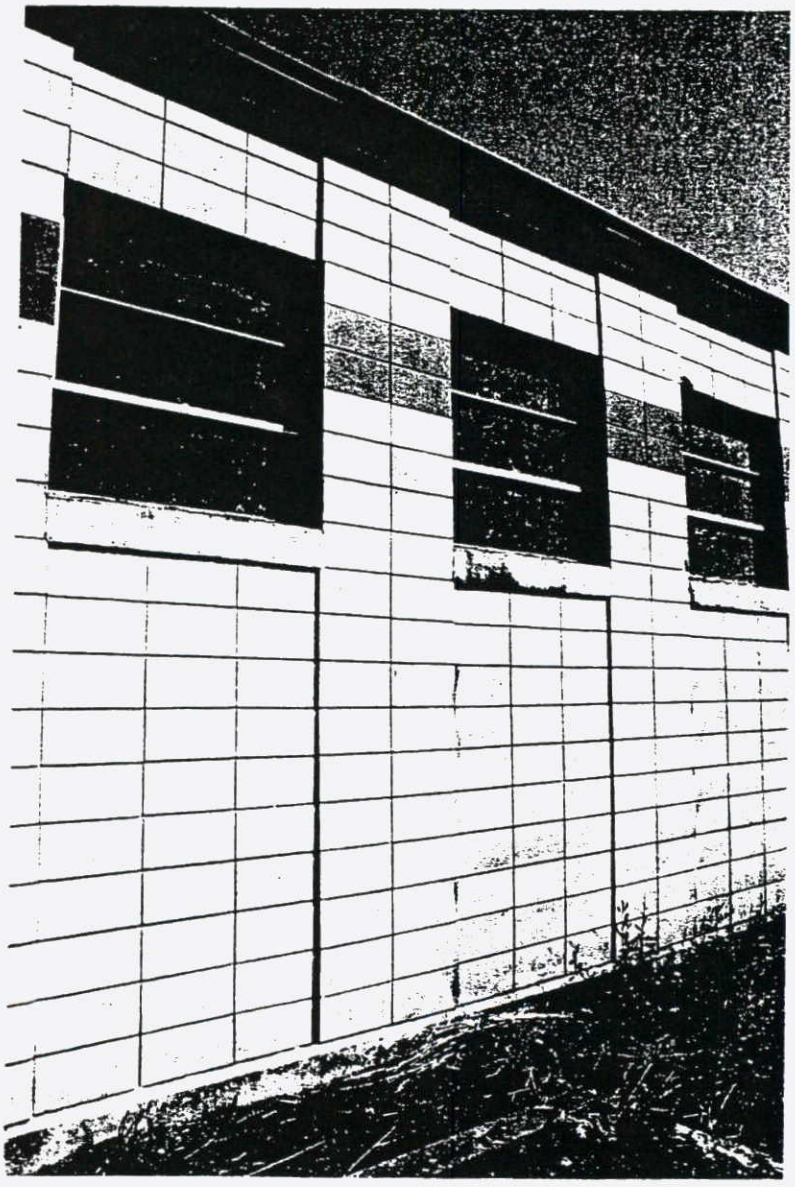
1.2 Building Code/Fire & Life Safety: A detailed building code and fire and life safety inspection was performed by the City of Albany staff in 1998. In general, we concur with their very detailed analysis.

The City's building inspection analysis evaluated the hangar maintenance space under the category of Group H, Division 5. It is our experience with other counties and cities, that a classification of Group S, Division 5 might be allowed in lieu of this. It is our understanding that the H-5 category only is necessary if maintenance repair work in the space utilized welding and/or open flame. The repair services observed in the space did not appear to need this more restricted category.

1.3 ADA Issues: The toilet rooms, FBO front counter area, are not in compliance with ADA standards and should be planned for bringing into compliance during a future renovation project. Likewise, door hardware should be revised to lever type handles, and revision of signage to meet current standards, and other miscellaneous changes that can be made to bring the building closer into compliance with ADA standards. It is recognized that existing buildings often cannot be brought into 100% compliance with ADA. What is important is to make the restrooms, entry, and high public use areas as compliant as possible.

1.4 Seismic/Wind: The building clearly does not meet current seismic standards. It is suspected that the concrete masonry units (CMU) do not have steel re-bar reinforcement grouted at regular intervals as would be required by the code. Thus, the building may technically be

considered an "unreinforced masonry building", which in many jurisdictions of western Oregon can cause it to be classified as a "dangerous building".



However, inspection of the interior and exterior CMU did not result in findings of any significant failure at this time. There is some spalling of the CMU on the exterior south facing freestanding walls near the east side entry corridor, probably due to water entry at the parapet above – due to inadequate flashing or sealing of the CMU.

It is recommended that selective demolition of a portion of the building be made by a testing lab to determine the typical detailed structural design mechanisms for the building. If the building is deemed of "unreinforced masonry construction" then it is recommended that a FEMA structural analysis be conducted to determine the minimum design loads that should reasonably be accommodated for the building, along with some proposed structural improvements to provide adequate support during an earthquake.

Examples of solutions may be to provide a "shotcrete" steel reimforced shear wall on the interior of some of the larger CMU areas of the building. Alternatively, with the bottom portions of the roof opened it may be possible to add steel vertical reinforcement to the wall continuous from top to bottom and then grouted in place. These are design solutions that have been used on other unreinforced masonry buildings in the Willamette Valley.

1.5 Maintenance & Repair Issues: The south three hangars have major roofdeck deterioration and will require at a minimum complete removal and replacement of all decking.

In addition, there are numerous reported water leaks in the roof over occupied portions of the building. It is believed that the entire roof needs replacement or repair.

1.6 Life Expectancy: The building has largely expended its life expectancy. Due to major roof and structural needs, the building is at a point where it would be desirable to perform a major renovation of the space.

1.7 Re-use Potential: The hangar bays are relatively small under current maintenance hangar standards. It is more typical for an aircraft maintenance facility to have a larger hangar so that multiple aircraft can be located in the same space. The height of the hangar doors is a problem in that it is relatively low. Finally the hangar door system requires removing portions of the track system in order to get aircraft in and out.

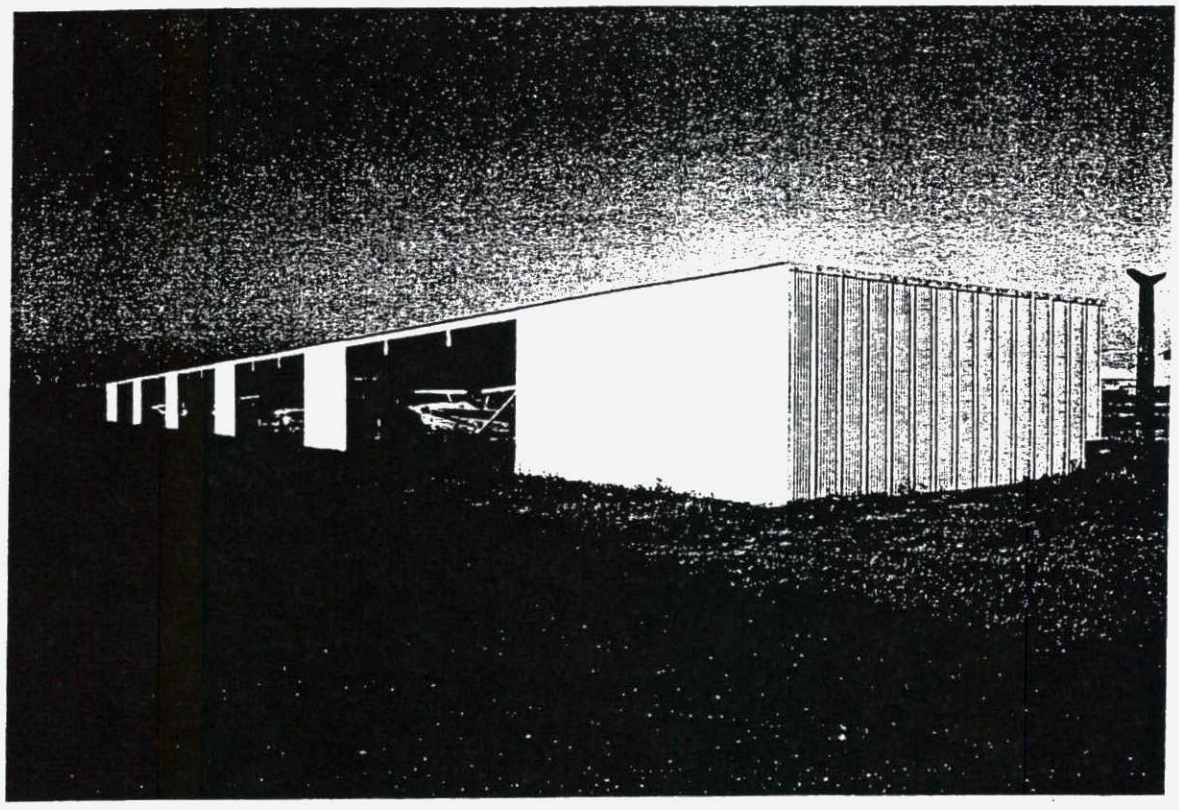
1.8 Historic Status: The building is not considered a historic building.

1.9 Recommendations: It is believed that this building has generally reached a point where it should either be demolished or receive a major renovation plan. Extensive work is required on the roof, the basic lateral structural system, ADA compliance requirements especially at the restrooms and other public areas, as well as a long list of specific code or repair items as shown in the City building inspection report. It is recommended that if the building is to continue in use, that some form of master plan for a major renovation be prepared. Then, on a priority basis, repair items should be undertaken either in total or on a phased basis so that within a period of say five years, the building is brought into substantial compliance with building code, fire and life safety, ADA, and seismic applicable standards.

2.0 NORTH T-HANGAR

2.1 General Commentary: The north T-hangar consists of 11 hangar bays in an open building of size approximately 30' x 306' long, thus providing an undercover area of approximately 9,180 sf. A typical opening for aircraft is 39'-6" wide x 9'-8" high. This size is suitable only for small aircraft. It is an open building with no doors. The building appears to be in reasonably good condition with the exception of bracing, which should be repaired of replaced in the building as discussed below.

2.2 Building Code/Fire & Life Safety: A detailed building code and fire and life safety inspection was performed by the City of Albany staff in 1998. We generally concur with their very detailed analysis. However, we believe that some of the internal 1/2" diameter rod X bracing can be re-used through repair, rather than being fully replaced. Metal strap bracing in the walls and roof may either be replaced, or the metal skin re-analyzed for its structural capability of providing the diagonal bracing. Some metal building manufacturers are now using the steel sheathing for designed lateral stability (for example, Alliance Engineering LLC, Nicholas Jasper, Salem, Oregon, 503-589-1727). This is a specialized kind of analysis, that should be undertaken by a structural engineer who has extensive experience with this type of light metal building.



2.3 ADA Issues: Since these are intended simply as storage hangars for aircraft, and passengers can be picked up in the terminal building area, it is believed that these hangars would not be required to meet special ADA criteria.

2.4 Seismic/Wind: Seismic would not be a factor in this building since it is of light steel construction. However, it is unlikely the building is designed for current wind standards. However, the building would typically be grandfathered in as it was likely designed to some wind structural design standards at the time of construction. It is recommended that when a structural analysis is performed for maintenance of the lateral stability of the straps and/or metal skin system, that consideration be made to upgrade the lateral strength to meet current wind standards. It is noted that if doors were to be placed on the hangar, the wind loading and uplift criteria would change for the building. It would be desirable when upgrading the building to consider both design configurations and perform the upgrade to the greatest requirements of each case.

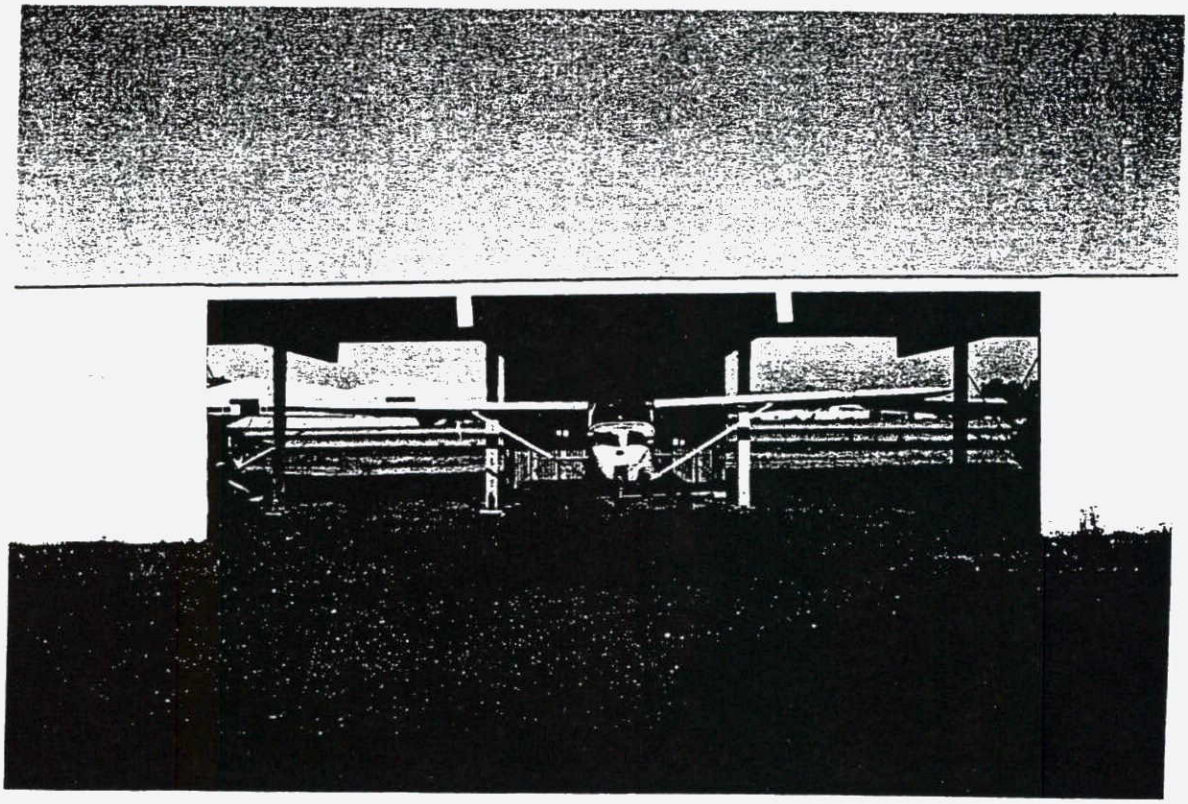
2.5 Maintenance & Repair Issues: The City identified minor roof leaks and some holes in the exterior sheet metal, as well as a need for replacement of metal and wood grip ledges and fire extinguishers. It was noted that some support beams have end rotation. We reviewed those conditions and did not identify any that appeared to be due to actual structural failure of any kind. However at the time of future building maintenance and repair, this item could be examined in more detail.

2.6 Life Expectancy: The building appears to have good future use as long as maintenance and repairs are made.

2.7 Re-use Potential: The existing T-hangars provide a good source of low cost rental hangars for aircraft and thus have a high recommended continued use.

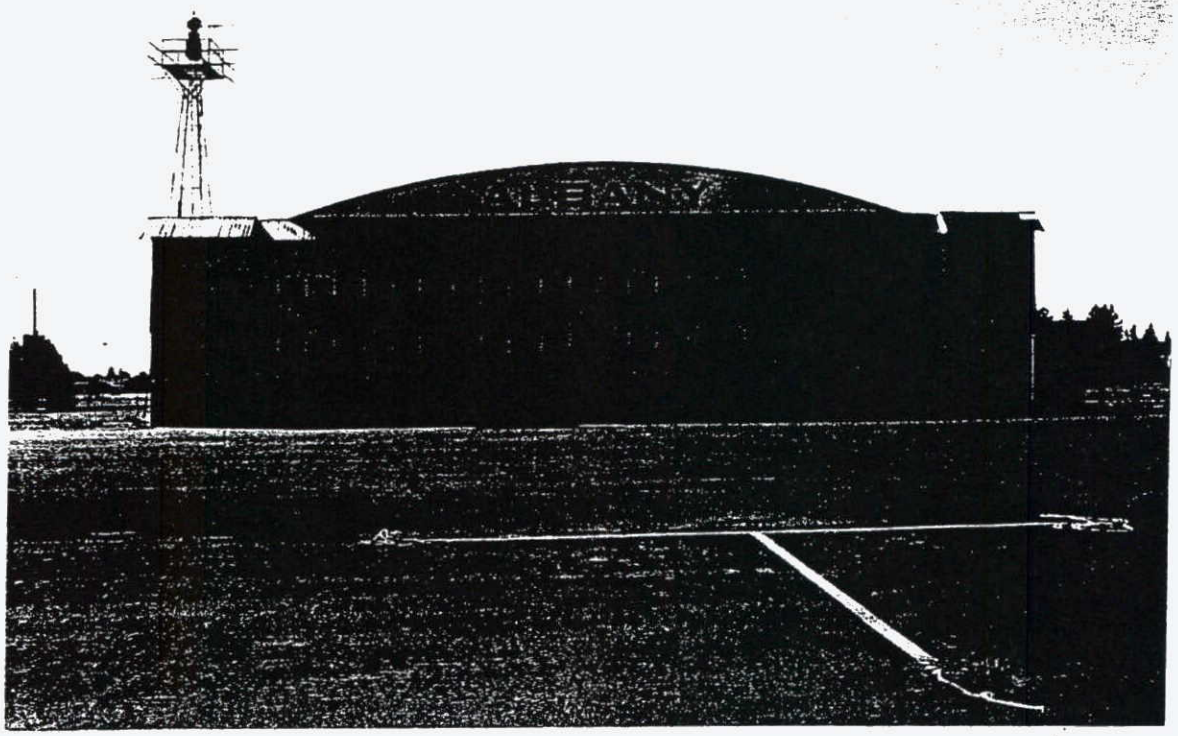
2.8 Historic Status: The building is not considered an historic building.

2.9 Recommendations: It is believed that this building can have a good continued future use on the airport. However, a detailed engineering analysis should be performed to determine whether the existing skin provides adequate lateral stability, and/or whether additional diagonal strapping should be provided for the wall and roof structures. The interior 1/2" diameter steel rod bracing should be inspected and repaired as necessary, and all structural steel should be cleaned and repainted to protect it from deterioration.



3.0 LARGE HISTORIC HANGAR

3.1 General Commentary: Albany Airport "big hangar of 1929" is listed on the National Register of Historic Places because it is a rare example of a once common lattice truss structural design commonly used in the 1930's. The 80' x 100' building was moved 300' to the southeast in 1957 to make way for Interstate I-5.



The building appears to be in reasonably good condition and is aesthetically a very beautiful space. The current building configuration includes an upper mezzanine level on the north quarter of the building, as well as some office expansion on the northeast corner of the building.

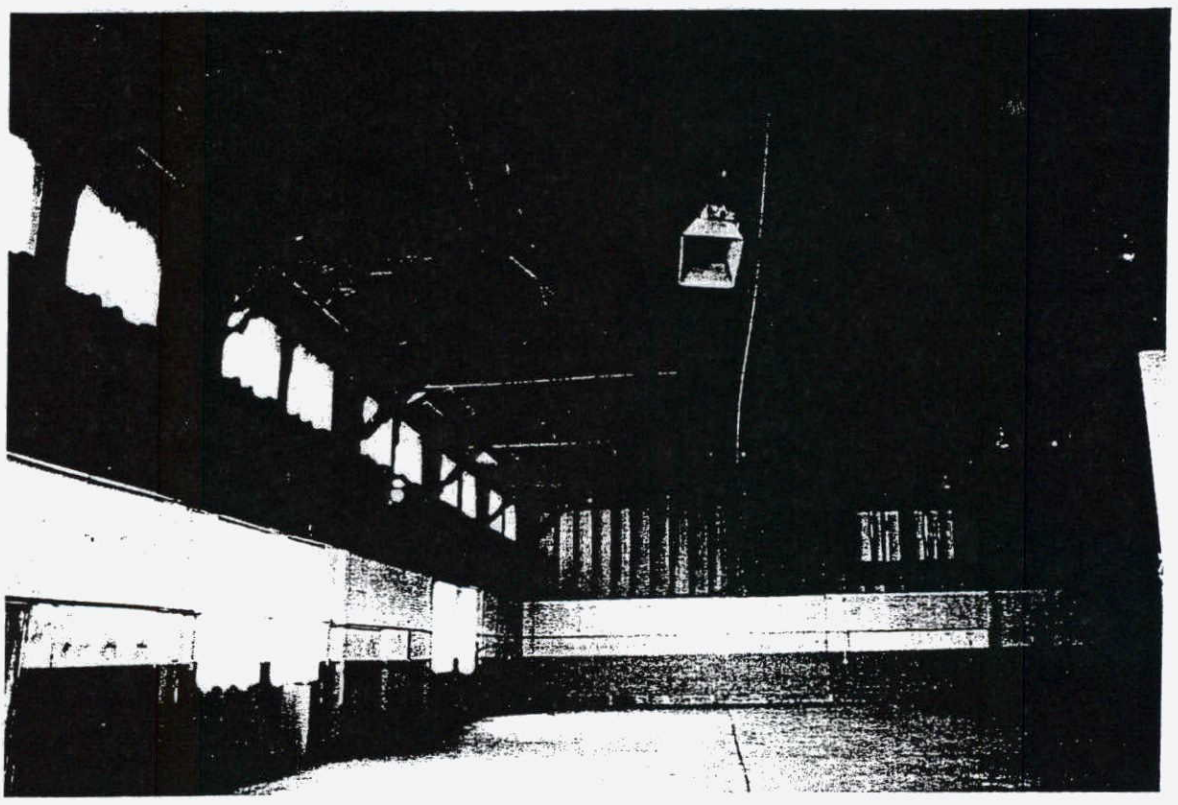
The hangar door is approximately 60' wide x 19'-6" high, thus this hangar could accept aircraft with high tail and wing span up to say 55'. Thus, this hangar could accommodate larger corporate aircraft such as a Beach King-Air, Cessna Citation, de Havilland Beaver, Lear Jet, Hawker Jet, Rockwell Turbo Commander, and other similar sized aircraft.

3.2 Building Code/Fire & Life Safety: A detailed building code and fire and life safety inspection was performed by the City of Albany staff in 1998. In general we concur with their very detailed analysis. It is common in older buildings to find many items that do not meet current codes and that under some circumstances may constitute hazardous conditions. As with all old buildings, it will be important to develop a master plan that prioritizes the need for improvements and develops a schedule for their implementation.

It is common in historic buildings that the structural systems are to a large extent "indeterminate". Should detailed structural analysis be performed, it will be important to utilize engineers who are familiar with the historic performance of such indeterminate structural systems as the lattice truss of this building.

The City's building inspection analysis evaluated the hangar maintenance space under the category of Group H, Division 5. It is our experience with other counties and cities, that a classification of Group S, Division 5 might be allowed in lieu of this. It is our understanding that the H-5 category only is necessary if maintenance repair work in the space utilized welding and/or open flame.

3.3 ADA Issues: The toilet rooms, FBO front counter area, are not in compliance with ADA standards and should be planned for bringing into compliance during a future renovation project. Likewise, door hardware should be revised to lever type handles, and revision of signage to meet current standards, and other miscellaneous changes that can be made to bring the building closer into compliance with ADA standards. It is recognized that existing buildings often cannot be brought into 100% compliance with ADA. What is important is to make the restrooms, entry, and high public use areas as compliant as possible.



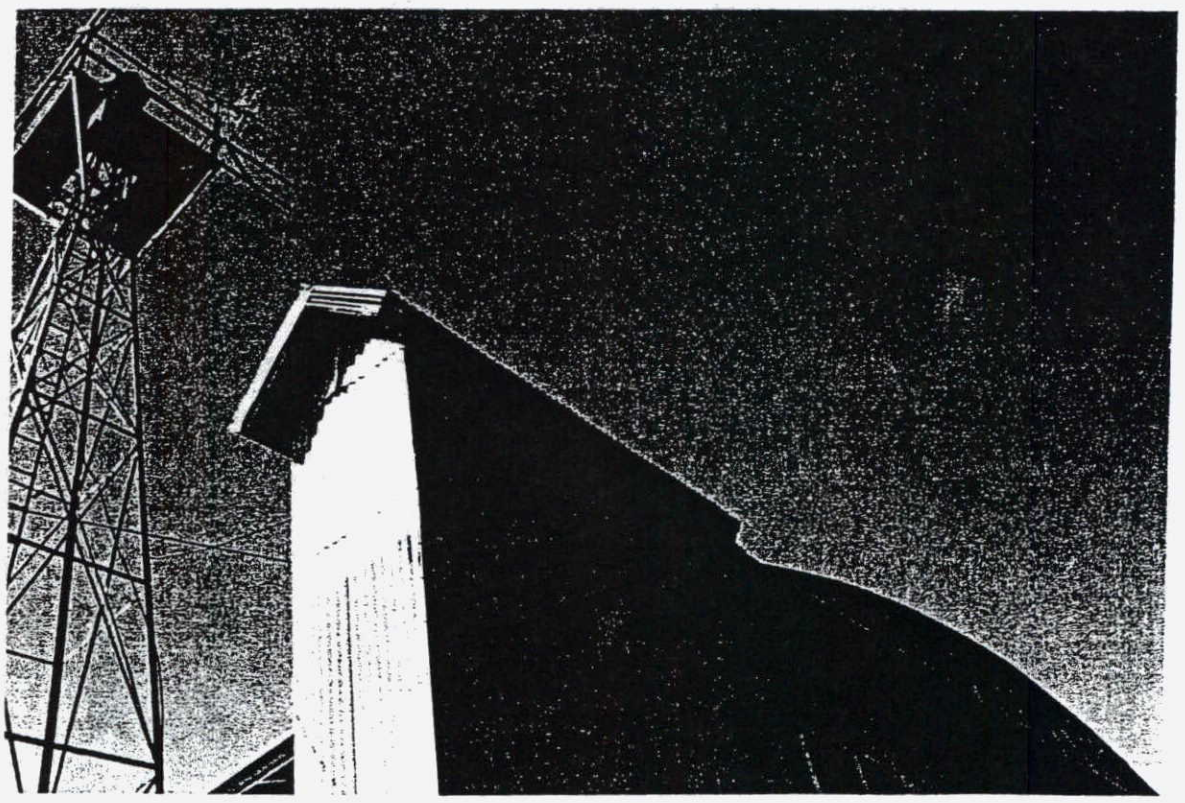
3.4 Seismic/Wind: If the building were to be used as an aviation museum, it would likely be classed as a Group A occupancy. Since this use would be considered to have larger numbers of people present in the hangar at a time than would a maintenance or storage hangar building, building officials typically require a seismic and/or wind analysis to ensure that some reasonable level of safety is present for this increased occupant load. No signs of significant structural failure were noted in the building at the time of inspection. Thus based on the 70 year existence of the building, one would guess that the structural system is in fact quite a good one, as there have been many major wind storms in the Willamette Valley during that time

period, which provided in situ tests of the structural system. If further analysis were required by the building official, it is recommended that a structural engineer be utilized who has extensive prior experience with historic buildings, and hopefully knowledge of how to evaluate the lattice style trusses. Modern computer structural analysis programs may be quite helpful in determining accurate structural capacity of indeterminate structures such as this one.

3.5 Maintenance & Repair Issues: The building has apparently not been occupied for some time. Thus it is clear there is much maintenance and repair work needed, especially in the office areas. See the list contained in the City's building inspection report.

3.6 Life Expectancy: The building has existed for over 70 years. This includes a 300' move of the building to create space for construction of Interstate I-5. With continued maintenance and repair, there is no obvious reason that this building could not be retained and used for another 70 years.

3.7 Re-use Potential: As an historic structure, an obvious good use for the building would be as an aviation museum. Alternatively, there may be an aviation related business that would desire the use of the space for aircraft storage or FBO use, by virtue of the "interest" of the space and its unique qualities. The lack of insulation in the walls and roof make this building somewhat difficult for use during the winter months. Of course, if funds are available it would be possible to insulate the building, with the method of insulation determined based on Dept. of Interior standards for historic buildings.



3.8 Historic Designation Issues: The building is listed on the National Register of Historic Places. Under federal and state rules, any renovations to the building should be reviewed with the State Historic Preservation Office prior to their construction. Renovation, improvements, and upgrading are allowable. However, the specific design details must respect the important aspects of the building which were responsible for its nomination and acceptance. Rehabilitation standards for many types of construction and materials are available from the Dept. of Interior.

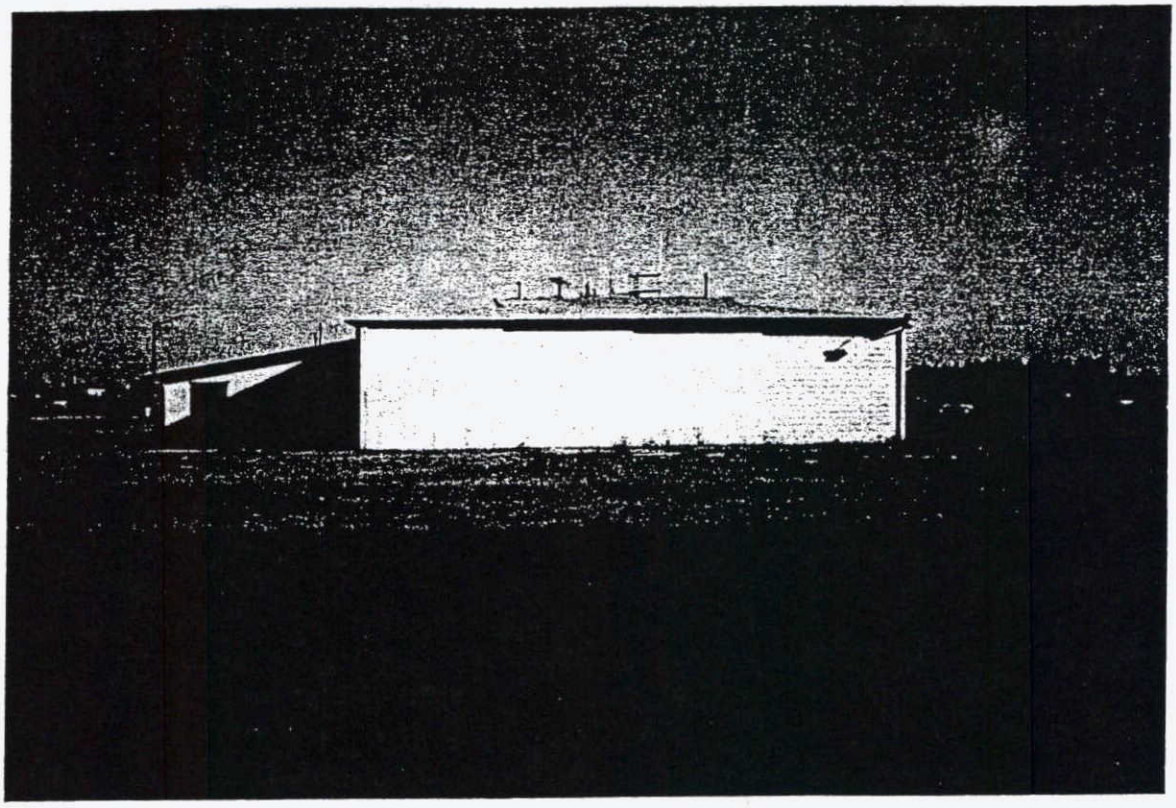
3.9 Recommendations: It is believed that this building can have a good continued future use on the airport. It would be desirable to first determine what use the building will be put to -- for example, will it be a corporate hangar, a museum, a maintenance hangar, or some other use? Then, depending on the intensity of use and whether the occupancy classification will be changing, a review of building code requirements and ADA needs can be developed. It would then be hoped that a master plan for phasing in of all needed improvements can be agreed upon with the building official. For older historic buildings such as this one, there will need to be a partnership between the future building tenant and the City to find cost effective ways to make improvements. During the July 29, 1999 airport development meeting, it was noted that ODOT is soliciting project proposals for the "State-wide Enhancement Program: Transportation Enhancement Activities" under TEA-21. In particular, they have requested proposals for historic preservation, and rehabilitation and operation of historic transportation buildings. It is recommended that the City pursue such a grant program as this for planning and design costs, as well as potentially for construction costs.

4.0 QUAD HANGAR

4.1 General Commentary: The quad hangar building originally consisted of a square building approximately 56' x 56', with a 41' door on each of four sides. It was subsequently modified to add an office area on the west side of the building, thus resulting in hangar space for 3 aircraft, and the development of approximately 750 sf of office area. The door is approximately 40' wide x 10'-6" high. This size is suitable only for small aircraft. The building reportedly had major structural failure during a wind storm many years ago. It was then repaired to meet City engineering standards and is believed to be structurally sound today. The building is one of the few well insulated buildings on the airport, and thus has some special value because of that.

4.2 Building Code/Fire & Life Safety: A detailed building code and fire and life safety inspection was performed by the City of Albany staff in 1998. In general, we concur with their very detailed analysis.

4.3 ADA Issues: The toilet rooms, FBO front counter area, are not in compliance with ADA standards and should be planned for bringing into compliance during a future renovation project. Likewise, door hardware should be revised to lever type handles, and revision of



signage to meet current standards, and other miscellaneous changes that can be made to bring the building closer into compliance with ADA standards. It is recognized that existing buildings often cannot be brought into 100% compliance with ADA. What is important is to make the restrooms, entry, and high public use areas as compliant as possible. Since these are intended simply as storage hangars for aircraft, and passengers can be picked up in the terminal building area, it is believed that these hangars would not be required to meet special ADA criteria.

4.4 Seismic/Wind: The building reportedly was upgraded following a wind induced structural failure. Thus, it is believed that the building meets some reasonable seismic/wind lateral standards.

4.5 Maintenance & Repair Issues: The building is currently unoccupied and appears to be in general need of some maintenance and repair. See the list in the City's building inspection report.

4.6 Life Expectancy: With continued maintenance and repair, it is believed that this hangar can continue to have a useful life on the airport.

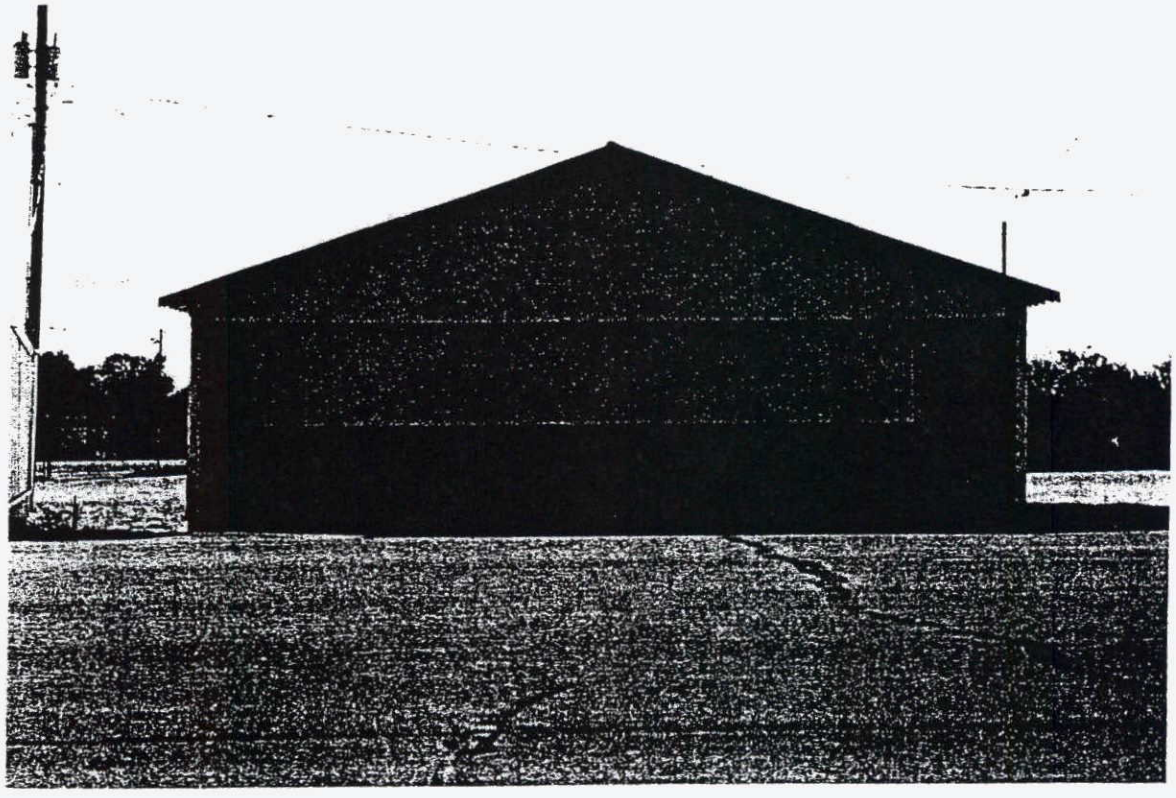
4.7 Re-use Potential: The hangar portion of the building is useful for storage of small aircraft. The adjoining office could be used for a tenant that has an aviation related business.

4.8 Historic Designation Issues: The building is not considered an historic building.

4.9 Recommendations: The building could be leased to a business and/or individuals for use in aircraft storage and/or business related aviation. Negotiations wiith the building official would be required to establish what maintenance or repair items are needed prior to occupancy. A schedule could be established for maintenance repair of remaining items that are not deemed essential by the building official prior to initial occupancy.

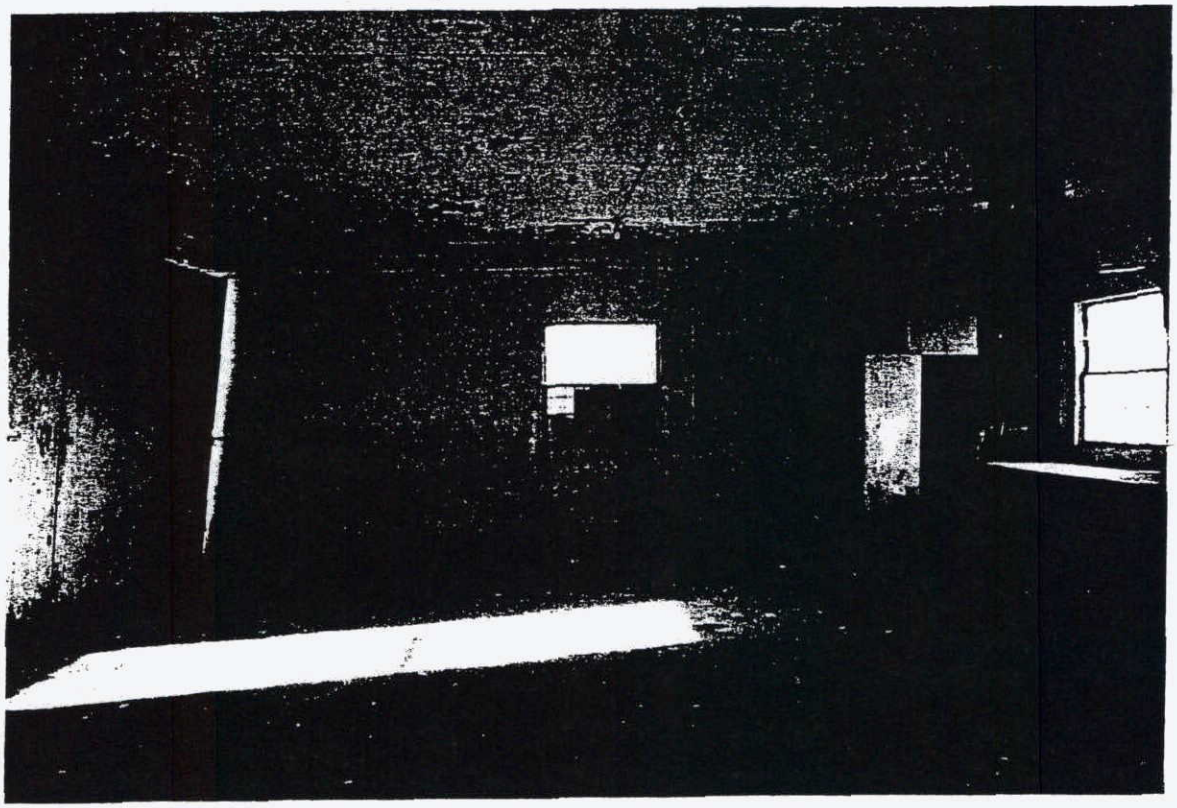
5.0 SMALL HISTORIC HANGAR

5.1 General Commentary: The small historic hangar was reportedly constructed in 1930, just after the construction of the big hangar. Like the big hangar, it was moved to its present site in 1957 due to the creation of Interstate I-5. It is approximately 30' x 40' in size. There is approximately 38' wide x 9'-11" high clearance. A typical opening for aircraft is 39'-6" wide x 9'-8" high. This size is suitable only for small aircraft. It is not believed that there is any particular structural or technical uniqueness to the structure, as is the case for the big hangar.



5.2 Building Code/Fire & Life Safety: A detailed building code and fire and life safety inspection was performed by the City of Albany staff in 1998. In general, we concur with their very detailed analysis. The building is in generally unusable condition currently, as the main hangar doors do not appear work at this time. The interior space is generally quite in need of repair and fix-up.

5.3 ADA Issues: As a storage hangar, it is believed that ADA improvements are not necessarily required. However, if the hangar was to be used for more than simply hangar storage (such as some office use, or historic demonstration use) then it would be desirable to allow wheelchair access into the hangar space. Since these are intended simply as storage hangars for aircraft, and passengers can be picked up in the terminal building area, it is believed that these hangars would not be required to meet special ADA criteria.



5.4 Seismic/Wind: The building has apparently survived 70 years of wind storms, just as the big historic hangar has, without any major failure. Likewise, there is no current sign of significant structural failure in the building system. There is no significant lateral shear wall along the east side of the building, which contains the hangar door system. It is likely that the hangar door itself provides some support in that wall plane during peak wind events. Thus, as with most hangars, it is probably important that the hangar door remain closed during any high wind conditions.

5.5 Maintenance & Repair Issues: The entire building appears to be in general need of maintenance and repair.

5.6 Life Expectancy: It would appear that if the building continues to receive regular maintenance and repair, that it could continue on to be used as an aircraft hangar for many years.

5.7 Re-use Potential: It would appear that the principal re-use option for the space is as a single aircraft hangar. Perhaps if it were offered up with a long term lease, it would be economical for a tenant to rebuild and restore the building to good condition.

5.8 Historic Designation Issues: This building is listed on the National Historic Register. Under federal and state rules, any renovations to the building should be reviewed with the State Historic Preservation Office prior to their construction. Renovation, improvements, and upgrading are allowable. However, the specific design details must respect the important aspects of the building which were responsible for its nomination and acceptance. Rehabilitation standards for many types of construction and materials are available from the Dept. of Interior.

The hangar doors utilize an interior track system whereby they roll back along the inside faces of the side walls. It would be interesting to know if this is the original configuration, or whether this is a more recent door system.

5.9 Recommendations: It is believed that this building can have a good continued future use on the airport. However, there are many repair and maintenance items that need to be accomplished to preserve the building for the future. Perhaps by providing a long term lease to a tenant, a tenant could afford to perform the needed renovation work.

6.0 REFERENCE INFORMATION

The following information will be important for use in developing detailed renovation, restoration, or maintenance improvements to the Albany Airport buildings:

1. Albany Municipal AIrport: Building Inspection Report, prepared by Community Development -- Building Division and Fire Department, December, 1998.

   This is an extremely detailed evaluation of hazardous conditions, code deficiency, maintenance, and fire safety needs for each of the buildings. The review appears to evaluate buildings in terms of the state building codes current at the time of inspection. Thus, it provides a good, exhaustive list of needs that should be provided if the buildings need to fully comply with current building codes. However, it is noted that with older buildings, and especially with historic buildings, it is common to develop negotiated solutions to code problems that may not ultimately provide 100% compliance with current codes. The key is to provide improvements which result in a building that is considered sufficiently safe to not create a hazard to the public, and/or to use alternative building systems that provide comparable levels of safety to that established by the codes.

END OF MEMORANDUM
by Aron Faegre

APPENDIX 3
AIRPORT FUEL ALTERNATIVES

Draft

Albany Municipal Airport
Conceptual Aviation Fuel Alternatives

David M. Miller, AICP
Century West Engineering, 8/99

Overview

As noted previously, aviation fuel storage at the airport must be upgraded by the end of 1999 to meet state fire codes. The City of Albany after studying this issue has opted to install a new aboveground fuel storage tank to replace the mobile fuel storage trucks operated by the fixed base operator (FBO). Addressing fuel facility needs was identified as a high priority for the airport, and as a result, required attention earlier in the master planning process.

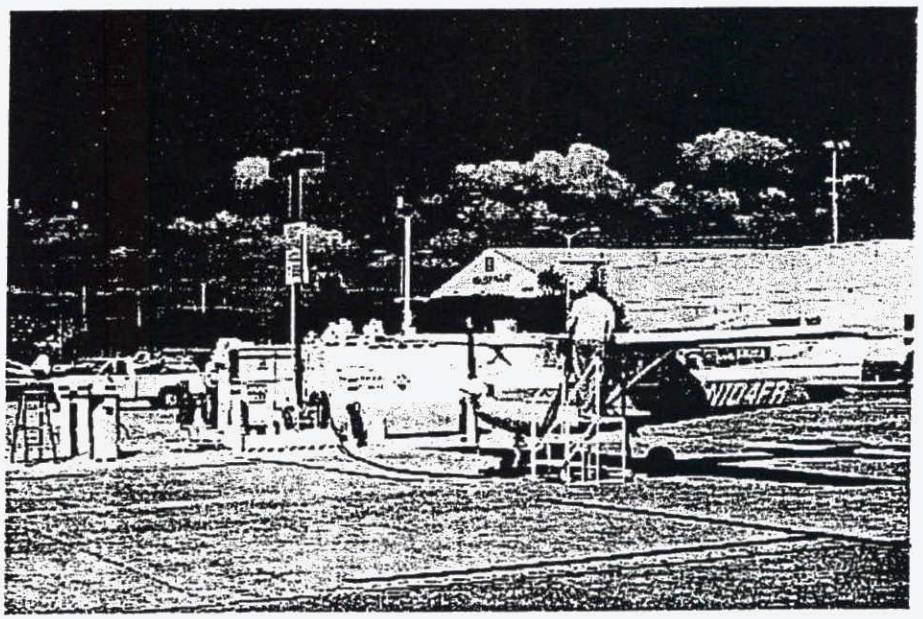
Through initial consultations between the consultant, city staff, local fire marshal, and the FBO, several basic decisions were made:

1. The new fuel tank will be aboveground.
2. The tank will have a 12,000-gallon capacity; options for partitioning the tank may be considered.
3. A reserve for a second tank will also be planned.
4. The tank will be used for 100 LL Aviation Gasoline (AVGAS).
5. The tank design/installation should be "card-lock" compatible.
6. The tank and dispensing area will be located near the south end of the main apron.

Concerns over potential apron congestion and providing an efficient flow of taxiing aircraft led to a consensus that the southern end of the main apron was the best location for aircraft fueling. This location can also be serviced from the existing FBO offices and ramp area. Each of the alternatives locates the fueling facilities near the south end of the main apron, south of the Reliant Aviation/FBO building. The tank locations are in accordance with minimum structure and roadway setbacks defined by the local fire marshal.

Based on these factors, three aviation fuel facility alternatives were developed for the airport. The primary distinction between the options is related to the location of the fuel pumps (i.e., close in, mid-apron, outer-apron). The three options involve different piping and aircraft apron requirements.

The open space located adjacent to the fuel tanks (adjacent to the southern end of the main apron) may be developed as vehicle parking or FBO building expansion reserves. It is assumed that the airport access road will be extended to the south in a relatively straight alignment and that the road alignment will not affect a tank installation with setbacks not extending further west than the west face of the Reliant building.



Typical General Aviation Fueling System

For each of the alternatives, a new south access taxiway (25 feet wide) is located at the existing southern end of the apron. The addition of a new connector to the parallel taxiway will promote smooth ground movement of aircraft in and around the fueling area. Some existing tiedowns located near the south end of the apron would be eliminated to accommodate the fuel area. The portable hangar located near the southern end of the main apron would be relocated. The unpaved area bordered by the parallel taxiway, the main apron connector taxiway and the future south taxiway connector can be paved to provide additional aircraft tiedowns (except Alternative 3).

Fuel Tank Dimensions and Capacities

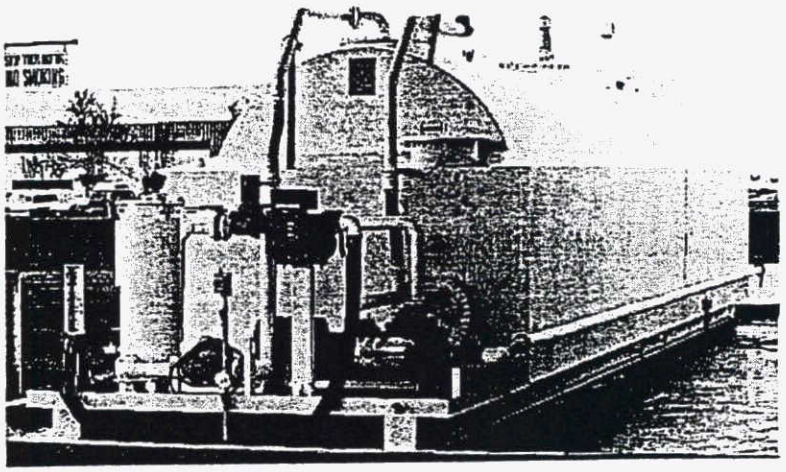
The fuel tank storage area dimensions are based on a 12,000-gallon above ground tank.
Approximate Tank Dimensions: 112" wide and 463" long.

Tank Setbacks:

15 feet (min.) from nearest building or nearest side of any public way
25 feet (min.) from property line
3 feet between tanks.

For planning purposes, the tank installation included space for two 12,000-gallon tanks with a 5-foot space surrounding the tanks. The overall area is 35 feet wide and 44 feet long and is fenced. Vehicle protection posts can be installed inside or outside the fence. Additional reserve space should be provided for a third fuel tank.

The fuel tanks would be serviced and restocked by vehicles on the apron side of the tanks, entering through the existing 40-foot wide gate at the north end of the Reliant building. Access to the tanks from the roadway would be very limited due to the restricted ability of large trucks to turn in the small space.



Typical General Aviation Fueling System

Aviation Fuel Storage/Dispensing Alternatives Summary

Alternative 1 (mid point option)

This alternative locates the fuel pumps approximately 100 feet east of the Reliant building (southeast corner), near the midpoint of the main apron's narrow southern extension and near the midpoint of the main apron's depth). Approximately 140 feet of underground piping is required to reach the pumps, although no existing apron pavement would be affected.

The midpoint location of the pumps provides effective separation between aircraft fueling and existing buildings, fuel tanks, etc. The separation will provide flexibility and minimal congestion on the apron. A second phase of development would expand apron pavement and provide 360-degree access to the fuel island, maximizing aircraft fueling efficiency.

Advantages

- ✓ No new apron pavement required initially
- ✓ Phase 2 pavement expansion (1,200 SY) provides 360-degree access to fuel island
- ✓ Very good dimensional area available for fueling
- ✓ No existing apron pavement affected in trenching fuel lines
- ✓ Efficient use of existing/new pavement
- ✓ Fuel pumps close to FBO office

Disadvantages

- ✓ Moderate congestion potential
- ✓ Requires underground hard piping to fuel pumps

Alternative 2 (close in option)

This alternative locates the fuel pumps adjacent to the southeast corner of the Reliant building, at the edge of the main apron. Approximately 100 feet of piping is required to reach the pumps, although no existing apron pavement would be affected. This close-in location of the pumps allows aircraft to be fueled on approximately one-half (180 degrees) of the area surrounding the pumps. This alternative requires apron expansion in the unpaved area (1200 square yards) immediately southeast of the Reliant building.

The close-in option involves the least amount of hard piping, but locates the fueling directly adjacent to buildings with minimal separation. The close-in location of the pumps limits aircraft access to a half-circle (180-degree) area, which provides the least flexibility and capacity of the three options.

Advantages

- ✓ Lowest hard piping requirements (also allows above ground piping)
- ✓ No existing apron pavement affected in trenching fuel lines
- ✓ Fuel pumps closest to FBO office

Disadvantages

- ✓ New apron pavement required (1200 SY)
- ✓ Least dimensional area for aircraft fueling (180 degrees from pump)
- ✓ Least flexibility for future expansion/aircraft capacity requirements
- ✓ Least efficient for aircraft ground movement
- ✓ Highest congestion potential
- ✓ Minimum separation provided to buildings, aircraft parking, fuel tanks, etc.

Alternative 3 (outer option)

This alternative locates the fuel pumps approximately 190 feet east of the Reliant building (southeast corner), at the outer edge of the main apron. Approximately 300 feet of underground piping is required to reach the pumps, and approximately 90 feet of existing apron pavement would require cutting and repair when trenching the underground lines.

The location of the pumps allows aircraft to be initially fueled on one-half (180 degrees) of the area surrounding the pumps (on existing pavement). A second phase of apron expansion would allow full aircraft access (360 degrees) to the pumps.

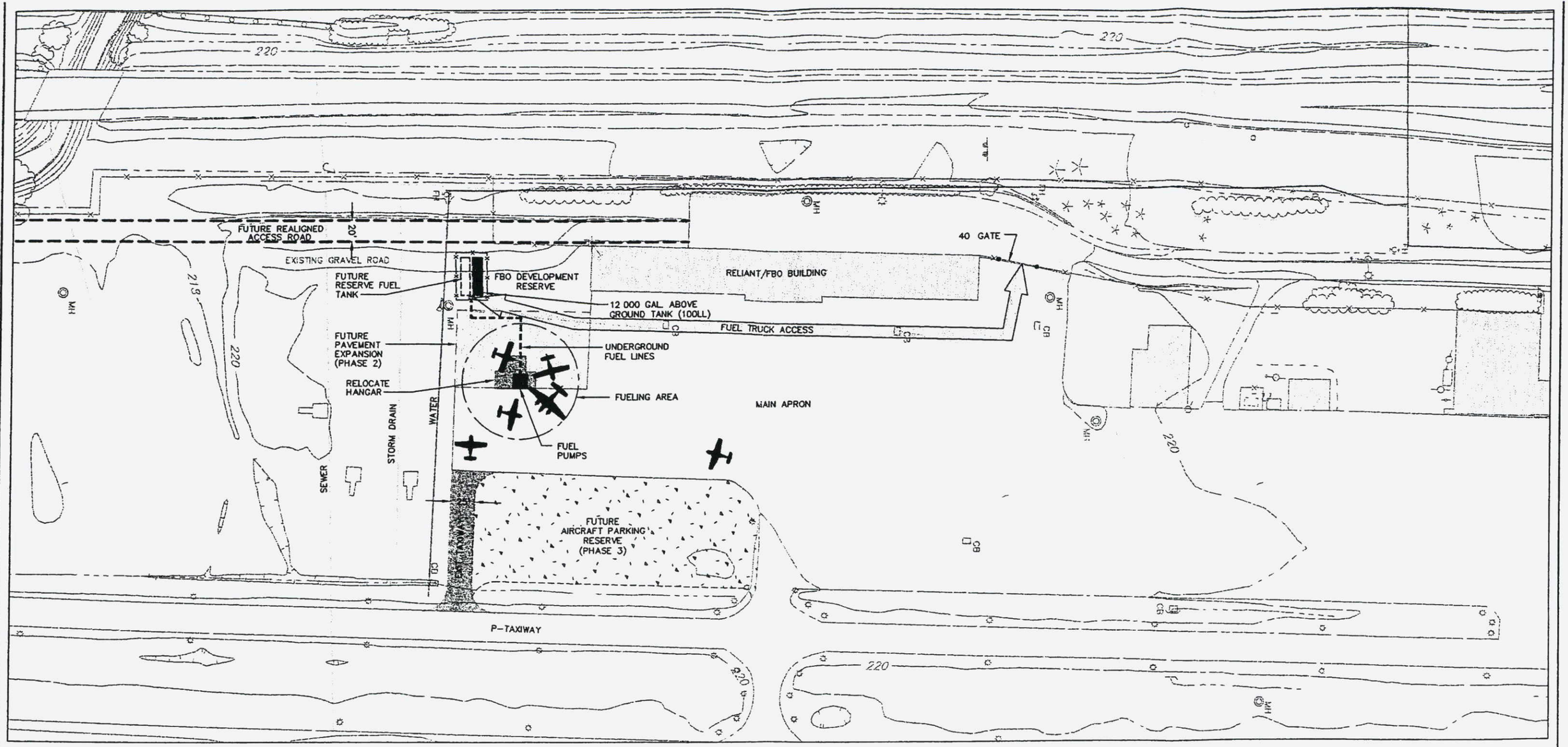
The outer location of the pumps maximizes the separation between aircraft fueling and existing buildings, fuel tanks, etc. The increased separation will provide the most flexibility and minimal congestion on the apron. The second phase of pavement providing 360-degree access to the fuel island will maximize aircraft fueling efficiency.

Advantages

- ✓ No new apron pavement required initially
- ✓ Phase 2 pavement provides 360-degree access to fuel island
- ✓ Maximum dimensional area available for fueling
- ✓ Maximum separation provided to buildings, aircraft parking, fuel tanks, etc.
- ✓ Maximum flexibility for future expansion/aircraft capacity requirements
- ✓ Most efficient for aircraft ground movement
- ✓ Lowest congestion potential

Disadvantages

- ✓ Greatest hard piping requirements
- ✓ Trenching and repair of existing apron pavement required
- ✓ Fuel pumps greatest distance from FBO office
- ✓ Largest pavement area dedicated to fueling with Phase 2 expansion (cost versus function)



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CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

FUEL ALTERNATIVE 1

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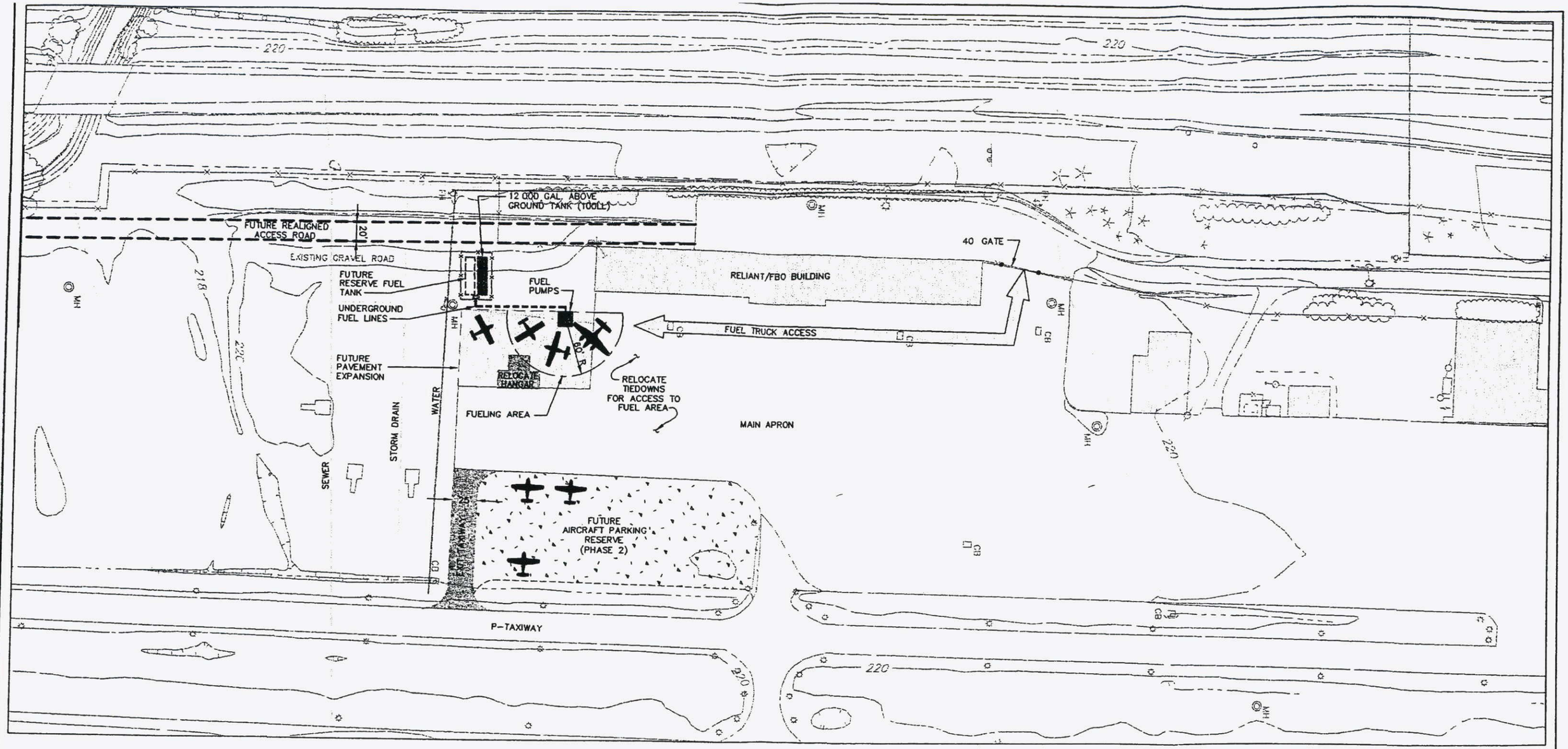

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CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

FUEL ALTERNATIVE 2

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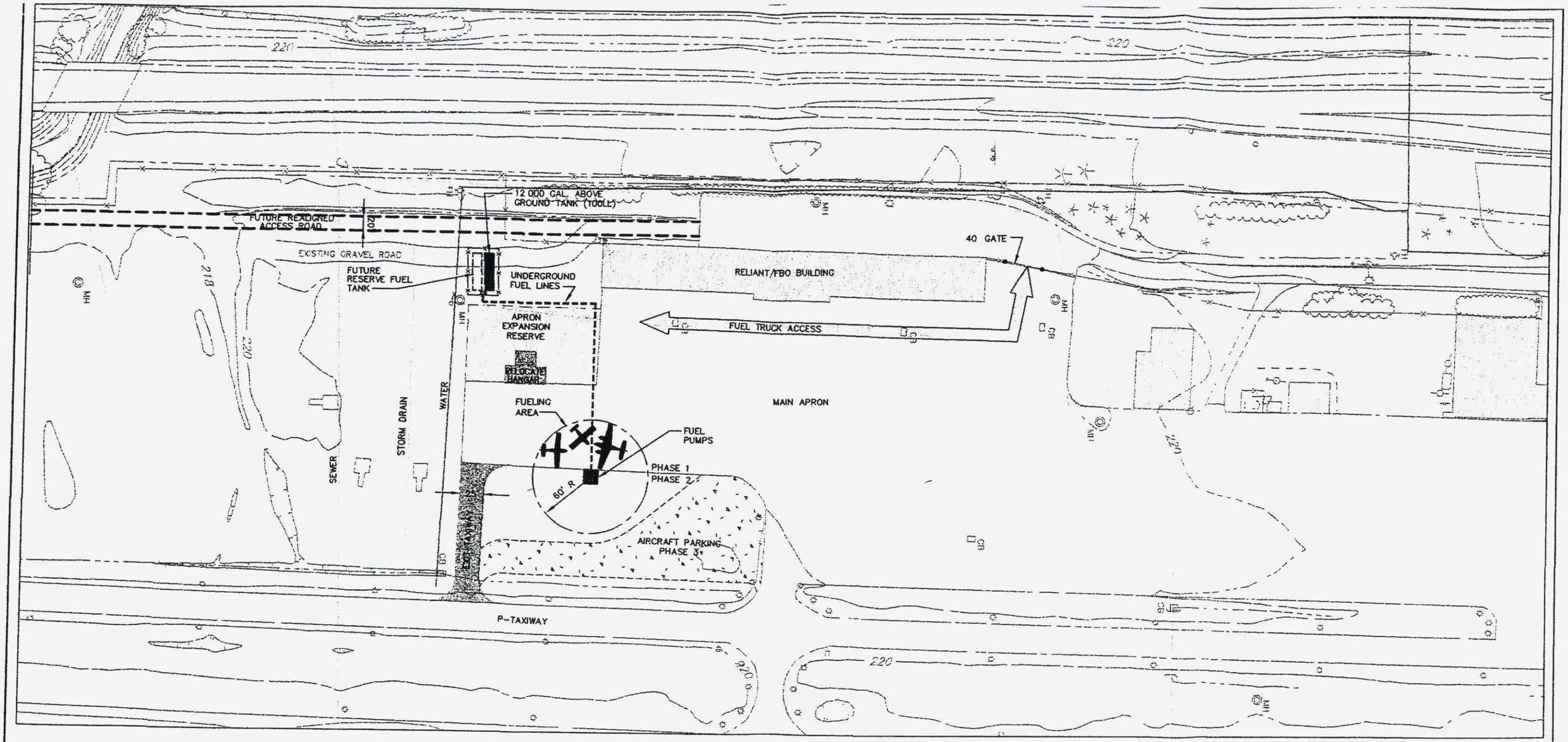

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CITY OF ALBANY
ALBANY MUNICIPAL AIRPORT

FUEL ALTERNATIVE 3

DRAWING NO

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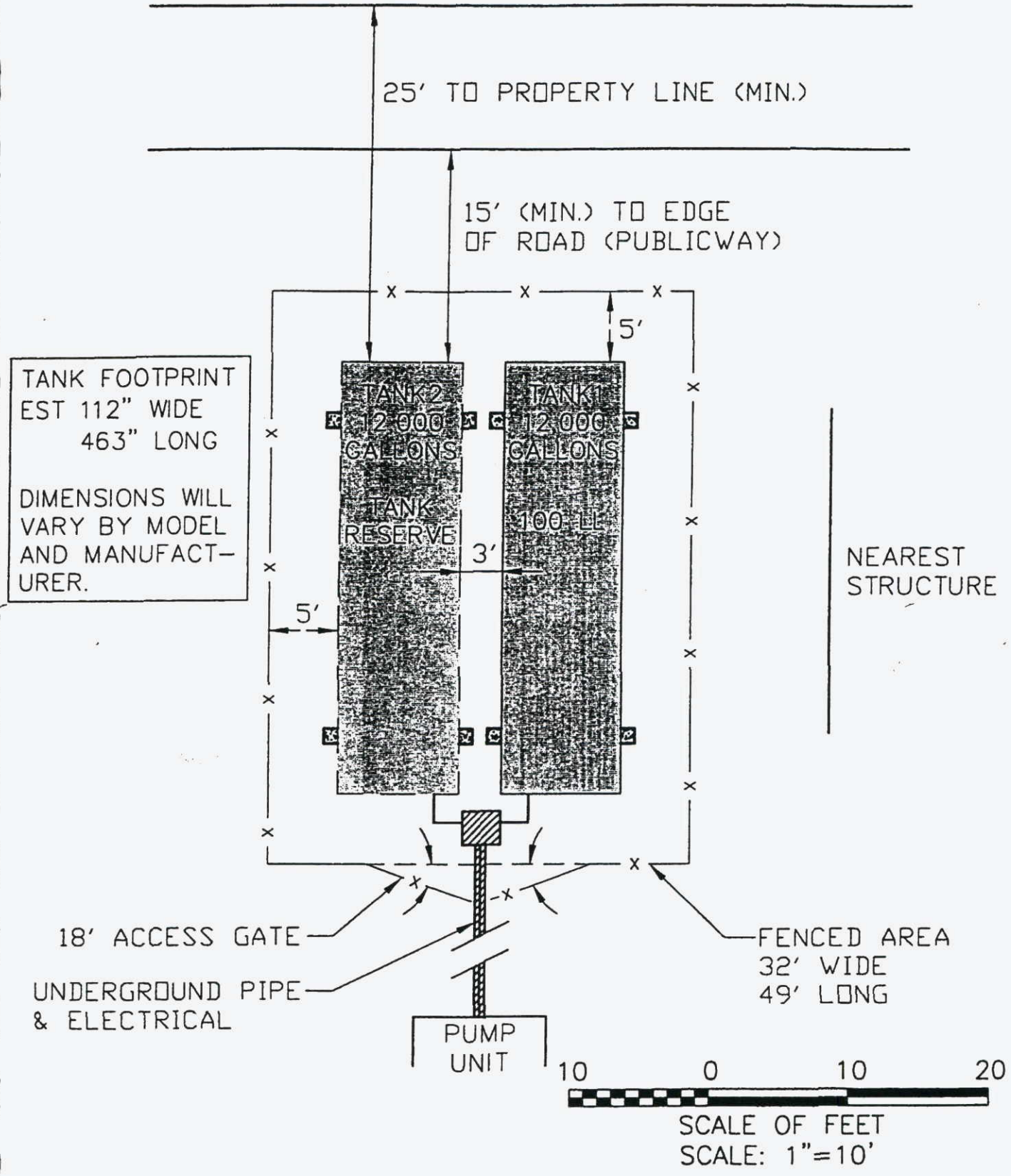
CONCEPTUAL - FOR PLANNING PURPOSES ONLY



DESIGNED BY: DM	CHECKED BY:	FUEL TANK LAYOUT ALBANY AIRPORT MP ALBANY, OREGON	CENTURY WEST ENGINEERING CORPORATION 825 NE Multnomah Suite 425 Portland, Oregon 97232 503-231-6078 phone • 503-231-6482 fax	DATE: 06/08/95
DRAWN BY: JLM	SCALE: 1"=10'			FIGURE: 1
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APPENDIX 4
AIRPORT TAXIWAY
BRIDGE MEMO

Albany Airport - Taxiway Bridge Evaluation

On June 16, 1999, a Century West representative was on site at the Albany Airport to inspect the condition of the existing taxiway bridge located at the southern end of runway 34.

The bridge spans approximately forty feet across a stream. The bridge is constructed of three flat-bed railroad cars. Pressure-treated 3x10 wood planks span transverse across the rail cars. A four to six inch layer of asphalt overlays the wood planks. The rail cars are supported and anchored into concrete pads at each end.

The riveted-steel rail cars are in good condition - minimal corrosion is evident throughout the spans. The pressure-treated wood planks are also in good shape. No immediate maintenance appears necessary. Within the next five years, we recommend re-painting the steel rail cars to ensure minimal corrosion protection.

The load carrying capacity of the bridge is substantial. Currently, the maximum anticipated aircraft load is approximately 12,500 pounds. This is well below the capacity of the bridge span and foundation. Each rail car has the capacity of 70,000 pounds, however, the existing foundation limits the bridge capacity to approximately 50,000 pounds. The service life of the bridge should easily last another 20 years considering the overall condition of the bridge, and the light, intermittent use.

APPENDIX 5
LCDC AIRPORT PLANNING RULES SUMMARY

Creed A. Eckert, AICP **Land Use and Environmental Planner**
(541) 752-2137 * creedo@peak.org

A SUMMARY OF LOCAL GOVERNMENTS' RESPONSIBILITIES UNDER LCDC's AIRPORT PLANNING RULES, OAR 660-13, AND ORS CH. 836.600-630

NOTE: Unless otherwise specified (i.e., except for those provisions of ORS Ch. 836.608), these regulations apply to all publicly owned, public use airports which were the base for three or more aircraft in 1994, and to all privately owned public use airports which are identified in OAR 738-090.

{Please also refer to the *Oregon Airport Land Use Compatibility Guidelines, November 1994*, for additional applicable requirements, and for "*best practice minimum standards*"}:

REQUIREMENT	COMMENT FOR *ALBANY* MUNIC. AIRPORT
ADVANCE THE INTENT OF ORS 836.600-630 / OAR 660-13:	
ORS 836.610(1): Amend Comprehensive Plans and Land Use Regulations consistent with LCDC rules under ORS 836.616-836.619.	SEE BELOW FOR SPECIFIC REQ'TS
OAR 660-13-0050: Adopt land use regulations to carry out ORS Ch. 836.608 and OAR 660-13.	SEE BELOW FOR SPECIFIC REQ'TS
OAR 660-13-0030(2): Adopt Comp. Plan and Land Use reg's consistent with 836.600-630, State Aviation System Plan, and coordinated with local TSP; affected state/federal agencies; local gov'ts; airport sponsors; and special districts. Encourage/support continued operations, vitality.	SEE BELOW FOR SPECIFIC REQ'TS
OAR 660-13-160(1): Update Plan, land use regulations at Periodic Review to conform w/these provisions, or at next update of Transportation System Plan, per OAR 660-12-0015(4) and OAR 660-12-0045(2)(c)&(d). If more than one local government is affected by the Airport Safety Overlay (see below), a Coordinated Work Program for all jurisdictions is required, concurrent with timing of Periodic Review (or TSP update) for the jurisdiction having the most land area devoted to the airport use(s).	DEV. COORDINATED WORK PROGRAM FOR ALL AFFECTED LOCAL GOVERNMENTS

REQUIREMENT	COMMENT FOR ALBANY MUNIC. AIRPORT
ADVANCE THE INTENT OF ORS 836.600-630 / OAR 660-13 (cont'd):	
OAR 660-13-160(5): Ensure all future amendments to Comprehensive Plan and / or Land Use Regulations are consistent with these provisions, unless the regulation or designation proposed is no different from that existing.	SEE BELOW FOR SPECIFIC REQ'TS
MAP AIRPORT BOUNDARIES, FUTURE AREAS, AND SAFETY OVERLAY ZONES:	
OAR 660-13-0040: (1)-(3), Adopt map of existing and planned airport improvements.	LOCAL ADOPTION OF UPDATED ALP SHOULD PROVIDE COMPLIANCE
(8) Adopt map delineating Safety Zones, compatibility zones, and existing noise impact boundaries identified by OAR 340-35. See also OAR 660-13-0070(1) and Exhibits 1 & 2 to Division 13.	ADOPT NEW ALP
FACILITATE CONTINUATION, GROWTH OF AIRPORT RELATED USES ON AIRPORT PROPERTY:	
ORS 836.616(2): Authorize as outright permitted uses those which are specified under subsections (a)-(j) of this section on airport property.	REVIEW AND INCORPORATE INTO PLAN, ORDIN's
NOTE: ORS Ch. 836.608, in it's entirety, relates to Privately-owned, private use airports with three or more based aircraft in 1994, and to Privately-owned, public use airports which are not identified by OAR 738-090:	
ORS CH. 836.608(2): Local planning documents establish airport boundary, including airport ownership vs. lease areas; developed/committed to airport uses as described in 836.616(2).	LOCAL ADOPTION OF UPDATED ALP SHOULD PROVIDE COMPLIANCE

REQUIREMENT	COMMENT FOR ALBANY MUNIC. AIRPORT
FACILITATE CONTINUATION, GROWTH OF AIRPORT RELATED USES ON AIRPORT PROPERTY (cont'd):	
ORS 836.608(3)(a): May not impose new limitations on continued operation of uses described in 836.616(2), above. Authorize growth of same if use(s) existed or were approved prior to 1/1/97 at an airport with three (3) or more based aircraft on 12/31/94.	REVIEW AND INCORPORATE INTO PLAN, ORDIN's
ORS 836.608(3)(b): May require public hearing for approval of establishment of new use(s) listed under 836.616(2) if clear and objective criteria pertain to compatibility and adequacy of public facilities, services.	REVIEW, INCORPORATE
ORS 836.608(4): Building permit review for growth of existing uses discussed under 836.608(3)(a) must be Administrative decision, unless one of the three criteria of subsections (a)-(c) apply.	REVIEW, INCORPORATE
ORS 836.608(5): Provides decision criteria (subsections (a)-(c) of this section) for proposed new uses described in subsection (3)(b), above.	REVIEW, INCORPORATE
ORS 836.608(6): Provide opportunity for applicant to demonstrate that standards for approval may be satisfied through imposition of Conditions. Ensure any Condition(s) of Approval imposed is/are clear, objective.	REVIEW, INCORPORATE
ORS 836.608(7): Airports otherwise subject to ORS 836.608 (please see above NOTE) with two or fewer based aircraft on 12/31/94 may adopt standards and requirements for new airports, expansion of airports, and regulation of airport uses and activities which are consistent with applicable statewide planning laws (NOT req'd to conform with these rules).	N.A.
END ORS Ch. 836.608 -	

REQUIREMENT	COMMENT FOR ALBANY MUNIC. AIRPORT
FACILITATE AIRPORT PLANNING, EXPANSION:	
OAR 660-13-0040(4): Adopt projections of aeronautical facility and service needs.	ADOPT NEW ALP
OAR 660-13-0040(5): Provide for airport uses not currently located, and expansion of existing airport uses, per criteria of subsections (a)-(e).	REVIEW, INCORPORATE
OAR 660-13-004 (4): Adopt a projection of needs for aeronautical facilities, services.	ADOPT NEW ALP
OAR 660-13-004(7): Describe types and levels of public facilities, services needed.	ADOPT NEW ALP
OAR 660-13-004(9): Request sponsor to provide economic and airport usage forecasts, review, modify / approve same. If sponsor does not provide, may limit boundaries to areas currently devoted to airport uses.	ADOPT NEW ALP
REVIEW, REGULATE FUTURE DEVELOPMENT PROPOSALS IN VICINITY TO ENSURE COMPATIBILITY:	
OAR 660-13-100: Adopt land use regulations for non-towered airport boundaries which permit numerous aviation and airport related uses and activities, as well as Agriculture and Forestry.	REVIEW, INCORPORATE
OAR 660-13-110: Allow industrial, manufacturing, and other uses within airport boundaries if consistent with local Plan, Statewide Goals, OAR's, and no significant hazard or limitation on approved airport use(s) would result.	REVIEW, INCORPORATE

REQUIREMENT	COMMENT FOR ALBANY MUNIC. AIRPORT
REVIEW, REGULATE FUTURE DEVELOPMENT PROPOSALS IN VICINITY TO ENSURE COMPATIBILITY (cont'd):	
ORS 836.623(2)(a): No new water impoundments of 1/4 acre or larger allowed in an approach corridor; within 5,000 feet from the end of a runway (only if hazard criteria under subsection 2(b) are met); or on land owned by the airport or sponsor, if land is necessary for airport operations.	REVIEW, INCORPORATE
(c) Local government may prohibit new water impoundments of 1/4 acre or larger between 5,000 and 10,000 feet from a runway end outside of an approach corridor, and between 5,000 and 40,000 feet w/in approach corridor w/instrument approach, only if hazard criteria met.	REVIEW, INCORPORATE
(d) If during a hearing under 836.608(3)(b), above, testimony or evidence is received by local government that a significant increase in hazardous movements of birds, as described in this section, may occur, adopt Findings of Fact addressing issue in final decision.	REVIEW, INCORPORATE AS APPROPRIATE
(e) Required wetlands mitigation associated with projects in the above described areas are authorized where off-site mitigation is not practicable.	REVIEW, INCORPORATE
ORS 836.623(4): Storm water management basins for airports identified in ORS 836.610(1), and agricultural water impoundments for crop irrigation, are not subject to these restrictions.	REVIEW, INCORPORATE
ORS 836.623(5): Seaplane landing areas are also not subject to these restrictions.	REVIEW, INCORPORATE
ORS 836.623(3): When information regarding a potential significant increase in hazardous bird movements is received in hearing process, forward information for FAA comment, prior to final action, for potential safety or compatibility standards which exceed those of LCDC's rules.	NOTE FOR FUTURE PROCEEDINGS

REQUIREMENT	COMMENT FOR ALBANY *MUNIC. AIRPORT*
REVIEW, REGULATE FUTURE DEVELOPMENT PROPOSALS IN VICINITY TO ENSURE COMPATIBILITY (cont'd):	
OAR 660-13-0070(2): Review future development in Airport Safety Overlay for compliance with maximum height limitations.	REVIEW, INCORPORATE
OAR 660-13-0080: (1) Adopt compatibility standards (a)-(g) which: prohibit new residential development and public assembly uses within Runway Protection Zones; Limit establishment of certain uses within noise impact boundary per OAR 340-35; Prohibit new and expanded Industrial uses which cause emissions which may cause hazards to aviation; Limit outdoor lighting which may create hazards to aviation; Coordinate with Aeronautics in reviewing proposed telecommunications transmission facilities; Regulate water impoundments per ORS 836.623(2)-(6); and Prohibit landfills near airports per DEQ standards.	REVIEW AND INCORPORATE INTO PLAN, ORDIN's AND FUTURE PRACTICES

NOTE: PER ORS 836.625, "*...limitations on uses made of land in (Farm Resource) Zones described in ORS Ch. 215.213 and 215.283 do not apply to the provisions of ORS Ch. 836.600 to 836.630 regarding airport uses.*"

APPENDIX 6
ADVISORY COMMITTEE & OTHER MEETING MINUTES

Aron Faegre & Associates 520 SW Yamhill Portland Oregon 97204 (503) 222-2546 FAX/222-6529

PROJECT MEMORANDUM
ALBANY AIRPORT MASTER PLAN
Building Renovation Cost Estimates January 7, 2000

The following are estimates of renovation costs for buildings at Albany Airport. These are construction cost estimates and would ultimately depend on the scope of work desired by the City and/or tenants, and will depend on bidding conditions at the time of work. It is recommended that 30% be added to all construction cost estimates to allow for 15% construction contingency, 10% A/E design, and 5% permits and testing.

Reliant Building Offices	Major Renovation	$65/sf
Reliant Hangar N. Wing	Major Renovation	$25/sf
Reliant Hangar S. Wing	Major Renovation	$50/sf
Reliant S. Wing	Demolition	$5/sf
New Hangar S. Wing	New	$45/sf
North T Hangar	Minor Renovation	$5/sf
Large Historic Hangar	Depends on Use	$5 to 50/sf
Quad Hangar	Depends on Use	$5 to 25/sf
Small Historic Hangar	Major Renovation	$25/sf
Small Historic Hangar	Move on Airport	$25/sf

END OF MEMORANDUM
by Aron Faegre

AF
cc: David Miller

B:\ALB-0107

Aron Faegre & Associates 520 SW Yamhill Portland Oregon 97204 (503) 222-2546 FAX/222-6529

PROJECT MEMORANDUM
ALBANY AIRPORT MASTER PLAN
Meeting w/ Airport Advisory Committee Feb. 24, 2000

This memo summarizes a meeting held at the Albany City offices to discuss continuing airport master plan issues for Albany Airport. Attending the meeting were: Ron Terhaar, John Pascone, Fred Koontz, Clayton Wood, Dick Olson (Master Plan Advisory Committee and Ex-officio Members); Glenda Radvansky, Dean Nebergall (Albany Public Works); Daniel and Penny Miltenberger; LaVonne Wood; Jerry Wilken; Ralph Reid, Jr.; Marion Glassey (public attendees); Gary Viehdorfer (State of Oregon Aeronautics); David Miller (Century West Engineering); and Aron Faegre (AFA). The following items were discussed:

1. Review & Approval of Minutes: Minutes were approved as written.

2. Update on Fuel System: Seminal Company has been awarded a design-build contract for the fuel facility. It will be constructed and in place in approximately two months. It will consist of a 12,000 gallon av-gas tank, approximately 80' of underground piping, and a fueling dispensing location. The fuel facility will be located to the east southeast of the FBO building in the grass area just at the edge of the tie-down apron.

3. Bridge Condition Letter Report: The existing taxiway bridge that connects to the restaurant and motel tie-down area south of the airport has been studied and found to be structurally adequate for taxiing aircraft as is currently used.

4. Airport Building Condition Report: A verbal report had been given at the last meeting. With the distributed materials, a copy of the written report has been given to all committee members. The most substantial discovery since the previous meeting is that the existing Reliant Building should be considered an "unreinforced masonry structure" under current State of Oregon building code standards. In the event of a major earthquake event as would be anticipated on a 50 to 100 year time period, the structural system of the existing building is likely completely inadequate. Current codes do not require immediate abandonment or demolition of the building. Rather, a prudent course of action will be to either plan to replace the building with a new structure, or to masterplan a renovation process whereby the structural deficiencies, ADA accessibility needs, and other repairs are accomplished within a reasonable period of time. Since there is not a "change in occupancy" which would trigger required structural upgrades, it is believed that the building can continue

to be used as-is for the near term, however major repairs or replacement should be considered in the long term.

5. Noise & Land Use Compatibility: Noise contours for the airport have been prepared based on the FAA's required methodology which uses the "Integrated Noise Model" (INM) computer analysis method. The projected noise contours are much, much small than those projected in the 1979 master plan for the Albany Airport. This is because the old plan predicted 210,000 operations at the airport, whereas our current maximum projection (in 20 years) is 28,000 operations. Under FAA standards since there are no noise-sensitive uses within 65 DNL contour, there is not a significant noise impact. DNL refers to day-night averaged noise level with 10 decibel added for operations occurring between 10pm and 7am. The State of Oregon requires the 55 DNL contour to be mapped as a mechanism to help in community planning. It is desirable for the City Planning Department to avoid putting any new noise-sensitive uses within that 55 DNL boundary as a preemptive attempt to reduce future community conflicts. This is not a mandated requirement however. No one present in the meeting was aware of any recent noise complaints which needed to be addressed.

6. Airport Development Alternatives: The alternates were created to respond to the facility requirements previously presented and accepted at the last committee meeting. There was a general review of Alternates 1, 2, and 3, which had been previously distributed to the committee members. The alternates were intended to show the range of possibilities for the airport, and it was assumed that portions of each alternative will be selected and combined into a final preferred alternative. In addition, the Albany Public Works staff had marked up a proposed alternative of their own which utilized portions of the previously submitted alternatives.

   There was a general discussion of the pro's and con's of the various alternatives. There was general consensus that a taxiway connection and small aircraft parking area will be provided in the triangular east portion area beside the Expo Center. The taxiway will access this area from the north end of the runway. On the west side of the airport, FBO and ag operations reserve area will be provided at the far south end. Next, T-hangars will be shown up to the existing FBO area. The existing FBO area will allow for some expansion and potentially a new maintenance hangar. And the area further to the

north will use the general format of the Alternative 3 drawing with some minor modifications.

The notion of extending the runway at each end to allow for an increased accelerate-stop distance is not yet resolved. The City does not want to get into a position where they are required to protect more airspace than they already do. The reason for the extension is to allow the City's economic development efforts to attract the type of major new business that would need to use a twin aircraft that would require these runway extensions. Thus extensions would not be made until such time as the specific company needed it, and possibly they would be required to pay for it. Perhaps the runway extensions will be shown as "reserved" to indicate their potential, but not to assume they will occur within the 20 year planning period of the documents.

There was interest in having the airport boundary include the contiguous parcel at the SE quadrant that is on the airport side of the creek. This is a large enough area that it could be usable for aviation related businesses. This would be extremely helpful in developing more revenue so that the airport can pay its own way as was requested by the City Council. A motion was passed by the Advisory Committee that the Public Works staff should contact the Parks Department to see if this is possible.

The Oregon Pilots Association had send a note suggesting that it would be desirable to have camping allowed somewhere on the airport property. Because there are several motels located adjacent to the airport, some with taxiways directly to designated tie-down areas adjacent to the motels, it was believed that emphasis should remain on providing good motel accommodations rather than camping. It was noted that motel taxes return funds to the airport, so there is even self-interest in getting aviation users to use the motels since they contribute support back to the airport.

7. Next Steps: The next step is to take these comments and develop a draft master plan drawing and financial working paper for the committee's review.

END OF MEMORANDUM
by Aron Faegre

AF:mp
cc: Airport Advisory Committee Members

Don Larson, FAA
Gary Viehdorfer, State Aeronautics

File AIR 98-02

Century West Engineering 825 NE Multnomah, Suite 425, Portland, Oregon 97232 (503) 231-6078 FAX/ 231-6482
Aron Faegre & Associates 520 SW Yamhill Portland Oregon 97204 (503) 222-2546 FAX/222-6529

PROJECT MEMORANDUM
ALBANY AIRPORT MASTER PLAN
Meeting w/ Airport Advisory Committee - Sept. 21, 1999

This memo summarizes a meeting held at the Albany City offices to discuss continuing airport master plan issues for Albany Airport. Attending the meeting were: Ron Terhaar, John Pascone,; Clayton Wood, David Schmidt (Ex-Officio Committee); Doug Killin, (Master Plan Advisory Committee); Glenda Radvansky, Dean Nebergall (Albany Public Works); Tom Kopczynski (FBO Operator); Eugene Youngko [?] (Aviation Museum); Daniel & Penny Miltenberger; LaVonne Wood; Jerry Wilken; Henry Pollak; Gary Viehdorfer (State of Oregon Aeronautics); David Miller (Century West Engineering), and Aron Faegre (AFA). The following items were discussed:

1. Fueling System Location: Layout drawings were shown for several fuel tank and hose locations, along with a text discussing typical GA fueling systems for airports. There was general feeling among the Advisory Committee that the system should be located in the east and/or southeast of the Reliant building. The following were identified as key issues in the City selecting a final location:

- Does there need to be secondary containment at the location where the truck fills the tank?
- Allow an easy turn-around for the supply fuel truck, and preferably allow for left turn's as that provides better visibility for the driver.
- Can a fuel truck fill a tank from the dispensing location via an underground fill pipe back to the tank?
- Keep the fueling location fairly distance from buildings as the prop blast of aircraft coming to and from the fueling is typically a problem for adjacent buildings if they are too close.

During the discussion there were additional alternative locations created out near the east edge of the apron pavement where perhaps both the tank and pump could be located.

2. Runway Dimensions: It was acknowledged that FAA staff has commented that runway extensions can be shown on the plans, but that if they are not usable for both landing and take-off they would most likely get a low priority for funding. The reason that extensions are being considered is to meet the accelerate-stop distances for some twin business aircraft that may in the future need to regularly use the airport.

3. Maintenance Hangar Needs: Tom Kopczynski, owner of Reliant Aviation, indicated that he has some interest in constructing a 60' x 120' maintenance hangar to replace the smaller 40' x 40' defective hangars at the south end of the Reliant building. The 40' dimension hangars and low height of doors makes the existing maintenance hangar spaces impossible to use for larger aircraft.

4. Buildings Survey: Aron Faegre reported on his survey of the existing City buildings. Key points are as follows:

- Reliant Building: The south three hangars could be rebuilt for storage, but if larger maintenance hangars are needed it would be reasonable to demolish the last three bays and build a larger hangar since the condition of the roof deck is beyond repair. If the last three bays are to be used as storage hangars it is

likely that the existing beams can be restored, but all new decking would have to be placed down along with the new roof.

- Quad Hangar: Tom Kopczynski noted that this building had at least partially collapsed in the 1962 wind storm, damaging planes within it. He had rebuilt the hangar to meet City Engineering requirements, and had added on the office space and used it for many years. He believes it is a good building for storage and/or would make a good radio shop. It is one of the few buildings on the airport that is well insulated.
- Open T-Hangars: The metal bracing rods and metal connecters need painting, and some metal diagonal strap bracing should be added at the wood stud walls. Otherwise the buildings themselves are in reasonably good shape structurally.
- Large Historic Hangar: The large historic hangar appears to be in good structural condition. It would be a good space for a museum and/or an EAA-type airplane club that is interested in historic aircraft.
- Small Historic Hangar: The doors to this building are collapsing and it appears the building generally needs work. However, there is no sign of structural failure of the building.

Faegre will be creating a written letter report on these buildings as part of the master plan work.

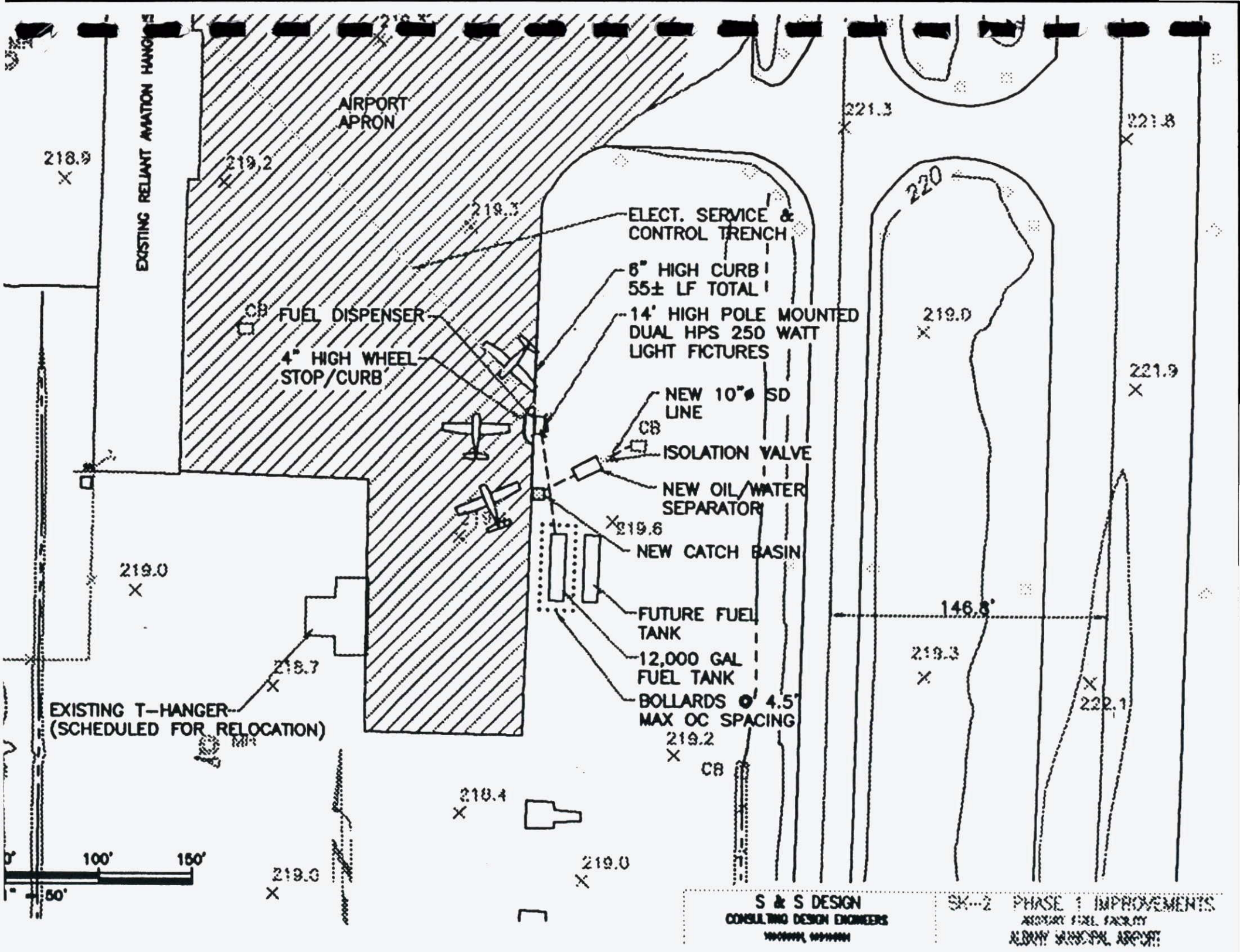
5. Historic Landmark Issues: There was a brief discussion of the fact that two of the hangars, the beacon tower, and the crosswind runway grass area are listed on the historic register. This means that there are federal standards that will apply to any alterations to those four items. The review process for alterations would begin with the City Historic Landmarks Commission, would potentially be reviewed by the State Historic Preservation Office, and ultimately could be reviewed by the National Park Service that creates the standards that govern landmark buildings and properties. It is believed that the local review is generally the most important and carries enormous weight in establishing what can or can't be done to these landmarks.

6. Additional Issues: Ron Terhaar had the following additional issues that he hopes will be addressed during the master planning effort:

- Public Toilets: Will there be public toilets available to itinerant pilots who need to stop in to use one?
- Plane Wash Facility: Can there be a plane wash facility, since in the new hangars they are building they apparently are not supposed to wash aircraft in front of the hangar?
- Utilities for Hangars: A plan should call for providing telephone, sewer, gas, and electrical to all of the hangar locations.
- Triangle Piece of Land: The triangle piece of land near the Expo Center is going to be joint-use under an agreement between the City and County; somehow we should make sure that aviation uses can access that triangle.

END OF MEMORANDUM
by Aron Faegre

cc: Airport Advisory Committee Members
Don Larson, FAA
Gary Viehdorfer, State Aeronautics


EXISTING RELIANT AVIATION HANGAR
AIRPORT APRON
218.9
219.2
219.3
ELECT. SERVICE & CONTROL TRENCH
6" HIGH CURB 55± LF TOTAL
CB
FUEL DISPENSER
14' HIGH POLE MOUNTED DUAL HPS 250 WATT LIGHT FICTURES
4" HIGH WHEEL STOP/CURB
NEW 10"ø SD LINE
CB
ISOLATION VALVE
NEW OIL/WATER SEPARATOR
219.6
NEW CATCH BASIN
219.0
FUTURE FUEL TANK
12,000 GAL FUEL TANK
BOLLARDS @ 4.5' MAX OC SPACING
218.7
EXISTING T-HANGER (SCHEDULED FOR RELOCATION)
219.2
CB
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100'
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50'
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222.1
S & S DESIGN
CONSULTING DESIGN ENGINEERS
SK-2 PHASE 1 IMPROVEMENTS

Albany Municipal Airport - Taxiway Bridge Evaluation

Tim Terich, P.E., Century West Engineering, 6/16/99

On June 16th, a Century West representative was on site at the Albany Airport to inspect the condition of the existing taxiway bridge located at the southern end of Runway 16-34.

The bridge spans approximately forty feet across a stream. The bridge is constructed of three flat-bed railroad cars. Pressure-treated 3x10 wood planks span transverse across the rail cars. A four to six inch layer of asphalt overlays the wood planks. The rail cars are supported and anchored into concrete pads at each end.

The riveted-steel rail cars are in good condition - minimal corrosion is evident throughout the spans. The pressure-treated wood planks are also in good shape. No immediate maintenance appears necessary. Within the next five years, we recommend re-painting the steel rail cars to ensure minimal corrosion protection.

The load carrying capacity of the bridge is substantial. Currently, the maximum anticipated aircraft load is approximately 12,500 pounds. This is well below the capacity of the bridge span and foundation. Each rail car has the capacity of 70,000 pounds, however, the existing foundation limits the bridge capacity to approximately 50,000 pounds. The service life of the bridge should easily last another 20 years considering the overall condition of the bridge, and the light, intermittent use.

Aron Faegre & Associates 520 SW Yamhill Portland Oregon 97204 (503) 222-2546 FAX/222-6529

ALBANY AIRPORT MASTER PLAN
PROJECT MEMORANDUM
Discussion with Panel of Experts July 29, 1999

This memo summarizes a meeting held at the Albany Airport FBO offices on July 29, 1999 to discuss long-term improvement goals for Albany Airport and how to achieve them. The meeting was organized by Century West Engineering and Aron Faegre & Associates as part of an airport master plan project currently under way for the City of Albany.

Attending the meeting were: Ernie Sturm (President, Flightcraft), Betsy Johnson (former Manager, State Division of Aeronautics; Port of St. Helens Commissioner; aviation advocate & activist), Chuck Bennett (lobbyist, Oregon Aviation Coalition), John Helm (General Mgr., Transwestern Aviation; President, Oregon Air Fair), John Pascone, Doug Killin, Richard Olsen, Ron Terhaar (Airport Master Plan Advisory Committee members), Ralph Reid, Doug Killen (Albany City Council), Dean Nebergall, Floyd Collins (City of Albany Public Works), Ted-Hyun Kim, Daniel & Penny Miltenberger, Tom & Vicki Kopezynski (Reliant Aviation), William Bowling (Assocate Air), Ann Cook (Oregon Aeronautics), Dick Kizer (Mid-Valley Air, Inc.), Cliff Bryan, Charlie Stoakes, and Aron Faegre (AFA). The following items were discussed:

1. Albany Airport Summary: Faegre provided a background summary of the airport. It has a 3,000 ft. runway which is difficult to extend since freeway ramps exist at each end. There are approximately 18,000 to 20,000 aircraft operations per year. The airport began in 1920 when 13 year old Charles Langmack leased the farm area and began using it as an area to learn to fly. Langmack went on to spend 30 years in the Air Force as a test pilot. In 1929 the City of Albany acquired the airport and constructed the large hangar. The airport has recently been listed on the National Register of Historic Places. In fact, the airport has provided initial training for many commercial and military pilots.

   Albany Airport in part struggles from much nearby competition, including: Corvallis Airport, Lebanon Airport, Independence Airport, and Salem Airport. Aviation has had cycles of up and down, but the recent history at Albany has found the airport in the doldrums with the City Council questioning whether to terminate or keep the airport.

   A year ago the City Council determined to keep the airport, do a master plan, and go forward for at least 20 more years of operation. Century West Engineering

and Aron Faegre & Associates were hired to perform this planning work.

Today the activity at Albany is somewhat down, there is no permanent FBO, but there is a spirited group of people who are working hard to make the airport a success.

2. Purpose of Panel: The purpose of the panel is not to rehash or debate the history of the airport. Rather, the panel members are being asked to look forward and discuss what they perceive are the strengths and weaknesses of the airport, and make suggestions on how to make the airport more successful. The panel before us today are all people very knowledgeable about general aviation, both nationally and in Oregon. They are all people who have not had a specific role in how Albany Airport came to where it is today. Thus, they provide an independent view of Albany Airport.

3. Introduction of the Panel: Ernie Sturm is president of Flightcraft, which has FBO and/or flight operations located at Portland International Airport, Eugene, Seattle, and Oakland. Sturm is active in the National Business Aviation Association, and has many, many years of experience in aviation matters in Oregon and across the country.

Betsy Johnson is the former manager of the State Division of Aeronautics. Johnson is a helicopter pilot and owner of Transwestern Aviation. Most recently she has been active as vice-president of legal affairs for the Oregon Pilots Association to accomplish changes to Oregon law to improve the stance of aviation in the state.

Chuck Bennett is a lobbyist representing the Oregon Aviation Coalition, and is based in the Salem area. Bennett is a former legislator from the mid-Willamette Valley area, and thus is very familiar with Oregon politics.

John Helm is general manager of Transwestern Aviation, and is president of the Oregon Air Fair. As the Scappoose Airport FBO, Transwestern Aviation has turned that airport around and given it a good financial basis and operating structure.

4. Introduction of Members of Audience: Each member of the audience introduced themselves and identified their interests in the Albany Airport. A list of those in attendance is given at the beginning of this memo.

5. Statement by the Panel Members: At this point each panel member was asked to provide a brief observation of the strengths and weaknesses of the Albany Airport, and to suggest how to create a healthy and strong Albany Airport over the next 5 years.

6. Ernie Sturm: Sturm noted that the aircraft manufacturing industry had a continuous rise up through the 60's and 70's, but then had a disasterous slump beginning in the early 1980's. Whereas 17,000 aircraft were built in 1980, by 1984 only 2,000 aircraft were being built per year, in the entire US. By the end of the 80's and early 90's there were virtually no small GA aircraft in production. As of 1997 there has been some progress made, with aircraft production increasing again.

   Business aviation flying is becoming more and more a very strong sector. The concept of "fractional ownership" is making aircraft ownership an easier possibility for many people. The fact that the airlines are becoming more and more clogged (some call flying by airlines "an interesting form of torture") is making the climate for general aviation very strong for business use.

   During good economic times general aviation generally does well, and when bad economic times come, general aviation usually does worse.

   From a business aviation standpoint the 3,000 ft. runway is only of borderline use for typical business aircraft. It potentially eliminates some amount of turbine aircraft traffic.

   There is an instrument approach to Albany Airport, but it is only a non-precision approach. With the improvements in GPS that are coming down the line, it should be expected that even better instrument approaches will be possible for Albany.

   The largest source of revenue for an FBO is typically fuel sales. However, this requires a large amount of activity at the airport in order to generate the revenue. For all of the Flightcraft FBO's it has been found that the customers based at the airport are the primary source of fuel sales. Thus, there is a great incentive to develop hangars and get the aircraft based at the airport. There is some "critical mass" of based aircraft that's needed to make the operation a going enterprise. It's fine to have an FBO who is there because he loves aviation, but if it doesn't work in a business

sense it will fail. There has to be a revenue source to make the business work.

7. Betsy Johnson: Johnson feels a great sense of optimism for Albany Airport, since there are City Council and City Engineering staff present who are interested in the airport. Several years ago there was a study of the various airports in the region, but that study was inconclusive, and resulted in a dissipation of airport interest. Now Johnson feels a renewed optimism surrounding the Albany Airport.

   The most significant positive force for an airport is the community it serves. In the case of Scappoose Airport those promoting the airport were able to show the Port of St. Helens (the owner of the airport) that the airport had created or was directly supporting 80 full-time jobs. In addition there are now aircraft being built on the airport.

   The fact that there are 10 new T-hangars being constructed at Albany Airport is extremely good news. This may be the most significant event for the airport this year. The challenge to the City Council and the pilots is how to develop strong support system for the airport that can result in a long term economic and social return to the community.

8. Chuck Bennett: Bennett suggested that it is extremely important to be aware of the land uses surrounding the airport. It is necessary to guarantee that the approaches to the airport can be maintained. One might hope that LCDC would be a leader in this, but that's just not the case. The local community has to be aggressive in protecting the airport's approach corridors.

   The results of Measures 5, 47, and 50 are that all municipalities in the state will have to continue to reduce their budgets. The result of this is that airports will have to find alternative revenue sources. There are many potential sources of funds, and there will have to be a concerted effort to find them.

   Bennett suggested that it is extremely important to keep the public fully informed of airport issues. Where there is a nexus between the airport and economic development, it is important to explain this to the City Council. It is essential that the airport have an advisory committee of high profile, well chosen citizens. All of them must be advocates for the airport, but they should not all be pilots or businesses located at the

airport. The advisory committee should be a respected group that the City Council will listen to and take seriously.

9. John Helm: Helm suggested that the creation and growth of a core group of based aircraft is the most essential goal to achieve. The airport must find a way to get the word out that new things are going on and that the airport is a good place to be. Transwestern Aviation started at Scappoose Airport in 1978 as a helicopter operation and then became the FBO in 1988. Transwestern constructed a grass strip alongside the runway to attract special interest antique aircraft and a chapter of the Experimental Aircraft Association. The Port of St. Helens then arranged for low interest loans and had T-hangars constructed at the airport. For each hangar built, the waiting list got bigger. The port associations have a revolving loan fund which is available to them. Perhaps there is some mechanism for Albany to tap into this or a similar fund.

   The relationship between the fairgrounds and the airport is unique in the state of Oregon. This is an area that should be strongly encouraged and worked on. The Oregon Air Fair will occur at the Albany Airport and county fairgrounds on September 16 and 17 in the year 2000. The Oregon Air Fair began in 1991 as a free event organized by the FAA, State Aeronautics, and private industry. In its first year it had 18,000 visitors, and its maximum so far has been 30,000 visitors. There are a number of other pilot organizations that may also find a special use for the combined airport and fairgrounds. In addition, all fairgrounds activities might well be regularly published in aviation magazines and calendars as aviation GA visitors could become a significant source of visitors for many of the events, including non-aviation events.

10. Use Runway Overrun Area: An audience member noted that the runway could be 600 ft. longer at each end, to create a longer take-off runway. Sturm said that this could be very significant for regular use of the runway by turbine aircraft such as Citation jets and King-Air's. Flightcraft has a rule that none of their turbine aircraft are allowed to land on runways shorter than 3,000, so Albany airport is right at that margin. If in fact it has 3,500 for take-off that would be important information, which should be put into a Jeppson chart and other airport guides such as the AccuQuick guide.

11. Gas Station at End of Airport: The gas station at the end of the airport appears to be abandoned. Is this an obstacle that could now be removed?

12. Need Excellent Lighting: Sturm noted that it is very important to have excellent lighting. Pilots research the flight guides in choosing what airport they are willing to land at at night. Runway end identifier lights (REIL's) would be an important addition to promote reliable and safe IFR use.

13. I-5 Exit Ramps: It is believed that ODOT is re-thinking some of the exit ramps from I-5. It is critical that City staff and airport users stay hooked up with the newly formed State Department of Aviation to monitor ODOT's potential changes. One cannot count on ODOT to consider the needs of the airport. There are many cases where ODOT built a road without realizing it was reducing safety and clearances required by airports.

14. TEA-21 Highway Funds: Johnson noted that TEA-21 highway funds include specific reference to funding for museums. Perhaps there are some use of those funds that could relate to the historic buildings at the airport.

15. Form an Advisory Committee: There is apparently currently no advisory committee for the airport, although there is an advisory committee for the master plan. It will be important to create a permanent advisory committee for the airport, as discussed in a previous item.

16. Incentives to Attract an FBO: It was noted that for Scappoose Airport, the Port of St. Helens agreed to no fuel-flowage fee in trade to the FBO for doing significant maintenance work at the airport. For an airport that is not strong, there likely will have to be some incentives to attract an FBO.

17. Can Airport Really be Self-supporting?: Some will reasonably argue that small airports can never really be fully self-supporting. Rather, one has to balance the costs with the benefits that the community receives from the airport. In some ways Oregon may be "over-airported" and there may be some "war of attrition".

18. How to Discuss Community Benefits: Oregon Aeronautics created a booklet about economic benefits of general aviation airports. Albany is listed in the booklet and this should be reviewed by those interested. In the case of Scappoose Airport, a small study was commissioned by Transwestern Aviation from consulting economist

Gene Leverton to specifically demonstrate the greater economic benefits and spin-offs from the airport to the larger community. This was then presented to the Port as well as other public agencies to improve understanding of the importance of the airport.

19. Critical Mass: An audience member asked how big is the required "critical mass"? It was agreed that there is no magic formula, and the number will be different for different airports, and different existing conditions at the airports. To some extent airport development is a "build it and they will come" kind of business. This is risky, but this is just the way it is. In the case of Scappoose, there were 26 based aircraft in 1989 and today there are over 150. There are now 115 T-hangars with 10 more on the drawing boards.

20. Albany is a Manufacturing Area: It was noted that whereas Corvallis is an educational based economy, the Albany area is a manufacturing based area.

21. Conclusions: There was a remarkable consensus among the panelists for the following approach to developing a strong and healthy Albany Airport:

    - Based Aircraft: Develop a critical mass of based aircraft. The actual number cannot be predicted, but it has to be enough so that fuel sales and maintenance work generates enough income for a healthy and successful FBO.

    - Airport Advisory Committee: Develop a permanent airport advisory committee made up of a mixture of respected citizens of the community. It should include pilots, business people, and others who are knowledgeable about the airport. The advisory committee should be a group that the City Council has confidence in. Of course, the advisory committee members as a whole must be committed to the concept of having the airport and making it healthy and successful.

    - FBO: An FBO should be chosen who is committed to the long term health and success of the airport. Both the City and the FBO may need to make concessions to develop an agreement. For example, the City may need to forego fuel flowage fee in trade for the FBO taking on mowing and/or other maintenance at the airport that would otherwise cost the City money. In the case of Scappoose Airport, the FBO was permitted to continue to keep all fuel sales income in later years

to make up for financial losses as an FBO in the earlier years.

- Runway Length & Lighting: The existing 3,000 ft. is right at the edge of what turbine aircraft need as a minimum. If at all possible extend the runway to create longer take-off length by the use of displaced thresholds. Make sure the night lighting is excellent and that there are REIL's so that IFR pilots can count on landing at the runway in normal night and IFR conditions.

- Monitor Surrounding Land Uses: The approaches to the runway need to be protected from incursions by non-compatible land uses. This will require constant vigilance by the City in coordination with the State Department of Aviation.

- Communicate: Communicate with the public about issues at the airport. Keep the public and politicians aware of how the airport is doing, including both the successes and the difficulties.

- Work Together: The City politicians, City Engineering staff, pilots, users, airport facility owners, and tenants all have to work together positively to create the health and success of the airport. Battles between parties will only slow down or stop successful efforts.

END OF MEMORANDUM
by Aron Faegre

AF:mp

B:\ALB-0729

Century West Engineering 825 NE Multnomah, Suite 425, Portland, Oregon 97232 (503) 231-6078

Albany Municipal Airport
Master Plan Update
Joint Planning Conference Minutes

May 25, 1999

Organizations Represented:

City of Albany Public Works	Dean Nebergall, P.E Floyd Collins
City of Albany, Planning	Rich Catlin
City of Millersburg	Clayton Wood Don Driscoll
Linn County Planning	Steve Michaels
Oregon DOT Aeronautics	Gary Viehdorfer Tom Highland

Other Organizations/Attendees

Dan Bidwell, Oregon Pilots Association
John Pascone
Creed Eckert, Gazeley & Associates
David Miller, AICP Century West Engineering

This memo summarizes the Joint Planning Conference held in Albany City Hall between 1 and 4 PM on May 25, 1999. Dean Nebergall welcomed the attendees. David Miller briefly explained the objectives of the JPC.

David Miller summarized comments or responses provided by agencies not in attendance. No significant concerns about the airport were expressed by agencies not in attendance (Oregon Departments of Environmental Quality, Historic Preservation, Fish and Wildlife; and federal agencies—Federal Aviation Administration, US Fish & Wildlife, Natural Resources Conservation Service).

Dean Nebergall indicated that the historic status of the airport needed to be examined to determine how it may affect planning and development. Rich Catlin indicated that his office had coordinated the application for the airport on the National Register of Historic Places. David Miller indicated that the Consultants would summarize the historic status for the land and structures. This information will be factored into the building condition evaluation and the facility requirements analysis.

JPC attendees were asked for questions or comments about issues associated with their responsibilities/interest in the airport.

Steve Michaels indicated that Linn County has a Noise Impact Overlay Zone and ordinance, which uses the 55 Ldn noise contours based on year 2000 forecasts from the 1979 Airport Master Plan. David Miller indicated that new noise contours would be generated in this master plan update. Although the size of the updated noise contours is not yet known, they will likely have a significantly smaller noise footprint than

the contours currently being used. This is due primarily to overly optimistic forecasts (210,000 operations in year 2000) generated in the 1979 master plan. The overlay zones should be updated with the new contours.

The City of Millersburg and the City of Albany planners indicated that they also use the same base map with noise contours for areas within their jurisdiction. The land use evaluations are generally limited to the heights of proposed developments (obstruction heights) in relation to approach surfaces for the runway. There is no established method used for measuring noise exposure or noise level reductions (NLR) for proposed land uses. The current process is a basic screening within a 10,000-foot notice boundary with a primary emphasis on land use compatibility.

Tom Highland indicated that local jurisdictions are vulnerable to incompatible land uses encroaching on airports. Controlling of land use densities, particularly in the area of the base leg turn in the airport traffic pattern, is very important. Airport land use planning guidelines are defined by Oregon Aeronautics in the 1994 Land Use Compatibility Guidelines "blue book." Agency land use planning guidelines are compatible with LCDC rules. Tom indicated that the most recent land use guidelines were adopted by LCDC in February 1999. It was mentioned that an interpretation of current state land use planning guidelines and rules for airports is needed for local land use planners. Creed Eckert will summarize the guidelines in the land use evaluation.

Rich Catlin noted the existing land use planning program focuses on height and hazard control. The noise contours depicted on the base map are problematic due to their age and obsolescence. The height limitations are ok, other parts are fuzzy. Some appeals have occurred in relation to a manufactured housing park. Rich indicated that they are interested in an updated buildable lands analysis within the urban growth boundary. Having updated contours sooner rather than later would be helpful to integrate with other on-going local planning activities.

Rich indicated that the comprehensive plan land use designations described in the last master plan are the same. A 1981 annexation of land was completed as part of a sewer extension. An undeveloped area located north of the airport is designated as commercial land with 20-30 small acreage lots. The City TSP was last updated in 1997. A wetlands inventory was recently conducted—no significant areas of wetlands on the airport, beyond the boundaries of Cox Creek. This mapping is also included in the City's GIS system.

A question was raised about how the master plan fits with existing comprehensive plans. Rich indicated that a facility master plan is adopted as a component plan (of the Comprehensive Plan).

Steve Michaels indicated that most of Linn County's remaining open space is located east of the airport, with some scattered residential development. A question was raised about Propst Field, located about a mile east of the airport. It was not immediately known if the County is responsible for airport land use protections (per current state guidelines) for the airport—this would depend on the public- or private use status of the private airport. The airport is popular with skydivers and possibly, ultralights. David Miller indicated that the proximity of the two airports and traffic patterns will be evaluated to identify any potential conflicts.

Don Driscoll indicated that the City of Millersburg uses the same noise contour base map used by the County. Current land use planning guidelines include site plan reviews in 60 Ldn contour areas and declarations of proposed action in the 55-60 Ldn contours. It is estimated that 90 residences are located in the 60 Ldn noise contours within City boundaries. Don indicated that these areas are generally well developed. David Miller indicated that a change in noise contours might actually reduce the number of residences located within the various noise contours.

A discussion of FAA Form 7460 (notice of construction in vicinity of airports) was held. It appears that the use and coordination of these forms is inconsistent. Strengthening this requirement as a part of local land use planning and development was recommended. Coordination between local land use jurisdictions and Oregon Aeronautics

David Miller indicated that an airport overlay zone, which coincides with the boundaries of the FAR Part 77 imaginary surfaces, should be established jointly by the local land use jurisdictions. It appears that portions of the imaginary surfaces extend beyond Albany to include the City of Millersburg, Linn County, and Benton County. Creed Eckert will coordinate with all local land use jurisdictions when preparing a summary of existing land use for the master plan.

Other discussion items included the motel parcels near the north end of the airport; storm drainage on the airport; and the access road extension to the new hangar area.

Attachments:

JPC Agenda
JPC Attendee Contact List
JPC Sign in Sheet

ALBANY MUNICIPAL AIRPORT
JOINT PLANNING CONFERENCE
AGENCY CONTACTS

Impact Category	Agency, Contact (if available); Address; Phone #
Noise	**Federal Aviation Administration** Don M. Larson, Community Planner Federal Aviation Administration Seattle Airports District Office 1601 Lind Avenue SW Renton, Washington 98055-4056 425-227-2652
Compatible Land Use (City of Albany)	**City of Albany Community Development Department** Rich Catlin, AICP, Associate Planner City of Albany PO Box 490 Albany, Oregon 97321 541-917-7500
Compatible Land Use (Linn County)	**Linn County Planning Department** Steve Michaels, Linn County Planning Director Linn County Courthouse PO Box 100 Albany, Oregon 97321 541-967-3816
Compatible Land Use (City of Millersburg)	**City of Millersburg** C/o Don Driscoll Architectural Associates 241 E Broadway Eugene, Oregon 97401
Compatible Land Use (Oregon DOT Aeronautics)	**Oregon Department of Transportation – Aeronautics** Gary W. Viehdorfer, Planning Manager 3040 25th Street SE Salem, Oregon 97302-1125
Social/Socioeconomic Impacts	City and county planning departments (as noted above)
Air Quality	**Oregon Department of Environmental Quality (DEQ)** Dave Norberg 811 SW 6th Ave Portland, OR 97204 503-229-6086
Water Quality	**Oregon Department of Environmental Quality (DEQ)** Jack Arendt 750 Front St., NE Salem, OR 97310 503-378-8240
DOT 4(f) Act	See public lands records, inventories, maps, talk planners
Historic, Cultural Resources	**Oregon Parks and Recreation Department** State Historic Preservation Office Dr. Leland Gilsen 1115 Commercial NE, Suite 2 Salem, OR 97301-1012 503-378-4168 x232

Biotic Resources	**Oregon Department of Fish and Wildlife (ODFW)** Wildlife Biologist Salem District Office 4412 Silverton Road, NE Salem, OR 97305-2060 541-378-6925 **Oregon Department of Fish and Wildlife (ODFW)** 2501 SW First Street Portland, Oregon 97207 503-872-5260
Threatened & Endangered *Species*	**US Fish and Wildlife Service (USFWS)** Russ Peterson 2600 SE 98th Ave. Portland, OR 97215 503-231-6179
Flood Plain	Records check through Planning officials; FEMA Flood Plain mapping
Shoreline Management	*Does not Apply*
Coastal Barriers	Does not Apply
Wild and Scenic Rivers	In-House Inventory Re: Santiam River; Mapping: U.S. Department of Interior
Farmland	**Natural Resources Conservation Service** 33630 McFarland Road Tangent, Oregon 97389 541-967-5925, ext. 3

ALBANY MUNICIPAL AIRPORT

Airport Master Plan Update
Joint Planning Conference (JPC)

JOINT PLANNING CONFERENCE
1 PM
May 25, 1999
City of Albany – City Hall 333 Broadalbin SW
Willamette Room (First Floor)
Albany, Oregon

___ I will attend JPC.

K I will not attend JPC (written comments, concerns or issues attached).

I HANDLE ARCHAEOLOGY, KIT CARTER TAKES THE BUILT ENVIRONMENT, 93% OF OREGON HAS NOT BEEN INVENTORIED, THE 7% IS ALMOST ALL FEDERAL LAND (USFS/BLM)..... DECISION ON INVENTORY IS MADE BY LEAD FEDERAL AGENCY UNDER TITLE 36 CODE OF FEDERAL REGULATIONS PART 800.

NOTED
L. GILSEN

Name: LELAND GILSEN

Representing: SHPO/OPRD

Phone: (503) 378-4168 X232

Please fax this response sheet to:

Century West Engineering
Stacey Chapman, Project Coordinator
Fax: 503-231-6482
Tel. 503-231-6078

Historic Preservation
Oregon State Parks & Recreation
1115 Commercial St. NE Ste #2
Salem, Oregon 97301-1012

Historic, Cultural Resources NOTE →	Oregon Parks and Recreation Department State Historic Preservation Office Dr. Leland ~~X~~. Gilsen 1115 Commercial NE, SUITE 2 Salem, OR 97~~3~~01-1012 503-378-4168 X232

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X I will not attend JPC (written comments, concerns or issues attached).

In August 1999, The Environmental Quality Commission revised the requirements for indirect sources of air pollution. As a result of these changes, airports, (as such) are no longer required to have an Indirect Source Construction Permit. (Such permits are only required for parking facilities of 1,000 or more spaces if they are located in a city of at least 50,000 people within a carbon monoxide nonattainment of maintenance area.)

Name: Dave Nordberg

Representing: Oregon DEQ

Phone: (503) 229-5519

Please fax this response sheet to:

Century West Engineering
Stacey Chapman, Project Coordinator
Fax: 503-231-6482
Tel. 503-231-6078

ALBANY MUNICIPAL AIRPORT

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Name: DON DRISCOLL & CLAYTON WOOD

Representing: CITY OF MILLERSBURG

Phone: (541) 484-5757

Please fax this response sheet to:

Century West Engineering
Stacey Chapman, Project Coordinator
Fax 503-231-6482
Tel. 503-231-6078

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Endangered species may be present. Will send a list of species that may occur in the vicinity under separate cover. May require up to 30 days for response. (contact: Angie Hernandez 231-6179) Please note that the zip code as written on the agency contact list is incorrect (should be 97266)

Name: Laura L. Todd

Representing: U.S. Fish & Wildlife Service

Phone: (503) 231-6179

Please fax this response sheet to:

Century West Engineering
Stacey Chapman, Project Coordinator
Fax: 503-231-6482
Tel. 503-231-6078

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL # of pages ▶ 1

To: Stacey Chapman — From: Laura Todd
Dept./Agency — Phone # 231-6179
Fax # 503-231-6482 — Fax # 231-6195
NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

CENTURY WEST
ENGINEERING CORPORATION

LEADING THROUGH EFFECTIVE SOLUTIONS

May 11, 1999

Tim McFetridge
Oregon Department of Environmental Quality
750 Front Street, NE
Salem, OR 97310

RE: ALBANY MUNICIPAL AIRPORT
JOINT PLANNING CONFERENCE, TUESDAY MAY 25, 1999

Dear Tim McFetridge:

Our firm has been awarded a contract by the City of Albany to conduct an Airport Master Plan Update for Albany Municipal Airport.

The project is just beginning now, we have held one meeting with our master planning advisory committee, and we are now scheduling a Joint Planning Conference (JPC) for other interested parties. **The JPC will be held on May 25, 1999 at 1PM in the Willamette Room on the first floor of City Hall (333 Broadalbin SW).**

The purpose of the JPC is to provide a forum at the beginning of the project, for all interested agencies/individuals to meet and discuss the issues and concerns that will be most important for us to consider during the planning process. We will use a work session format, which is designed to promote an effective exchange of information in an informal setting.

Your office is identified as a party of interest for participation in this meeting. Your participation is desired. The goal of the JPC is for all involved parties, through an effective discussion, to determine the significant issues that need to be addressed in the planning effort.

Airport-related issues that will arise during the planning process will include such things as: land use designations, land use protections, airport development opportunities, facility needs, surface transportation and infrastructure needs, noise impacts, environmental concerns, and other such issues.

We are hoping for the best turnout possible, but recognize that there may be agencies that have no concerns regarding the airport planning or development, or that are unable to attend due to other scheduling conflicts. Please fax back to our office the attached form to indicate whether you will be attending or not, and whether you have any comments. If you are not able to attend but suspect that there are issues of concern to your agency, please let us know in writing (fax) with as much detail as possible so that we may present your concerns at the Joint Planning Conference in your absence.

Thank you very much for taking the time to respond in writing.

Sincerely.

Stacy Chapman "For"

David M. Miller, AICP
Project Manager

ALBANY MUNICIPAL AIRPORT

Airport Master Plan Update
Joint Planning Conference (JPC)

JOINT PLANNING CONFERENCE
1 PM
May 25, 1999
City of Albany – City Hall 333 Broadalbin SW
Willamette Room (First Floor)
Albany, Oregon

____ I will attend JPC.

____ I will not attend JPC (written comments, concerns or issues attached).

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_____

_____

_____

_____

_____

Name: _____

Representing: _____

Phone: _____

Please fax this response sheet to:

Century West Engineering
Stacey Chapman, Project Coordinator
Fax: 503-231-6482
Tel. 503-231-6078

ALBANY MUNICIPAL AIRPORT

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✓ I will attend JPC.

___ I will not attend JPC (written comments, concerns or issues attached).

Name: Steve Nichols

Representing: Linn Co Planning

Phone: 541 967 3815 x 2362

Please fax this response sheet to:

Century West Engineering
Stacey Chapman, Project Coordinator
Fax: 503-231-6482
Tel. 503-231-6078

Stacey Chapman
From: Stacey Chapman
Sent: Monday, May 24, 1999 4:01 PM
To: David Miller
Subject: Albany

I received a call from Nancy at Fish and Wildlife. She informed me that she will not be attending the meeting and that she does not typically respond to anything that she does not have a site plan or some other information to look at. If you still think she should attend, maybe you should contact her yourself, because she didn't want to respond to me except to tell me she had no information to go by. Otherwise, she's a no.

Stacey Chapman

Project Coordinator
Marketing Assistant
Century West Engineering

NE Mulnomah, Suite 425
Portland, OR 97232
Phone: (503) 231-6078

Schapman@centurywest.com

Aron Faegre & Associates 520 SW Yamhill Portland Oregon 97204 (503) 222-2546 FAX/222-6529

ALBANY AIRPORT MASTER PLAN
PROJECT MEMORANDUM
Initial Advisory Committee & Public Meeting April 7, 1999

This memo summarizes a meeting held in Albany City Hall between 7 and 9 PM on April 7, 1999 to initiate the Albany Airport Master Plan project. Attending the meeting were: Advisory Committee Members, Fred Koonce, Ron Terhaar, Doug Killin, Dave Schmidt, John Pascone, Clayton Wood, Bill Higby, Sid Stevens; City staff, Dean Nebergall (Project Manager), Floyd Collins (Public Works Director). Members of the public present are shown on the list attached to this memo.

1. Introductory Comments: Dean Nebergall, the City Project Manager, introduced the consultants, David Miller (Century West Engineering), Aron Faegre (Aron Faegre & Associates), and Creed Eckert (Gazeley & Associates). Dean then gave a brief summary of recent developments at the airport. This included noting that Reliant Aviation will be leaving the airport. The City is now advertising for letters of interests and qualifications for gaining a new FBO. In addition the City is working on the solution of maintaining fuel at the airport, as new Fire Marshal rules have made current fueling facilities unusable. Finally, the City is entertaining a develop proposal for private hangars to be constructed on the airport property. Interest has also been expressed in developing a museum in one of the existing hangar buildings. Finally the City is working towards a concept plan that through the sale of some of the airport property funding will be available to perform some major capital improvements that are needed for the airport.

2. Consultant Introductions: Each of the consultants made a short presentation as to their background and experience in airport planning, as well as their special interest in working on the Albany Airport. David Miller of Century West Engineering noted past experience in over 20 Oregon airports as well as many in Washington and Alaska. Century West Engineering provides comprehensive services ranging from airport planning to detailed airport and municipal engineering design services.

   Aron Faegre of Aron Faegre & Associates noted that his firm is multi-disciplinary and works on projects ranging from police stations to parks to airports to 9-1-1 facilities. His firm has specialty in working through the public involvement aspects of the airport planning, as well as special knowledge and experience in airport noise analysis. Both David Miller and Aron Faegre are pilots and thus bring direct experience and understanding of airport needs from that training and experience. Creed Eckert of Gazeley and Associates noted that his firm specializes in land use planning and environmental assessment, both in general issues as well as specifically for airports. Their firm has worked on more than 15 airport land use plans, as well as regularly providing contract planning services to

several small cities in the Willamette Valley. Thus, Gazeley & Associates brings strong experience both in local agency planning issues and needs as well as the specific planning needs of airports.

3. Airport Master Plan Process: David Miller gave a general discussion of the airport master plan process that will be used for the Albany Airport. The general approach to the process is mandated by FAA standards as 90% of the funding comes from the FAA. However, the nuances of how a specific masterplanning project is organized and where the emphasis may be placed can to some extent be specifically designed for each airport. The scope of work established for this work has been negotiated between Century West Engineering and the City to meet the specific needs of the Albany Airport. A three page handout was provided that summarizes key aspects of the master plan process. A copy is attached to these minutes as a summary of the information presented.

4. Master Plan Schedule: The Albany master plan will be accomplished over an approximately one year process. It starts with the inventorying of existing airport conditions, proceeds to evaluation of facility needs, and results in a master plan document with airport layout plan drawings. A copy of the schedule is attached to this memo. Generally, each work item will be developed as a study paper which will be distributed to committee members for their review and comment. Altogether there will be five advisory committee meetings to review information and establish the preferred development option for the airport.

5. Role of Advisory Committee: Aron Faegre noted that he and David Miller will bring much technical expertise to the design effort, but it is the advisory committee that will provide the important ingredient of finding a development strategy that meet the unique needs of the Albany community. It is hoped that the advisory committee members can help the consultants understand what makes Albany different from other Willamette Valley towns, and thus what specific airport needs should be focussed on. What are the special opportunities that the Albany Airport has that other airports don't have? Are there any special concerns or worries about the airport that we should be aware of? Have there been any especially noteworthy successes at the airport during the last 10 years that we can use to build upon for the future of the airport? Are there expected changes to the Albany community over the next 5 or 10 years that the airport development can reinforce and help to invigorate?

   At that point Faegre asked to go around the table and have committee members provide comments as to key issues that should be considered in the study. After the committee, audience members were asked to add to the list. The following issues were identified:

A. Airport Connection to Businesses: How can the airport and local aviation in general be compatible with and assisting to the business community?

B. Bathrooms: Public bathrooms need to be available at the airport for general local and transient pilot use.

C. Runway Extension: Consider extending the runway. It is recognized that this is an unlikely option. But could the freeway exit interchange be revised?

D. Connection to Fairgrounds: There should be an aircraft taxiway connecting to the fairgrounds area, and an aircraft parking area there, so that pilots from around the state can get directly to the fairgrounds for events.

E. New FBO: A new FBO is needed as the existing FBO has given notice and will be departing.

F. Attract Business to Airport: Areas of the airport should be identified which specifically attract aviation related businesses to the airport.

G. Air Museum: An air museum should be considered for the large hangar.

H. Plane Wash Facility: A facility should be developed for washing and cleaning of aircraft.

I. Card Lock Fuel: An area of the airport should be designated for installation of a card lock fuel system.

J. Extend Utilities for Future Hangars: Existing utility lines such as electrical need to be extended to where future hangars are to be constructed.

K. Promote Nearby Hotel & Restaurant Development: Easy access to existing and future motels and restaurants adjacent to the airport should be encouraged as this then becomes a good stop for transient pilots traveling cross-country and passing through out area.

L. Oregon Air Fair: Perhaps the Oregon Air Fair can take place at the fairgrounds as a major event.

M. Add Aircraft Hangars: Sites should be established for the greatest number of hangars possible at the airport. This is probably the most important single facility need at this time.

N. City Council Relatively New: Most of the current City Council members have been in place for less than 2 to 4 years. It is hoped that old grudges to prior City Councils can be considered bygones and we can all work positively for the future of the airport. At this time it is believed that the City Council is firmly in favor of this planning process and doing everything possible to help the airport establish a sound economic footing.

O. Historic Designation: At least portions of the airport and of its building has been established as historic landmarks. Roads and fences have been constructed in the historic portions of the property at the area of the old crosswind runway, which is now just grass. The historic designations should be researched and its requirements incorporated into the plan.

P. Establish Boundary of Airport Property: The SE portion of the airport between the creek and the fence some feel should be made part of the airport property. The property boundary should be researched and clearly established in the master plan.

Q. Avoid Locking in FBO Location: It is important to have as much flexibility as possible for future layout of hangars. If possible, the FBO site should not be specifically designated as it may take up good hangar locations, which are more important than an FBO.

R. Fire Road Location: Verify the agreement between the City and the County as to the fire road to the back gate to the fairgrounds.

S. Good Airport Location: The airport is well located because it is close to industrial areas and is near the freeway. It is a good place to have an airplane.

T. A Unique Airport: One advisory committee member who as a pilot has visited probably the majority of airports around the state while flying between 1947 and the current year, feels that the Albany Airport is a unique airport with good specific strengths that can be used as the basis for future development.

U. Agricultural Aviation Uses: Albany Airport serves as a base for agricultural crop application flights by several different ag applicator people. Probably the person making the most agricultural use of the airport is Kent Woolridge.

V. Maintain Buildings: It is important that the buildings at the airport be regularly maintained so that their value is retained.

W. Long Lease Periods for Hangar Development: It is important to provide as long a lease term as possible so that private development on the airport can justify the capital improvements.

X. Issue of Airport not on Tax Rolls: How do we justify keeping the airport land off of the tax rolls?

Y. Airport as Public Use Property: The airport is like a city park, in that it is available to any citizen. "With one mile of highway pavement a citizen can travel for one mile. With one mile of airport pavement a citizen can go anywhere."

Z. Value of Airport May Increase: As other airports are gobbled up around the country, the ones that are left will become more and more valuable.

AA. Encourage Business Aviation: There are many businesses in the Albany area that use professional aviation as an adjunct to the success of their business. This should be encouraged. For example, one business has school district clients all over the state, for which an aircraft allows them to serve the many clients easily from the Albany location.

BB. Newspaper Article: A newspaper article about a small Portland company landing a large aviation technology contract was handed out and it was felt this was good information to be included in the Albany Airport planning project. Portland Oregonian, date not provided.

CC. City Support Appreciated: There was a general recognition by the pilot community of appreciation that the City is showing support for the master plan process and the upgrading of the airport.

DD. Goal of Airport Self-sufficiency: The City Council has a goal of working toward the airport economics being as self-sufficient as possible.

EE. How Advisory Committee Selected: The advisory committee was selected by the Mayor.

FF. Consider Selling Buildings: The City should consider selling the buildings on the airport to private parties and just maintaining a lease on the underlying land.

GG. Educational & Fun Aspects of Airport: The airport provides a place for children to learn about aviation as well as to learn how to fly airplanes. Many people have never been up in a small plane, and when they get their first ride are amazed at how much fun it is and how they gain an improved

overall perspective on how their community is laid out and works as a whole.

HH. Provide Map of Airport: It was recommended that an map and/or air photo of the airport property be included as a future handout so that it is easier to talk about individual areas of the airport and improvements that could be made.

6. Joint Planning Conference: The Joint Planning Conference will likely be held in May during an afternoon meeting. This will not be formally an advisory committee meeting, however advisory committee members and the public will be welcome. It will be a meeting more specifically of local, state, and possibly federal agencies that have an interest in the airport, to review any specific concerns they have that need to be incorporated into the master planning process.

7. Future Meetings: There will be an attempt to schedule meetings on the first or third Wednesdays of the month as City Council regularly meets on the second and fourth Wednesdays of the month. The next meeting of the advisory committee will probably be during mid-June. Prior to that meeting, inventory and forecast information will be mailed to advisory committee members for review.

END OF MEMORANDUM
by Aron Faegre

AF:mp
Attachments: Masterplanning Process & Schedule
Attendance List

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