Richland Airport
Richland, Washington

Master Plan and Airport Layout Plan Update

A.I.P. No. 3-53-0056-14

February, 2009

Prepared by:

J-U-B ENGINEERS, Inc.
2810 W. Clearwater Avenue, Suite 201
Kennewick, Washington 99336

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Table of Contents

Tables ii
Figures ii
Section 1 - Introduction 1
AIRPORT HISTORY AND DEVELOPMENT 1
Section 2 – Existing Conditions 3
AIRSIDE FACILITIES 3
SUPPORT FACILITIES 8
LANDSIDE FACILITIES 10
AVIATION ACTIVITY DATA 10
SOCIO ECONOMIC DATA 14
LAND USE 15
EXISTING AIRPORT PLANNING INFORMATION 19
Section 3 – Forecast 21
POPULATION 21
BASED AIRCRAFT 21
AIRCRAFT OPERATIONS 22
COMPARISON TO FAA TERMINAL AREA FORECASTS 24
AIRPORT DESIGN CRITERIA 27
AIRSIDE FACILITIES 29
SUMMARY OF AIRPORT FACILITY NEEDS 37
Section 5 – Airport Improvement Alternatives 38
Section 6 – Land Use Planning 47
COMPREHENSIVE PLAN CONSIDERATIONS 47
ZONING ORDINANCE CONSIDERATIONS 48
AIRPORT OVERLAY ZONE (AP-O) 48
Section 7 – Financial Plan 54
CAPITAL IMPROVEMENT PLAN (CIP) 54
FINANCIAL PLAN 57

Tables

Table 2.1 Airport Data 3
Table 2.2 Runway Data 3
Table 2.3 Aircraft Parking and Storage Facilities 8
Table 2.4 2006 Based Aircraft 12
Table 2.5 Characteristics of Frequent Aircraft at the Richland Airport 12
Table 2.6 Population of Selected Washington Counties 14
Table 2.7 Employment Statistics for Select Washington Counties 15
Table 3.1 Population Forecasts for Selected Washington Counties 21
Table 3.2 Comparison of Based Aircraft Forecasts 22
Table 3.3 Forecast Based Aircraft by Type 22
Table 3.4 Richland Airport Combined Operations Forecast by Forecast Type 23
Table 3.5 Richland Airport Operations Forecast by Type 24
Table 3.6 Richland Airport Operations Forecast by Aircraft Type 24
Table 3.7 Template for Comparing Airport Planning Forecast and TAF 25
Table 3.8 Template for Summarizing and Documenting Airport Planning Forecasts 26
Table 4.1 Aircraft Standards based on Airport Classification 27
Table 4.2 Critical Aircraft Designations (for Metroliner III) 27
Table 4.3 Forecasted Family of Aircraft for Richland Airport 28
Table 4.4 Airport Design Standards Evaluation – Runway 08-26 29
Table 4.5 Airport Design Standards Evaluation – Runway 01-19 30
Table 4.6 Future Tie-Down, Hangar, and Industrial Needs 37
Table 7.1 Capital Improvement Program 56
Table 7.2 Annual Operating Data 2006 59
Table 7.3 Financial Forecast 2007 to 2011 60

Figures

Figure 2.1 1998 Richland Airport Layout 4
Table 2.2 Runway Data (Continued) 5
Figure 2.2 2006 Richland Airport Layout 11
Figure 2.3 Current Comprehensive Plan Land Use Designations 17
Figure 2.4 Current Zoning in the Vicinity of the Richland Airport. 18

Section 1 - Introduction

The Richland Airport is included in the National Plan of Integrated Airport Systems (NPIAS), administered by the Federal Aviation Administration (FAA). It is located two miles northwest of downtown Richland and is within the Richland City limits, adjacent to SR-240. It is approximately 650 acres in area, owned and operated by the Port of Benton. A vicinity map is shown in Figure 1.1. The Airport consists of two runways in a generally east-west and north-south direction; they intersect each other, forming an "X", and are located centrally on the Airport property. The climate is temperate, with an average of 9-10 inches of rain per year.

In 2005, J-U-B ENGINEERS, Inc. was contracted to perform an update to the Airport Layout Plan and Master Plan for the Richland Airport. This effort includes the following activities:

- An inventory of existing conditions
- A determination of facilities that do not meet current FAA design criteria
- Forecasts of future aviation activity at the Airport
- Identification of new facilities to accommodate future activity
- Preparation of a Capital Improvements Program that prioritizes proposed development
- Preparation of updated Airport Layout Plan drawings

Site visits to the Airport, numerous contacts with users of the Airport, and a public open house have been conducted during the course of this Master Plan Update in order to better understand existing conditions and potential future activity at the Airport. This information is reported at various, appropriate locations in this document rather than in a single section.

It should be noted that, due to gradual changes in the magnetic declination over time, a change in the designation for the east-west runway from 07-25 to 08-26 was updated for inclusion in Federal Aviation Administration publications in the summer of 2006. The Port of Benton physically changed the painted runway numbers to 08-26 in the summer of 2007. To avoid confusion, this runway will be referred to as Runway 08-26 throughout this document.

AIRPORT HISTORY AND DEVELOPMENT

Documents and files in the possession of the Port of Benton were researched to prepare a brief history of the Richland Airport as discussed below.
The Richland Airport was originally constructed in 1944 during WWII for defense purposes. As a temporary facility, it was intended to be used for approximately five years. Improvements in 1948 were to conform to the Civil Aeronautics Administration (presently the FAA) standards of Class 3 runways. This project included removing the steel planking from the runway, and install heavy base courses and asphalt to accommodate larger aircraft, shoulders and lighting. At this point, the Airport had three runways.

In 1960, the Atomic Energy Commission (AEC) began plans to allow public access of the Airport. Land was acquired and major upgrades were planned, including taxiways, tie-down spaces, and a Fixed-Based Operator (FBO) office. The AEC deeded to the Port of Benton the runways, a large hangar, and a building to be used as the FBO building. The first public landing was on December 1, 1961.

Figure 1.1 Richland Airport Vicinity Map

Over the next few years, additional facilities were turned over to the Port until, in 1966, the final 50 acres of AEC property was given to the Port, making the transfer complete.

In 1977, an FAA Airport Development Aid Program project provided the construction of a new runway (01-19). This project also included the removal of two other runways to alleviate community concerns with over-flight of residential areas.

Since that time, the Port of Benton has continued to acquire land to accommodate the runway protection zone (RPZ) and other improvements in the area. In addition, an Omni-directional Approach Light system was installed to Runway 08-26. Most recently, the taxiway for Runway 01-19 was relocated to provide a greater separation from the runway.

The Richland Airport continues to be owned and operated by the Port of Benton.

Section 2 – Existing Conditions

Early on in this update process, numerous conversations were held with current operators at the Airport and on-site visits were conducted to collect inventories in order to gain an understanding of the facilities at the Airport. A review of socio-economic and available historical documents was also performed. These documents are summarized above in the Airport history and development section and later in this Section.

AIRSIDE FACILITIES

A summary of Airport data is shown in Table 2.1. A layout of the Airport facilities is shown in Figure 2.1, Airport Layout Plan (dated 1998 as prepared by Reid-Middleton).

Table 2.1 Airport Data

Airport Elevation	391 feet
Airport Reference Point	
Latitude	N 46°18' 20.3"
Longitude	W 119°18' 15.1"
CTAF/Unicom Frequency	122.7

Runway

Two runways constitute the Richland Airport: 01-19 running in a north-south direction and 08-26 running east-west. Both are non-precision runways using Medium Intensity Runway Lights (MIRL). Pavement condition is fair through the entire length of the runways and taxiways; although some previously-sealed cracks have reopened. Pavement strength is 30,000 lbs for a single gear aircraft, 45,000 lbs for a dual gear, and 70,000 lbs for a dual-tandem gear aircraft.

Runway 01-19 is 75 feet wide and 4,009 feet long. The effective gradient is 0.10 percent. Runway 19 has localizer and RNAV (GPS) approach procedures. The Airport also operates a Non-Directional Beacon (NDB); however, it is being phased out by the FAA.

Runway 08-26 is 100 feet wide and 3,995 feet long. The effective gradient is 0.10 percent. Runway 26 has VOR, VOR/DME-A, and RNAV (GPS) approach procedures. Runway data is summarized in Table 2.2.

Table 2.2 Runway Data

Runway 01-19	
Runway Length	4009'
Runway Width	75'
Runway Surfacing	Asphalt Concrete
Runway Pavement Strength	30,000 lbs single gear, 45,000 lbs dual gear, 70,000 lbs dual-tandem
Shoulders	25 feet gravel
Effective Gradient	0.10
Runway Lighting	Medium Intensity Runway Lights (MIRL)
Visual Aids	See Navaid section for complete list
Wind Coverage (All weather)	95% (Assumed)

MODIFICATION OF STANDARDS

ITEM	AIRPLANE DESIGN GROUP		STANDARD		MODIFICATION		REMARKS	APPROVAL DATE
	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE		
RUNWAY TO TAXIWAY SEPARATION	B-II	B-II	240'	240'	200'	200'		

RUNWAY DATA

ITEM	1 / 19		7 / 25	
	EXISTING	ULTIMATE	EXISTING	ULTIMATE
RUNWAY LENGTH	3,999'	5,215'	3995'	SAME
RUNWAY WIDTH	75'	100'	100'	SAME
CRITICAL AIRCRAFT (GROUP)	KING AIR 200, CITATION II, III	SAME	KING AIR 200	SAME
AIRPORT REFERENCE CODE (ARC)	B-II	SAME	B-II	SAME
EFFECTIVE RUNWAY GRADIENT	0.10 %	0.06 %	0.18 %	SAME
RUNWAY WIND COVERAGE (13 kt X-WIND)	94.22%		57.54%	
PAVEMENT MATERIAL	ASPHALT	SAME	ASPHALT	SAME
PAVEMENT STRENGTH	S-30, D-45, DT-70	SAME	S-30	SAME
RUNWAY APPROACH SLOPES	20:1 / 34:1	20:1 / 50:1 FOR 10,000' / 40:1 FOR 40,000'	20:1 / 20:1	SAME
RUNWAY LIGHTING	MIRL	SAME	MIRL	SAME
RUNWAY MARKINGS	VISUAL / NON-PRECISION	VISUAL / PRECISION	VISUAL / VISUAL	SAME
RUNWAY SAFETY AREA	150' X 4599'	300' X 6200'	150' X 4595'	SAME
RUNWAY OBJECT FREE AREA	500' X 4599'	800' X 6200'	500' X 4595'	SAME
TAXIWAY OBJECT FREE ARE	131'	SAME	131'	SAME
TAXILANE OBJECT FREE AREA	115'	SAME	115'	SAME
RUNWAY OBSTACLE FREE ZONE	400' x 4389'	400' X 5815'	400' X 4386'	SAME
RUNWAY APPROACH INSTRUMENTATION	LOC, VOR/DME-A, NDB	LOC, VOR/DME-A, NDB, GPS	VISUAL	VISUAL
RUNWAY VISUAL APPROACH AIDS	PAPI / MALS, PAPI	PAPI / MALS, REILS	ODALS / VASI ODALS	PAPI ODALS / SAME
RUNWAY END COORDINATES:				
LATITUDE	46°17'59.947" / 46°18'35.55"	46°17'59.947" / 46°18'46.380"	46°18'24.776" / 46°18'21.037"	SAME / SAME
LONGITUDE	119°18'30.357" / 119°18'05.750"	119°18'30.357" / 119°17'58.266"	119°18'40.347" / 119°17'43.699"	SAME / SAME
RW 1 DISPLACED THRESHOLD LATITUDE	NA / NA	46°18'02.375" / NA	NA / NA	NA / NA
RW 1 DISPLACED THRESHOLD LOGITUDE	NA / NA	119°18'24.987" / NA	NA / NA	NA / NA

RUNWAY LENGTH DECLARED DISTANCES

ITEM	RUNWAY 1-19 (TOTAL PAVED LENGTH - 3999')		RUNWAY 1-19 (TOTAL PAVED LENGTH - 5215')	
	RW	RW	RW	RW
TAKEOFF RUN AVAILABLE (TORA)	3999'	3999'	5215'	5215'
TAKEOFF DISTANCE AVAILABLE (TODA)	3999'	3999'	5215'	5215'
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	3999'	3999'	5215'	5000'
LANDING DISTANCE AVAILABLE (LDA)	3999'	3999'	5000'	5000'

BUILDING LEGEND

NUMBER	BUILDING	NUMBER	BUILDING
1	ADVANCED SCIENCES, INC.	20	SEARCH AND RESCUE
2	WESTINGHOUSE HANFORD TRAINING CENTER	21	TOTAL ENERGY MANAGEMENT, INC
3	VITRO BLDG	22	MINI STORAGE (TOTAL ENERGY MANAGEMENT, INC)
4	FORSYTH BLDG	23	MODEL SHOP
5	AIRBORN EXPRESS	24	ROBERTS BUILDING
6	TERMINAL BLDG	25	JRT ELECTRIC
7	NAVAL RESERVE BLDG	26	RICHLAND SKYPORTS
8	FIRE HOUSE	27	MINI STORAGE
9	CIVIL AIR PATROL BLDG	28	HANGAR
10	PORT OF BENTON MAINTENANCE HANGAR	29	T-HANGAR
11	QUONSET HANGAR	30	
12	MAINTENANCE SHED	31	
13	OFFICE BLDG	32	
14	FBO BLDG	33	
15	CONTROL TOWER (CLOSED) & OFFICE BLDG	34	
16	GAS STATION	35	
17	T-HANGARS	36	
18	CROSSKEY BUILDING	37	
19	SCHWAN'S BUILDING	38	

GRAPHIC LEGEND

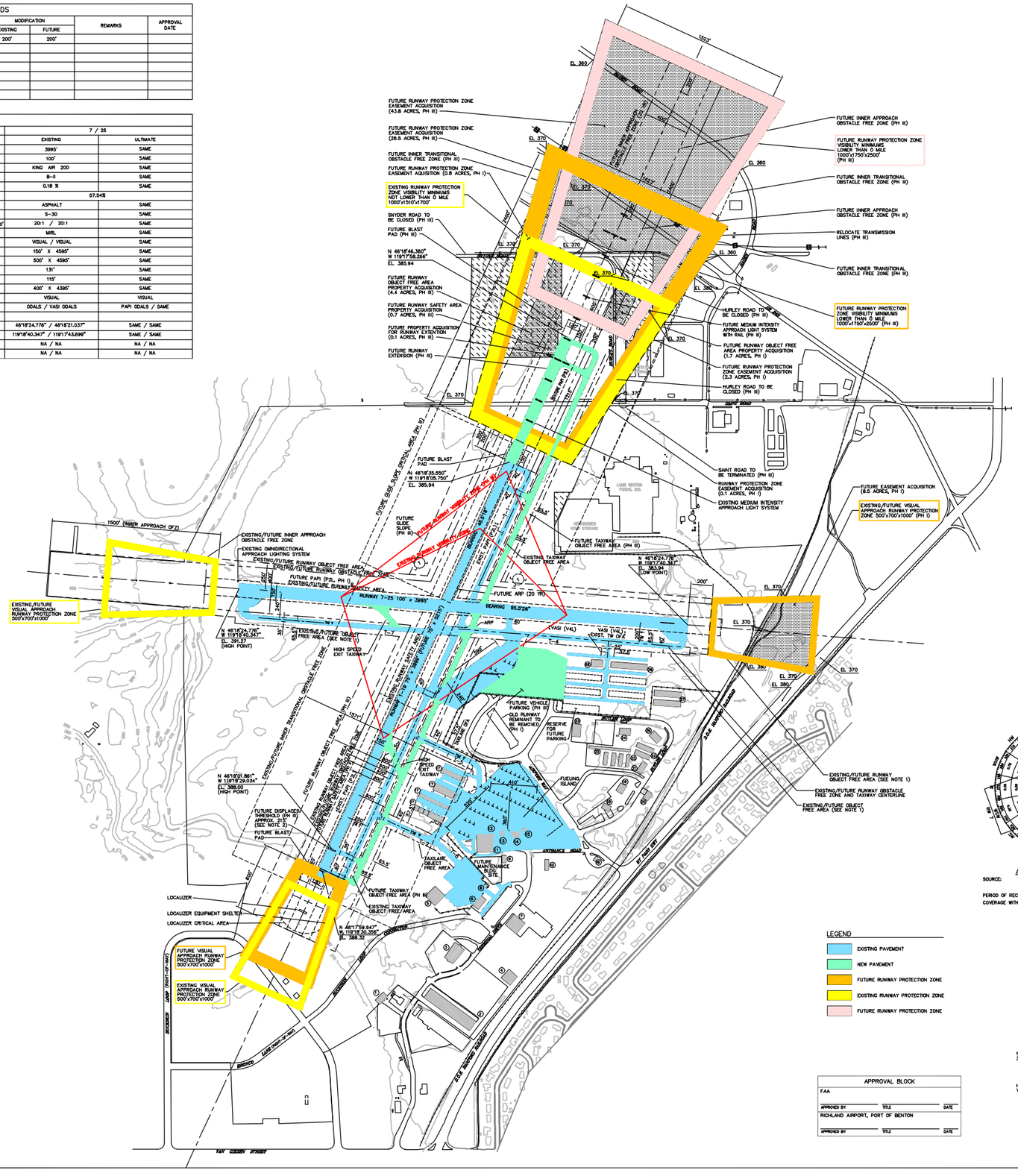
ITEM	EXISTING	FUTURE
AIRPORT PROPERTY LINE		SAME
RUNWAY PROTECTION ZONE		
RUNWAY OBJECT FREE AREA		
RUNWAY SAFETY AREA		
RUNWAY VISIBILITY ZONE		
RUNWAY OBSTACLE FREE ZONE		SAME
AIRPORT REFERENCE POINT		SAME
FENCE		
AIRCRAFT TIEDOWN	T	T (PH I)
PAPI / VASI	▪▪	▫▫ (PH I)
RUNWAY LIGHTS	•	◦
POWER POLE		SAME
TRANSMITTION TOWER		SAME
BUILDINGS		SAME
EASEMENT		
PROPERTY ACQUISITION	NA	
SEGMENTED CIRCLE AND WIND TEE		(10 YR)
COMPASS ROSE		SAME

AIRPORT DATA

ITEM	EXISTING	ULTIMATE
AIRPORT ELEVATION	391'	SAME
AIRPORT REFERENCE POINT COORDINATES:		
LATITUDE	46°18'20.840"	46°18'24.469"
LONGITUDE	119°18'10.974"	119°18'08.868"
MEAN MAXIMUM DAILY TEMPERATURE	89.0° F	SAME
AIRPORT REFERENCE CODE:		
RUNWAY 1 / 19	B-II	SAME
RUNWAY 7 / 25	B-II	SAME
TAXIWAY LIGHTING	NONE	MITL
NPIAS ROLE	GA	SAME
CONTROL TOWER FREQUENCY	NA	NA
UNICOM FREQUENCY	122.7 MHz	SAME

NOTES:

1. THIS OBJECT FREE AREA (OFA) IS FOR THE PARALLEL TAXIWAY. IT ENCOMPASSES AND EXTENDS FARTHER THAN THE RUNWAY OFA. ACCORDINGLY THE RUNWAY OFA IS NOT SHOWN.
2. COMPLETE GRAPHIC DEPICTION OF FUTURE RUNWAY MARKINGS OMMITED IN ORDER TO RETAIN GRAPHIC CLARITY.
3. A STRUCTURE HEIGHT OF 20 FEET IS USED TO DEFINE THE RUNWAY BUILDING RESTRICTION LINE.
4. RUNWAY PROTECTION ZONE CROSSING ELEVATIONS AT ROADS AND RAILROADS SHOULD BE MORE PRECISELY INDENTIFIED VIA SURVEY.



REVISION

NO.	DATE	BY

PORT OF BENTON
RICHLAND AIRPORT

FIGURE 2.1

19031 33rd Ave. W., Suite 301
Lynnwood, WA 98036-8638
206/775-3464

SCALE	1"=300'
DES.	CM
SHEET NO.	2
DR.	DJO/mgc
CH.	
P.M.	
OF 8 SHEETS	
DATE	JULY 1998
JOB NO.	23-93-015

Table 2.2 Runway Data (Continued)

Runway 08-26	
Runway Length	3995'
Runway Width	100'
Runway Surfacing	Asphalt Concrete
Runway Pavement Strength	30,000 lbs single gear, 45,000 lbs dual gear, 70,000 lbs dual-tandem
Shoulders	25 feet gravel, soft
Effective Gradient	0.10
Runway Lighting	Medium Intensity Runway Lights (MIRL)
Visual Aids	See Navaid section for complete list
Wind Coverage (All weather)	95% (Assumed)

Taxiways

All taxiways are 40 feet wide, meeting the existing Airport Reference Code category B-II standard.

There is a full length taxiway system that serves Runway 01-19 on the east side. There are five, right-angle access/egress taxiways that are located along the length of the runway as well as two at the threshold. There is also an angled taxiway approximately 2,700 feet from the threshold of Runway 01-19.

Runway 08-26 has one parallel taxiway along the south side of the runway. It has four right-angle taxiways with one located at the threshold of both Runway 08 and 26 and two others east of Runway 01-19 that connect to the hangars at the east end as well as the tie-downs.

Pavement Condition

The Washington State Department of Transportation performed a pavement condition inspection of airports in the spring of 2005. Results of the Pavement Management Program are incorporated into the recommendations for the Capital Improvement Program of this Master Plan Update. Both runways were crack sealed in the summer of 2006 as part of an FAA Airport Improvement Project.

Helipads

There are currently no FAA approved helipad facilities at the Airport. MedStar operates a private mobile helipad that is located on the apron adjacent to their hangar when in use. When necessary, MedStar and other helicopters land in the southern tie-down area. This has been a problem for operations as the helicopters kick up rocks and sand when landing and mixing with the other aircraft.

Lighting and Navaids

Both Runway 08-26 and 01-19 are lighted with Medium Intensity Runway Lighting. Runway 01-19 is actuated by air-ground control while Runway 08-26 is turned on all night by photo cell. As work is accomplished at the Airport, these features are being added to air-ground control. Runway End Indicator Lights (REIL) are in place for Runway 01-19 while all four runways have runway end lights. Precision Approach Path Indicators (PAPI) provide guidance for runway approaches 01, 19, and 08; Visual Approach Slope Indicators (VASI) are available for approach 26; an Omnidirectional Approach Lighting System is provided for Runway 08-26;

and a Medium Intensity Approach Light System is provided for Runway 01-19 There are four wind socks: two for Runway 01-19 on the east side towards the south end and on the west side at the north end, another for Runway 08-26 on the north side at the east end, and one in the grassy area of the looped section of Airport Way. A localizer is situated south of Runway 01-19.

A complete list of navigational aids on the Richland Airport includes:

- Rotating Beacon
- Lighted Wind Tee and Lighted Wind Cone
- Medium Intensity Runway Lights (MIRLs)
- Visual Approach Slope Indicators (VASI) on Runway 26
- Medium Intensity Approach Light System (MALS) on Runway 19 with Pilot Controlled Lighting
- Omnidirectional Approach Lighting System with sequenced flashing lights (ODALS)
- Common Traffic Advisory Frequency (CTAF)/UNICOM
- Remote Communications Outlet (RCO) from Walla Walla
- Seattle Flight Service Station
- Pasco VORW/DME
- Lighted taxiway
- An Automated Weather Observing Station (AWOS) Type IIID is located 1,000 feet off the end of Runway 19. VHF frequency is 132.675; phone (509) 375-4247
- Non-Directional Beacon (NDB) is being phase out

Signing and Marking

Lighted directional and informational signing and striping is provided as required by FAA, including runway and taxiway centerlines, touchdown aiming points for Runway 01-19, runway numbers, a compass rose, and taxiway/taxilane signage.

Runway Protection Zones

The Runway Protection Zone (RPZ) has a trapezoidal shape that begins 200 feet beyond each end of the runway and is centered on the runway centerline. The approach category and visibility minimums determine the dimensions for the trapezoid for each end of the runway and are based on ARC B-II with visual approach and not lower than the 1-mile visibility minimum. The RPZ is the same for both ends of Runway 08-26 and Runway 01, with a starting width of 500 feet and an ending width of 700 feet, over a length of 1,000 feet. The RPZ on Runway 19 is based on a visibility minimum of not lower than 3/4 mile for all aircraft. The dimensions are listed below. The reasoning behind this is that the Richland Airport is used as a relief airport when the nearby Pasco Airport is unable to receive aircraft.

RPZ dimensions are as follows:

	(ft) **LENGTH**	*(ft)* **INNER WIDTH**	*(ft)* **OUTER WIDTH**
Runway 08 and 26	1,000	500	700
Runway 01	1,000	500	700
Runway 19	1,700	1,000	1,510

Part 77 Surfaces

The Part 77 Surfaces consist of multiple imaginary surfaces defined by the approach types for each end of the runway. The culmination of these surfaces designates the three-dimensional protected airspace around the Airport. These surfaces are used as guidelines for all development and construction in the airspace around the Airport. Any penetration into these surfaces is classified as an obstruction.

The five surfaces that define this three-dimensional airspace for visual runway with only visual approach are as follows:

1. **Primary Surface:** A rectangular surface with a width of 500 feet (centered on the runway centerline) and a length that extends 200 feet beyond each end of the runway. The elevation of the primary surface corresponds to the elevation of the nearest point of the runway centerline.
2. **Approach Surface:** A surface centered on the extended runway centerline, starting at each end of the primary surface, 200 feet beyond each end of the runway at a width of 500 feet and an elevation equal to that of the end of the runway; extending a horizontal distance of 5,000 feet to a width of 2,000 feet, at a slope of 20:1.
3. **Transitional Surface:** A sloping 7:1 surface that extends outward and upward at right angles to the runway centerline from the sides of the primary surface and the approach surfaces.
4. **Horizontal Surface:** A horizontal plane at an elevation 150 feet above the established Airport elevation created by swinging a 5,000 foot radius arc from the center of each end of the primary surface. Tangent lines then connect these arcs. The established primary surface elevation is 391 feet; therefore, the Horizontal Surface is a level plane at 541 feet.
5. **Conical Surface:** A surface extending outward and upward from the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

There are presently no obstructions to the Part 77 surfaces at the Richland Airport for Runway 08-26, but there are obstructions for Runway 1-19, including trees, a power pole, and a transmission tower. These obstructions will be removed and/or relocated in the future.

Approach Procedures

Neither Runway 01-19 nor Runway 08-26 currently has precision instrument approach procedures. Both runways are visual approaches with several established non-precision approach procedures as follows:

- Runway 19 has localizer and RNAV (GPS) approach procedures. The NDB and associated approach procedures are being phased out.
- Runway 26 has VOR, VOR/DME-A, and RNAV (GPS) approach procedures.

Aprons, Hangars, and Tie-Downs

Tie-downs are provided in two areas of the Airport, one near the FBO building and another southeast of the cross point of the two runways that access each of the taxiways. There are 50 tie-downs on the north terminal area. Two other apron areas, located centrally within the Airport, provide 48 tie-downs. There are also several hangars that provide storage space for

aircraft. These are in the "T"- hangar configuration as well as a number of small and large box hangars and a larger Quonset building, which has space for 13 planes. The land on which the hangars are built is leased from the Airport with the buildings privately owned. Hangar space is subleased to tenants, with many of the hangars accommodating more than one plane.

Table 2.3 summarizes the existing aircraft parking and storage capacity.

Table 2.3 Aircraft Parking and Storage Facilities

Tie-Downs	
North Apron	50 spaces
Central Aprons	48 spaces
Total Tie-Downs	98 spaces
Hangars	
North hangars	54 units
South hangars	51 units
Total hangars	105 units

Currently, MedStar operates out of a large hangar east of the FBO and adjacent to Airport Way. The location of the hangar required MedStar to taxi their King Air through the apron tie-down area. The Airport constructed a new taxilane to accommodate Medstar in 2007.

Internal Circulation, Access, and Automobile Parking

The main access to the Airport is Airport Way, which connects to SR-240 (By-Pass Highway). Terminal Drive also provides access to the Airport from Van Giesen Avenue (SR-224) to the south. Internal roadways include Airport Way, Bronco Lane, Butler Loop, Aviator Drive, Aileron Road, and Lindberg Loop. There is no access to the northwest area of the Airport.

Auto parking is provided in several locations and at several of the facilities at the Airport. Approximately 50 parking spaces are provided adjacent to the south tie-downs near the restaurant. Several parking spaces are situated off the loop portion of Airport Way.

Perimeter Fencing and Gates

A four-foot tall fence provides security in the southeastern quadrant of the Airport where there is regular business activity. It separates land side operations and automobile parking from the DHL building on the south through the FBO area and tie-downs and proceeds to the east and then the northwest along Airport Way, then separates the large grassy public area from the northern tie-downs and proceeds eastward to the northern hangars along Butler Loop. Fencing has not been installed south of the DHL building on the east side of the Airport, or anywhere along the west side or north of Runway 08-26. There are card or keypad entry gates for automobiles for both the south and north hangar areas. Other auto gates exist for the air related businesses such as DHL; man gates are also available near the south tie-downs.

SUPPORT FACILITIES

Fixed Base Operations

Sundance Aviation is a Fixed Based Operator at the Airport. They provide aircraft repair services, flight training and aircraft rental services. They also offer light sport and ultra sport

service. Tie-down space can be leased as well. Several businesses provide other aviation-related services at the Airport.

Fly-in events to the Airport are also sponsored by the FBO and the Airport. The busiest is held over a 3-day period in June in conjunction with the "Cool Desert Nights," which can bring in as many as 200 aircraft over the weekend.

Sport Aircraft Operations

There are many ultra-light planes and gliders based at the Airport that use the apron/tie-down area southeast of the two runways to support their activities. Some ultra-light craft are also based at the Airport, but not stored on-site. These planes are usually assembled in the apron/tie-down area prior to flights. Until recently, Richland Skysports provided training and instruction for sky diving and other air sport activities at the airport. They have now relocated and no other skydiving activities occur at the airport.

Fueling Facilities

Public fueling facilities are available at the southeastern end of the southern tie-down area near the FBO building. These fueling facilities are owned by the Port and operated by Connell Oil. Both 100 low-lead and Jet A fuel are available for purchase 24 hours a day using a card-lock system. Each fuel type has a 6,000 gallon underground tank situated near the fence inside the tie-down area. These tanks are replenished as needed. There is also one on-site mobile fuel truck that serves some of the users of the Airport. Sundance Aviation has installed additional fueling facilities near Airport Way/MedStar hangar.

Other Support Facilities

Several other support facilities and activities are provided at the Richland Airport.

- Utilities – Power is provided to the Airport. Full water support is provided by the City of Richland. The water main serving the Airport hangar and terminal enters near Butler Loop Road and continues throughout the Airport. Sanitary sewer is also provided by the City of Richland by an 8" forced main that transitions to a 12" line. A pay phone is situated near the FBO. Water is not currently provided at the southern hangars.
- Fire Fighting Services – Limited fire fighting equipment is available, but, since the Richland Airport is not classified as a Part 139 airport, there are no permanent ARFF facilities. Several fire hydrants are situated throughout the southeastern quadrant of the Airport proper. One is located adjacent to the Airport Way loop that provides direct service to the runways; others are near the tie-downs and multiple hydrants near established hangars.
- Airport Maintenance Facilities – A 5,000 sq ft building houses the maintenance equipment for the Airport. An inventory of the Airport's equipment includes an office, workshop, and garage, eight trucks, one flatbed truck, three trailers for hauling, one dump truck, two sweepers, three tractors with loaderp, paint striper, five mowers, backhoe, two tractors with mowers for weeds, one sand spreader, four blades for earth and snow removal, and two snow blowers.
- Storm Drainage and Water Quality Features – Storm drainage facilities accompany some of the roadways with curb and gutter. Other dry wells have been constructed to handle storm events. Percolation, an irrigation system in the area, is also excellent.

- Irrigation System – An irrigation system has been set up for the grassy area southeast of the runway cross point.
- Public Restrooms – Public restrooms are available between the tie-down apron and the loop road. Portable toilets are situated near the north and south hangars.
- Restaurant — Almost Gourmet provides service to the community as well as air travelers near the south tie-downs.
- Hotel and Motel Accommodations – There are numerous facilities located within two miles of the Airport.

LANDSIDE FACILITIES

Port of Benton Owned Industrial Property

The Port of Benton owns approximately 650 acres in the vicinity of the Airport. This allows the Port to control a buffer area around the Airport, better manage land uses surrounding the Airport, and encourage economic development. A significant amount of industrial and commercial development has occurred in the vicinity of the Airport, primarily in the southeast quadrant. Figure 2.1 depicts the development levels and building structures in the area in 1998. Since the 1998 Master Plan was prepared, more than 30 new buildings have been constructed along with roadway and other utility improvements. Nearly all of the available land has been leased from the Port and will likely be built out in the near future; these updates are shown in Figure 2.2.

AVIATION ACTIVITY DATA

Based Aircraft

Based aircraft are those that are housed at an airport either in hangars or at tie-downs. The Washington State Aviation System Plan (*WSASP) – Forecast and Economic Significance Study* indicates that there were 67 based aircraft in 2000. The Washington State Department of Transportation (WSDOT) website has more up-to-date information, indicating that 96 based aircraft were at the Richland Airport in 2002. The FAA Form 5010 indicates that 86 aircraft were based at the Richland Airport in 2002.

Early discussions with users of the Airport suggested that many more planes than indicated above are based at the Richland Airport. Given the discrepancies of the various sources regarding based aircraft, substantial effort went into preparing a more reliable indicator. Research of the Federal Aviation Administration (FAA) database of aircraft registrations, as well as discussions with current tenants, owners, and operators at the Airport, was undertaken. In addition, Port personnel collected a comprehensive list of tail numbers for based aircraft, which also provided a complete aircraft count.

Research indicates that there are currently 189 aircraft based at the Richland Airport. This is significantly more than the number indicated in both the WSASP and the FAA form 5010 data discussed above. Many of the hangars were found to have two or three aircraft stored in

8.0(3) (JUB-F-VERT)

RUNWAY DATA TABLE

Description	Existing RW 01–19		Future RW 01–19		Existing RW 08–26		Future RW 08–26	
Airport Reference Code	B–II		B–II		B–II		B–II	
% Effective Gradient	0.06%		0.04%		0.18%		0.18%	
% Wind Coverage	94.22%		94.22%		57.54%		57.54%	
Pavement Type/Strength	Asphalt/S–30, D–45, DT–70		Asphalt/S–30, D–45, DT–70		Asphalt/S–30, D–45, DT–70		Asphalt/S–30, D–45, DT–70	
Critical Aircraft	King Air 200, Metro III		King Air 200, Metro III, Shorts–330		King Air 200		King Air 200	
Runway Lighting	MIRL		HIRL		MIRL		MIRL	
Runway Length	4009'		4924'		3995'		3995'	
Runway Width	75'		100'		100'		100'	
Runway Safety Area	150' X 4609'		300' x 5909'		150' X 4595'		150' X 4595'	
Runway Object Free Area	500' X 4609'		800' x 5909'		500' X 4595'		500' X 4595'	
Runway Obstacle Free Zone	400' X 4409'		400' X 5314'		400' X 4395'		400' X 4395'	
Runway Effective Max Grade	0.06%		0.06% (PHASE I) /0.05% (PHASE II)		0.18%		0.18%	
Runway Designation	01	19	01	19	08	26	08	26
Approach Category	Visual	Non–Precision	Visual	CAT–I ILS	Visual	Non–Precision	Visual	Non–Precision
Runway Markings	Non–Precision	Non–Precision	Non–Precision	Precision	Non–Precision	Non–Precision	Non–Precision	Non–Precision
Part 77 Required Approach	20:1	34:1	20:1	50:1 for 10,000' 40:1 for 40,000'	20:1	34:1	20:1	34:1
Actual Clear Approach	20:1	34:1	20:1	20:1	20:1	34:1	20:1	34:1
Approach Aids	PAPI	MALS/PAPI	PAPI	MALSR/PAPI	ODALS/PAPI	VASI	ODALS/PAPI	VASI
Visual Aids	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon
Taxiway Lighting	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors
Taxiway Markings	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Runway End Coordinates (NAD 83)	N 46°17'59.851" W 119°18'30.427"	N 46°18'55.541" W 119°18'05.760"	N 46°17'59.851" W 119°18'30.427"	N 46°18'43.688" W 119°18'00.129"	N 46°18'24.766" W 119°18'40.357"	N 46°18'21.029" W 119°17'43.706"	N 46°18'24.766" W 119°18'40.357"	N 46°18'21.029" W 119°17'43.706"

MODIFICATIONS TO STANDARDS

Description	Object	Standard	Actual	Action
Runway 08–26	Runway to Taxiway B Separation	200'	240'	Relocate Taxiway B

DECLARED DISTANCES

Description	Existing Runway 01–19 (Total Paved Length – 4009')		Future Runway 01–19 (Total Paved Length – 4924')		Existing Runway (Total Paved Length – 3995')		Future Runway (Total Paved Length – 3995')	
	RW 01	RW 19	RW 01	RW 19	RW 08	RW 26	RW 08	RW 26
Takeoff Run Available (TORA)	4009'	4009'	4924'	4924'	3995'	3995'	3995'	3995'
Takeoff Distance Available (TODA)	4009'	4009'	4924'	4924'	3995'	3995'	3995'	3995'
Accelerate–Stop Distance Available (ASDA)	4009'	4009'	4924'	4924'	3995'	3995'	3995'	3995'
Landing Distance Available (LDA)	4009'	4009'	4709'	4924'	3995'	3995'	3995'	3995'

GRAPHIC LEGEND

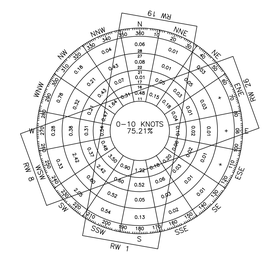
ITEM	EXISTING	FUTURE
AIRPORT PROPERTY LINE		N/A
RUNWAY 01–19 PROTECTION ZONE		PHASE II / PHASE III
RUNWAY 08–26 PROTECTION ZONE		SAME
RUNWAY OBJECT FREE AREA	ROFA	ROFA
RUNWAY SAFETY AREA	RSA	RSA
RUNWAY VISIBILITY ZONE		SAME
RUNWAY OBSTACLE FREE ZONE	ROFZ	ROFZ
AIRPORT REFERENCE POINT		SAME
FENCE	SEE NOTE 5	
AIRCRAFT TIEDOWN	T	SAME
PAPI / VASI		
RUNWAY LIGHTS		
POWER/TELEPHONE POLE		SAME
TRANSMISSION TOWER		
BUILDING		
SEGMENTED CIRCLE AND WIND TEE		(10 YR)
COMPASS ROSE		SAME
AIRPORT PAVEMENT/ROADS		PHASE I / PHASE II / PHASE III
UNLIGHTED WIND CONE		
LIGHTED WIND CONE		
AVIGATION EASEMENT		
PROPERTY ACQUISITION		PHASE I / PHASE II / PHASE III
FUTURE LIGHT INDUSTRIAL/COMMERCIAL ACCUSATION		PHASE III
FUTURE ELECTRICAL TRANSMISSION LINE EASEMENT		PHASE III

TRUE / MAGNETIC 16°24'E

16°24'E MAGNETIC DECLINATION DECEMBER 7, 2006
0°9'W ANNUAL CHANGE

HORIZONTAL DATUM – NORTH AMERICAN DATUM OF 1983
VERTICAL DATUM – NORTH AMERICAN VERTICAL DATUM OF 1929

SCALE IN FEET
300 0 300 600



ALL WEATHER WINDROSE

SOURCE: U.S. DEPT. OF COMMERCE – ESSC

PERIOD OF RECORD: 1961–1965 PASCO AIRPORT 10 MI, ESE.

COVERAGE WITH 13 KNOT CROSSWIND:	
RUNWAY 8–26	87.54%
RUNWAY 1–19	94.22%
COMBINED COVERAGE	97.95%

BUILDING AND USE TABLE

NUMBER	BUILDING	NUMBER	BUILDING
1	ADVANCED SCIENCES, INC.	23	MODEL SHOP
2	WESTINGHOUSE HANFORD TRAINING CENTER	24	ROBERTS BUILDING
3	VITRO BLDG	25	JRT ELECTRIC
4	FORSYTH BLDG	26	RICHLAND SKYPORTS
5	DHL	27	MINI STORAGE
6	TERMINAL BLDG	28	HANGAR
7	NAVAL RESERVE BLDG	29	T–HANGAR
8	FIRE HOUSE	30	T–HANGAR
9	CIVIL AIR PATROL BLDG	31	HANGAR
10	PORT OF BENTON MAINTENANCE HANGAR	32	HANGAR
11	QUONSET HANGAR	33	HANGAR
12	MAINTENANCE SHED	34	HANGAR
13	OFFICE BLDG	35	HANGAR
14	FBO BLDG	36	T–HANGAR
15	CONTROL TOWER (CLOSED) & OFFICE BLDG	37	HANGAR
16	GAS STATION	38	FUTURE–HANGAR
17	T–HANGARS	39	MAINTENANCE BUILDING
18	CROSKREY BUILDING	40	FAA LIGHTING CONTROL BUILDING
19	SCHWAN'S BUILDING	41	FAA LIGHTING CONTROL BUILDING
20	SEARCH AND RESCUE	42	PORT OF BENTON EQUIPMENT SHED
21	TOTAL ENERGY MANAGEMENT, INC	43	ELECTRICAL SUBSTATION
22	MINI STORAGE (TOTAL ENERGY MANAGEMENT, INC)	44	SUNDANCE AVIATION/MEDSTAR HANGAR

AIRPORT DATA TABLE

Description		Existing B–II	Future B–II
Airport Elevation		391 Ft.	391 Ft.
ARP Coordinates (NAD 83)	Lat.	46°18'20.293"N	46°18'22.275"N
	Long.	119°18'15.068"W	119°18'13.824"W
Mean Max. Temperature		89.0° F (Est)	89.0° F (Est)
Terminal Navaids		None	None
Runway Surface		Asphalt	Asphalt
Critical Aircraft	Wingspan	<79 Ft.	<79 Ft.
	Weight	<16,000 lbs.	<30,000 lbs.
	App. Speed	<121 Kts	<121 Kts
NPIAS Role		General Aviation	General Aviation
Taxiway Lighting		MITL/ Retroreflectors	MITL/ Retroreflectors
Taxiway Marking		Standard	Standard

NOTES:

1. THIS OBJECT FREE AREA (OFA) IS FOR THE PARALLEL TAXIWAY. IT ENCOMPASSES AND EXTENDS FARTHER THAN THE RUNWAY OFA, ACCORDINGLY THE RUNWAY OFA IS NOT SHOWN.
2. COMPLETE GRAPHIC DEPICTION OF TAXIWAY MARKINGS AND SIGNS, AND PORTIONS OF FUTURE RUNWAY MARKINGS, OMMITED IN ORDER TO RETAIN GRAPHIC CLARITY.
3. TAXIWAY LENGTHS OMMITED FOR GRAPHIC CLARITY.

APPROVAL BLOCK
Signatures

FEDERAL AVIATION ADMINISTRATION:

Signature _____ Title _____ Date _____

PORT OF BENTON

Signature _____ Title _____ Date _____

"THE PREPARATION OF THESE DOCUMENTS MAY HAVE BEEN SUPPORTED, IN PART THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3–53–0056–14) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

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NO.	DESCRIPTION	BY	APPV.	DATE
	REVISION			

RICHLAND AIRPORT
PORT OF BENTON

AIRPORT LAYOUT PLAN
FIGURE 2.2

CAD FILE: 000\FULL.DWG
PROJ.#: 30-05-020
DRAWING NO.:
DRAWN BY: JBS
DESIGN BY: SWS
CHECKED BY: CAL
SCALE OF SHEET
HOR SCALE: AS SHOWN
VER SCALE: NONE
LAST UPDATED: 04/08

SHEET 2 OF 7

them. Most of these aircraft are single engine, as shown in Table 2.4. Table 2.5 provides a listing of many of the aircraft that frequent the Richland Airport with available aircraft size and performance characteristics.

Table 2.4 2006 Based Aircraft

SINGLE ENGINE	MULTI-ENGINE	JET	HELICOPTERS	GLIDERS	MILITARY	ULTRA-LIGHT	TOTAL
142	6	0	5	13	0	23	189

Table 2.5 Characteristics of Frequent Aircraft at the Richland Airport

AIRCRAFT	ARC	*(knots)* APPCH SPEED	*(ft)* WINGSPAN	*(ft)* LENGTH	*(ft)* HEIGHT	*(lbs)* WEIGHT
Cessna Stationair	A-I	70	35.0	28.3	9.0	3,600
Cessna 140	A-I	55	32.1	21.5	--	1,450
Cessna 150	A-I	55	32.9	--	--	1,600
Grumman AA5A	A-I	66	31.5	22	7.9	2,200
Piper Cherokee	A-I	62	30.0	23.3	7.3	2,150
Piper Lance	A-I	79.3	32.7	27.6	7.8	3,600
Beechcraft King Air	A-II	111	45.9	39.9	15.3	11,800
Cessna 340	A-II	92	38.1	34.3	12.6	6,025
Piper Aerostar	A-II	94	36.7	34.8	12.1	6,000
Piper Comanche	A-II	91	36.0	24.9	7.4	2,900
Super Ximango Glider	B-I	74	32.8	25.8	8.1	2,450
Air Tractor 802F	B-II	94	58	32.2	13	16,000
Metroliner III*	B-II	112	57.0	59.3	16.7	16,000
Beechcraft King Air 200	B-II	103	54.5	43.18	15.0	12,500

* DHL Operations

Aircraft Operations

Airport operations consist of the number of take-offs and landings at an airport. The definition of one operation is either a take-off or landing. Operations are grouped into two types of operations: local and itinerant.

(1) *Local operations* mean operations performed by aircraft that:

(i) operate in the local traffic pattern or within sight of the airport;

(ii) are known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the airport; or

(iii) execute simulated instrument approaches or low passes at the airport.

(2) *Itinerant operations* mean all aircraft operations other than local operations.

No formal records are kept regarding the number of operations at the Richland Airport. The 2001 WSASP indicates that there are 19,596 annual operations, with that number being updated in 2003 to 26,500 with 15,400 being local general aviation and 11,100 being itinerant. The Federal Aviation Administration (Form 5010) indicates a similar level of operations with 13,000 local and 9,377 itinerant.

There are many single engine, ultra-light, experimental planes, and gliders at the Airport primarily used for pleasure or instructional purposes. There are also multiple sources of flight instruction available. One of these companies is relatively new to the Airport, having conducted business at a different location, and brings over 10,000 annual operations to the Airport - most likely not accounted for in the recent WSDOT figures.

DHL is a worldwide freight shipping company that operates daily flights in and out of the Airport. Their demand has increased significantly in recent years - a trend that is expected to continue over the next several years. While they presently are not flying out of Richland, a Metroliner aircraft has been used to transport cargo in and out of the Richland Airport; however, the aircraft is not capable of completely meeting the current demand. The current runway length precludes an upgrade to a larger aircraft and ground transportation is used to ship the remaining cargo. As demand for freight service continues to increase, DHL anticipates that a larger aircraft will be needed in the next 3 to 5 years or they will be forced to relocate their facilities. (Refer to the letter from DHL in the Appendix.) Discussions with DHL representatives revealed that their preference is to upgrade to a Shorts 330 or 360, or possibly a DC-9 aircraft. A longer runway will be necessary to accommodate the Shorts 360 because a fully-loaded plane cannot take off from Richland's 4,000' runway limitation. This situation is worse when temperatures are higher. The general characteristics of the Shorts 330 and 360 are shown in Table 4.3.

The United States Fish and Wildlife Service (USFWS) uses an Air Tractor 802F for rapid response during the summertime to assist in firefighting. The pilot indicated that the entire 4,000 foot runway is needed in order to take off when fully loaded. They expect that, in the future, the USFWS will have a permanent station at the Richland Airport and additional runway length for these planes will be desirable. The apron/tie-down adjacent to the loop road is used for staging firefighting activities.

In the spring of 2006, MedStar air ambulance service relocated their regional operations from the Tri-Cities Airport to the Richland Airport. Their operations include both fixed-wing aircraft and helicopters; a KingAir 200 is used to perform its critical air ambulatory service. Total combined annual fixed-wing operations are anticipated to be approximately 460, not including training or functional test flights. The recent addition of the AWOS was felt to be a major benefit by MedStar representatives. They expect that provisions allowing precision approach in the future will enhance their ability to serve the community's critical healthcare needs by providing air ambulance service during times that might otherwise prohibit landing (when visibility is limited).

Light and Ultra-Light Sport flying is common at the airport, with several based operations.

Helicopter Operations

There were three helicopters based at the Richland Airport in 2005; as mentioned earlier, MedStar relocated to the Richland Airport in the spring of 2006. Their total annual helicopter operations are anticipated to be approximately 700. The helicopter being used is the Eurocopter EC-135 and is the critical helicopter in use at the Airport. The EC-135 has the following characteristics:

- The main rotor is 34 foot diameter
- Tail rotor is 3.5 feet
- Length 39 feet
- The weight (max gross) is 6,250 lbs

Helicopters operated by the USDA, local spray applicators, and the military occasionally land at the Richland Airport. With the addition of the MedStar operations, the total annual helicopter operations at the Airport are estimated at approximately 1,490.

SOCIO ECONOMIC DATA

Population

The Richland Airport serves a large area in southeastern Washington. The 2005 population of the City of Richland is estimated at 43,520; Benton County is estimated at 158,100. Table 2.6 summarizes the population of several nearby counties along with the area and population density. The population density of each of these counties is well below the density of the state as a whole with the exception of Benton County, with much agricultural activity taking place in the region. Although the population density for Benton County is considerably higher than the others, it continues to maintain a significant amount of agricultural productivity.

Table 2.6 Population of Selected Washington Counties

COUNTY	YEAR OF FORMATION	LAND AREA, 2000 (SQ MI)	2000 CENSUS	2005 POPULATION (EST.)	POPULATION DENSITY (PEOPLE/ SQ. MI.)
State of Washington	1889	66,544	5,894,143	6,256,400	94.0
Adams County	1883	1,925	16,428	17,000	8.8
Benton County	1905	1,703	142,475	158,100	92.8
Franklin County	1883	1,242	49,347	60,500	48.7
Grant County	1909	2,681	74,698	79,100	29.5
Walla Walla County	1854	1,270	55,180	57,500	45.3
Yakima County	1865	4,296	222,581	229,300	53.4

Source: State of Washington Office of Finance and Management

Employment

Activities associated with the Richland Airport are both pleasure and business-related. To provide an overview of the level of employment in the region, employment data for the same six counties is summarized in Table 2.7.

Table 2.7 Employment Statistics for Select Washington Counties

COUNTY	2005 POPULATION (EST.)	LABOR FORCE	TOTAL EMPLOYMENT	NON-FARM EMP.	% NON-FARM EMP.	% FARM EMP.
State of Washington	6,256,400	3,251,900	3,058,700	2,735,700	89.44%	10.56%
Adams County	17,000	9,380	8,860	5,220	58.92%	41.08%
Benton-Franklin Co. MSA	218,600	109,400	103,100	85,100	82.54%	17.46%
Grant County	79,100	42,610	39,860	25,920	65.03%	34.97%
Walla Walla County	57,500	29,390	28,200	24,190	85.78%	14.22%
Yakima County	229,300	121,400	111,200	76,500	68.79%	31.21%

Source: State of Washington Department of Labor

Economic Impact

The Washington State Department of Transportation Aviation Division has prepared a report on the economic impacts of airports in Washington. A brief summary is provided in this section. Three types of economic impacts are described: direct, indirect, and induced. Combined, the three impact types yield the total economic impacts of an airport.

Direct economic impacts occur as a consequence of providing aviation services, usually at the Airport through the carrying of passengers or cargo. Total combined direct output of on-Airport tenants and general aviation visitors at the Richland Airport was $2,027,255 in the year 2002. These first-round expenditures represent approximately 33 jobs with combined wages of $546,697.

Indirect economic impacts occur as a result of the use of aviation service. They include expenditures made by passengers who visit the region as well as expenditures by businesses having economic activity that is dependent on the Airport. These indirect impacts accounted for an output of $394,310 and five jobs with combined wages of $130,367.

Induced economic impacts represent the local value of money as it circulates through the local economy; this is often known as a "multiplier" effect. Induced impacts as a result of the Richland Airport are valued at $452,954 and six jobs with wages of $147,046.

LAND USE

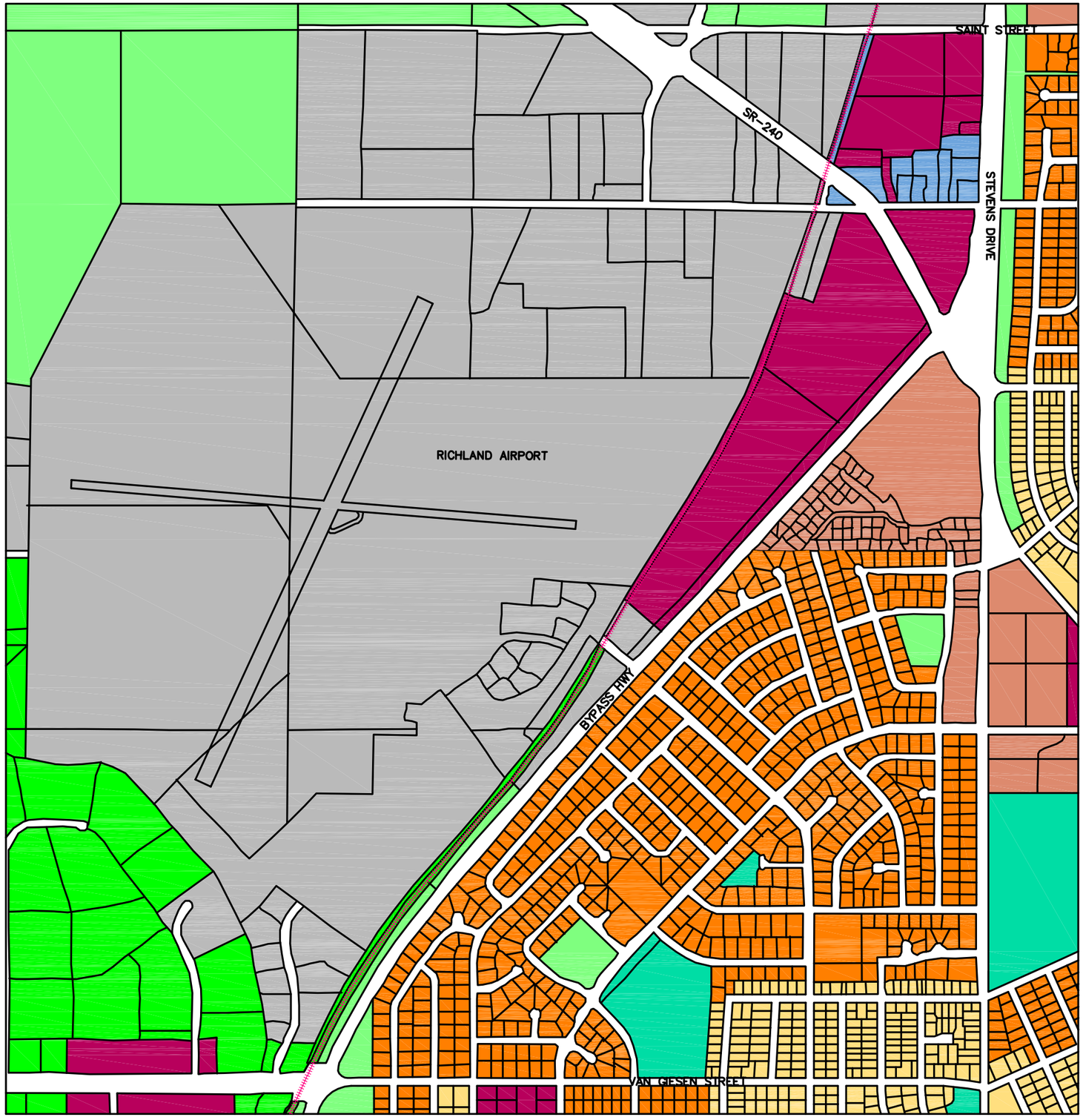
Regulatory Controls

The Richland Airport is located within the Richland City limits. The City's Comprehensive Plan, most recently adopted in 1998, with a major amendment in 2001, includes land use that provides direction to the development and use of land within the urban growth boundary of

the City. Annual amendments to the Comprehensive Plan are customary through an application and public hearing process. The current preferred land uses in the vicinity of the Airport, as identified in the Comprehensive Plan, are shown in Figure 2.3.

As mentioned, the Port of Benton owns much of the property in the vicinity of the Richland Airport. It is currently zoned I-M, Medium Industrial, which allows limited manufacturing, warehousing, distribution facilities, and science-related research facilities. Adjacent zones include agricultural to the southwest with commercial to the east between the railroad tracks and the By-pass Highway. East of the By-pass Highway is an established residential neighborhood.

The current zoning in the vicinity of the Airport is shown in Figure 2.4. The City of Richland completed major revision of the Zoning Ordinance Amendment in 2005. The Port of Benton will continue to work with the City to ensure provision of appropriate land use compatibility measures with the City Zoning ordinance.



N

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AGRICULTURAL
COMMERICAL
INDUSTRIAL
LOW DENSITY RESIDENTIAL (0–5 DWELLINGS/ACRE)
MEDIUM DENSITY RESIDENTIAL (5.1–10 DWELLINGS.ARCE)
HIGH DENSITY RESIDENTIAL (10.1+ DWELLINGS/ACRE)
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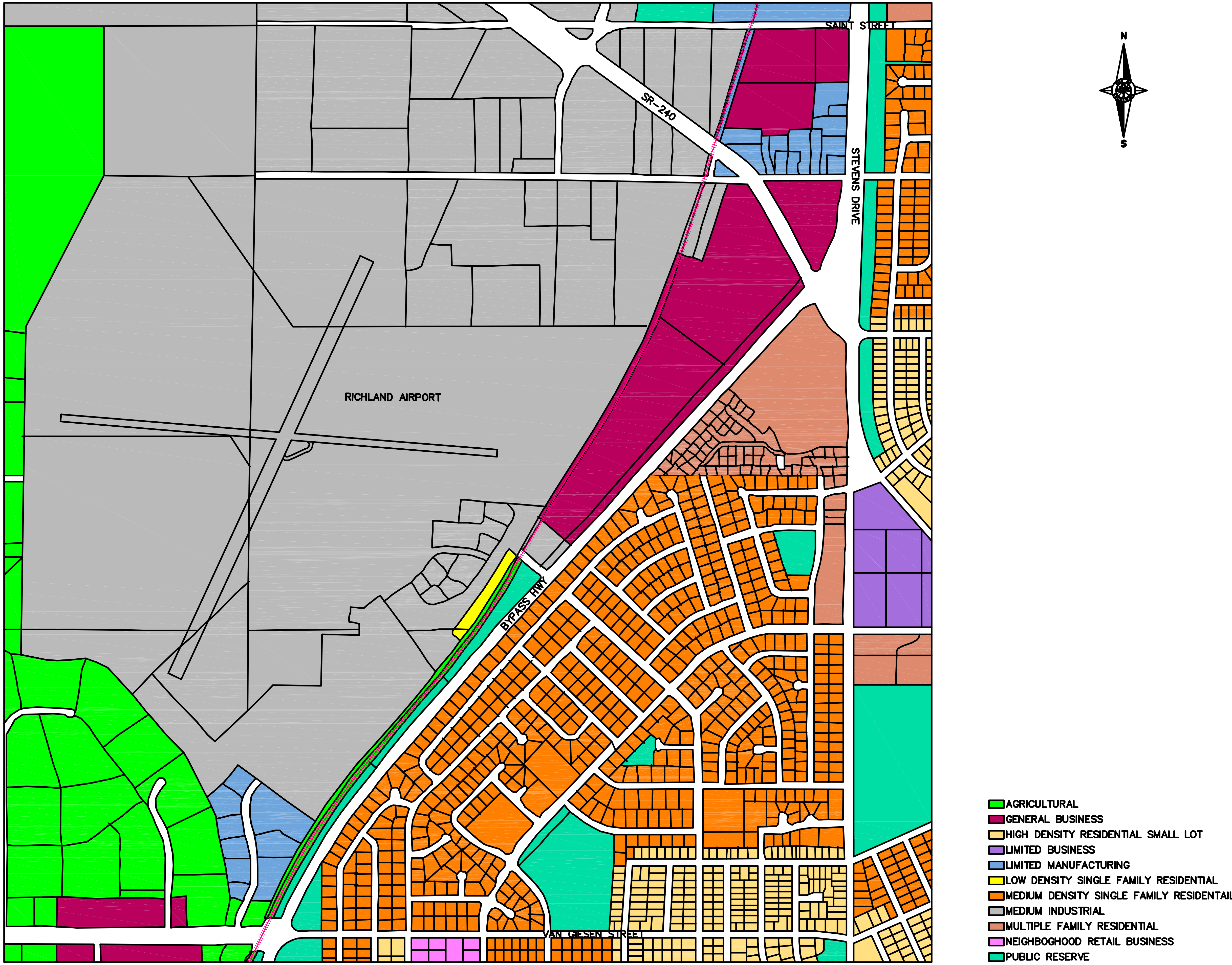
NO.	REVISION DESCRIPTION	BY	APP'D	DATE

COMPREHENSIVE PLAN LAND USE MAP

FIGURE 2.3

CAD FILE: CAD_NAME
PROJ. #: PROJ. #
DRAWING NO.: DWG_NUMBER
DRAWN BY: DRAWN_BY
DESIGN BY: DESIGNED_BY
CHECKED BY: CHECKED_BY
SCALE OF SHEET
HOR SCALE: HORSCALE
VER SCALE: VERTSCALE
LAST UPDATED: REV_DATE
SHEET
OF



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REVISION

NO.	DESCRIPTION	BY	APR.	DATE

CURRENT CITY OF RICHLAND ZONING

FIGURE 2.4

CAD FILE: CAD_NAME
PROJ. #: PROJ #
DRAWING NO.: DWG_NUMBER
DRAWN BY: DRAWN_BY
DESIGN BY: DESIGNED_BY
CHECKED BY: CHECKED_BY
SCALE OF SHEET
HOR SCALE: HORSCALE
VER SCALE: VERTSCALE
LAST UPDATED: REV_DATE
SHEET
OF

EXISTING AIRPORT PLANNING INFORMATION

Master Plan Update – 1998

The most recent document on the Richland Airport was the Richland Airport Master Plan Update prepared by Reid Middleton in 1998. In addition to summary, drawings and implementation chapters, there were six chapters for which a brief summary is provided here.

Goals and Objectives were developed to guide the overall development of the Master Plan through work with an advisory committee and Port Management. Each goal had multiple objectives and was designed to address the needs of the Airport, meet various planning and development guidelines of the City of Richland, address relevant public concerns, and consider the many different interests and issues that exist at the Airport. Goals included:

- Maintain and improve Airport facilities and services for all users.
- Develop realistic activity forecasts responsive to the expected socioeconomic and aviation industry demand levels present in the Richland area.
- Provide continuing growth in the economic return to the Port community through Airport development.
- Ensure Airport compatibility with local land use patterns, plans, and environmental regulations.
- Provide Airport facilities in such a manner that they do not represent an unfair financial burden to any one segment of the community.

Existing Conditions were documented regarding runways, taxiways, hangars, tie-downs, airspace, and available Navaids. Most notable was the partial taxiway for Runway 08-26 (then known as 07-25), which has since been made into a full-length taxiway. It was noted that both runways had effective pavement strength to accommodate 30,000 pounds single gear, 45,000 pounds dual gear, and 70,000 pounds dual-tandem gear.

Forecasts of aviation activity were prepared for low, medium, and high scenarios as well as forecasts of freight operations and based aircraft. Appropriate information from this section will be included later in this document.

A chapter on demand capacity analysis was prepared based on the full-length taxiway for Runway 01-19 and the partial-length taxiway for Runway 08-26, the number and location of ingress and egress points to the runways, fleet mix, available Navaids, and annual service volume. It was determined that the VFR hourly demand ratio estimate was 0.16 and would increase to 0.20 by year 2016. The IFR hourly demand ratio estimate was 0.08 and would increase to 0.11. The annual service volume demand ratio estimate was then 0.17 and would increase to 0.22 by year 2016. No new runways were considered necessary and further detailed evaluation was not carried out.

A section on Facility Requirements was also prepared. By reviewing the characteristics of the most demanding family of aircraft using the Airport it was recommended that the Richland Airport be designated with an Airport Reference Code (ARC) of B-II. The parallel taxiways positioned 200' from the runway centerline were determined to be deficient. Pavement conditions were reported as excellent, generally speaking; however, three segments of taxiway near the main apron were noted as having pavement strengths from 10,000 to 16,000

pounds with poor condition. Runway lengths were also examined. Based on an airport elevation of 391', a mean maximum temperature during the hottest month of 89°F, and a maximum effective gradient of 0.10 percent, to accommodate 75% of the large aircraft fleet operating at 60% useful load, a runway length of 4,730' would be needed for dry conditions with 5,410' needed for wet/slippery conditions. All available hangar space was occupied with strong demand noted for additional hangar facilities. A summary of recommendations included:

- Retain waiver for parallel taxiway spacing less than 240' recommended (unless precision approach is established on Runway 01-19, then 300' separation would be needed
- Strengthen pavement for upper and lower main aprons
- Provide usable runway length of 4,700 to 5,400 feet for Runway 01-19
- Construct combination high-speed, right-hand exit taxiway for Runway 08
- Reconstruct Taxiway T-3
- Install VASI for Runway 08
- Install PAPIs and REILs for Runway 01-19
- Runway lighting for Runway 01-19 and, later on, Runway 08-26
- Add 10-T hangars, three large hangars, and two shade hangars
- Provide fuel tank for Jet-A fuel storage
- Expansion of the maintenance building
- Fencing and combination/lockable gate behind the Quonset hangar

The Development Alternatives Chapter primarily reviewed two issues: 1) the impact of design requirements on Runway 08-26 to improve landside development and reduce residential land use within the RPZ, and 2) opportunities to lengthen Runway 01-19 to a total useable length of 5,000 feet. For Runway 08-26, the option of increasing the runway approach minimums to one mile, resulting in reduced design requirements. Six options for improvements to Runway 01-19 were considered, including various combinations of extending the runway to the north and upgrading instrument approach capability from non-precision to precision. The adopted alternative selected was to upgrade the approach capability and extend the runway by 1,215 feet to the north, which would require widening of the runway, relocation of the parallel taxiway to 300', expansion of the Runway Safety Area, a displaced threshold for Runway 01, property and easement acquisitions and relocation of above-ground utilities. The implement-ation of this alternative, however, was deferred until the last phase of the planning horizon when there would be sufficient demand to justify the construction of these features. Regarding landside development, space for approximately 16 new hangars was recommended south of Runway 26. Also, due to changes in design criteria, removal of 40 tie-downs in the north terminal area were recommended, with a location recommended for new tie-downs south of Runway 26 west of the hangars. A reconfiguration of tie-downs in the south terminal area was recommended to better secure aircraft from common southerly winds.

Section 3 – Forecast

POPULATION

Population forecasts for the State of Washington are prepared by the Office of Financial Management. Forecasts were reviewed and are summarized in Table 3.1 for the counties discussed earlier. For Benton County the forecast represents roughly a 1.2% annual growth.

Table 3.1 Population Forecasts for Selected Washington Counties

			Intermediate Forecasts (released, Jan 2002)				
	2000 CENSUS	**2005 POPULATION (estimate)** (4/2005)	**2005**	**2010**	**2015**	**2020**	**2026**
Washington State	5,894,143	6,256,400	6,233,345	6,648,112	7,096,501	7,545,269	7,975,471
Adams County	16,428	17,000	17,458	18,502	19,724	20,919	22,063
Benton County	142,475	158,100	151,522	161,236	169,528	177,388	184,818
Franklin County	49,347	60,500	52,642	56,392	60,216	64,687	68,997
Grant County	74,698	79,100	82,397	88,331	92,806	85,715	98,395
Walla Walla County	55,180	57,500	57,475	60,030	62,398	64,856	67,158
Yakima County	222,581	229,300	225,622	237,435	254,257	269,401	283,884
TOTAL	560,709	601,500	587,116	621,926	658,929	682,966	725,315

BASED AIRCRAFT

The *WSASP – Forecast and Economic Significance Study* indicates that an increase of over 68% in based aircraft is anticipated in the 2020 timeframe, taking the number from 67 to 98. The WSDOT website has more up-to-date information, indicating that 96 based aircraft were at the Richland Airport in 2002, with a 2005 forecast of 100 planes.

The FAA Form 5010, Terminal Area Forecast (TAF) indicates that 86 aircraft were based at the Richland Airport in 2002 with no change anticipated through the 20-year planning horizon. (TAF documentation indicates that for non FAA facilities, which rely solely on Form 5010 data for general aviation activity levels, operations levels are held constant unless otherwise specified by a local or regional FAA official.) Table 3.2 shows a comparison of the 1998 Master Plan Update forecasts, the WSDOT and FAA forecasts as well as the updated 2003 WSDOT update. More current data on based aircraft collected through this effort discussed in Section 2 and reported in Table 2.4 indicates that there are at least 189 aircraft based at the Richland Airport. Updated forecasts for aviation activity were prepared using this data, considered more current. The rate of increase in based aircraft of 1.2% per year was used, which coincides with the rate of population increase.

Table 3.2 Comparison of Based Aircraft Forecasts

	2002	2005	2010	2015	2020	2026*
1998 Master Plan	94	98	103	108	--	--
FAA Forecast	86	86	86	86	86	86
2001 WSASP	67	67	68	83	98	116
2003 WSDOT update	96	100	--	--	--	--
2005 ALP Update Forecast**	--	189	200	213	225	242

*Extrapolation

**1.2% annual growth from existing

Discussions with current owners and tenants at the Airport easily substantiate the growth in based aircraft at the Richland Airport. Some of the justifying issues are:

- A large hangar was recently completed adjacent to the south tie-down area.
- Several current owners are building new airplanes and are likely to need storage space.
- Hangar owners that lease space to airplane owners have been asked to construct additional hangars to fill in the west group of hangars on the north side of Butler Loop.
- Construction of a new building for hangars south of Runway 26 began in the spring of 2006.

Table 3.3 shows the forecast for based aircraft at the Richland Airport by type of aircraft, maintaining the existing percentage mix of aircraft types.

Table 3.3 Forecast Based Aircraft by Type

Aircraft Type	**2005**	**2010**	**2015**	**2020**	**2026***
Single Engine (Non-jet)	142	151	160	169	182
Multi Engine (Non-jet)	6	6	7	7	8
Jet Engine	0	0	0	0	0
Helicopter	5	5	6	6	6
Other	36	38	40	43	46
TOTAL	**189**	**200**	**213**	**225**	**242**

AIRCRAFT OPERATIONS

The 1998 Master Plan and both the FAA Form 5010 and WSASP were reviewed to assess levels of forecast activity for local and itinerant traffic at the Richland Airport, and to establish an updated forecast based on current levels of based aircraft aviation activity and anticipated population growth. The 1998 Master Plan indicated that 50% of Airport operations were estimated to be local; both the WSASP and FAA Form 5010 indicate that approximately 58% of all Airport operations are local, with 42% being itinerant. A 2005 forecast had total

operations ranging from 22,200 to 27,580, with the 1998 Master Plan and WSASP forecast increasing in the future.

Two estimates of forecasting operations at the Airport were prepared. Each used the forecasts of based aircraft shown in Table 3.2. For the first method, "A Model for Estimating General Aviation Operations at Non-towered Airports using Towered and Non-towered Airport Data" was reviewed. This model takes into account a number of factors, including based aircraft, population (within both 25 and 100 miles), proportion of based aircraft in region, presence of certified flight school, and passenger service. Forecasts for 2,789 non-towered small airports were prepared. An important and interesting observation of the report and its equations is that the average number of operations per based aircraft increases with the number of aircraft (but at a decreasing rate). Best estimates of the values for the several variables were prepared in order to replicate the TAF. Given the higher number of based aircraft discussed earlier, this variable was updated along with 2005 population data reported earlier. Conversations with the preparers of the document reviewed indicated that the regression equation was not used for the number of operations reported in the TAF for the Richland Airport. However, this methodology is presented for comparative purposes.

The second estimate is slightly more conservative and uses information gained by comparing the number of operations per based aircraft associated with both the WSDOT forecasts and the FAA Form 5010 forecast. All of these forecasts suggest approximately 275 annual operations per based aircraft. This number was applied to the forecast for number of based aircraft associated with each future year. The results of the several forecasts are summarized in Table 3.4.

Table 3.4 Richland Airport Combined Operations Forecast by Forecast Type

	2000	2005	2010	2015	2020	2026*
1998 Master Plan (01,06,11,16)	20,700	22,200	23,800	25,500	--	--
2001 WSASP Combined Ops.	19,596	19,700	20,000	24,500	29,100	--
FAA Form 5010	22,377	22,377	22,377	22,377	22,377	--
2003 WSDOT Website (02,05)	26,500	27,580	--	--	--	--
2005 Estimate Method A (1)	--	35,800	37,400	39,300	41,100	43,500
2005 Estimate Method B (2)	--	33,300	35,200	37,400	39,600	42,600

* Extrapolation

(1) Regression equation was used, along with best available data applied to variables, updating the number of based aircraft in the equation.

(2) WSDOT and FAA Form 5010 calculations indicate approximately 275 operations per based aircraft; this forecast method uses the updated number of based aircraft multiplied by 275 average operations, rounded to the nearest hundred.

A summary of local and itinerant operations was also prepared using the total operations shown for Method B above. This forecast is summarized along with the forecasts from WSDOT and FAA in Table 3.5. As mentioned above, both the WSDOT and FAA 5010 forecasts indicate that local operations were forecasted to comprise approximately 58% of all operations with

42% being itinerant (see Existing Conditions section, page 12 for a description of local and itinerant operations). This same ratio was used for developing the local and itinerant forecasts associated with total operations from Method B above.

Table 3.5 Richland Airport Operations Forecast by Type

SOURCE	2000	2005	2010	2015	2020	2026
1998 Master Plan -- Local	10,077	10,802	11,580	12,413		
1998 Master Plan -- Itinerant	10,077	10,802	11,580	12,413		
2001 WSASP -- Combined Ops.	19,596	19,700	20,000	24,500	29,100	--
WSDOT website Local	15,400	16,000				
WSDOT website Itinerant	11,100	11,580				
FAA Form 5010 Local	13,000	13,000	13,000	13,000	13,000	
FAA Form 5010 Itinerant	9,377	9,377	9,377	9,377	9,377	
2005 ALP Update -- Local	--	19,300	20,400	21,700	23,000	24,700
2005 ALP Update -- Itinerant	--	14,000	14,800	15,700	16,600	17,900
TOTAL		33,300	35,200	37,400	39,600	42,600

Local operations calculated as 58% of total operations, Itinerant calculated as 42% of the total.

A forecast of operations by aircraft type was also prepared. This was done accounting for 1300 annual DHL operations and an estimated 465 MedStar operations in the multi-engine category and assuming the remainder of total operations would be split proportionately for all other based aircraft and rounded to the nearest hundred. The resulting forecast is shown in Table 3.6.

Table 3.6 Richland Airport Operations Forecast by Aircraft Type

AIRCRAFT TYPE	2005	2010	2015	2020	2026*
Single Engine (Non-jet)	24,070	24,300	25,950	27,340	29,780
Multi Engine (Non-jet)	2,360	3,040	3,040	3,310	3,310
Jet Engine	0	0	0	0	0
Helicopter	790	1,720	1,730	1,990	1,990
Other	6,080	6,140	6,680	6,960	7,510
TOTAL	33,300	35,200	37,400	39,600	42,600

COMPARISON TO FAA TERMINAL AREA FORECASTS

As provided for in the Scope of Work for this Master Plan Update, two worksheets are included that allow for a comparison of the above forecast efforts to the FAA Terminal Area Forecasts. These are included as Table 3.7 and 3.8.

Table 3.7 Template for Comparing Airport Planning Forecast and TAF

AIRPORT NAME: Richland, Washington

	YEAR	AIRPORT FORECAST	TAF	AF/TAF (% DIFFERENCE)
Passenger Enplanements				
Base yr.	2005	0	0	0
Base yr. + 5yrs.	2010	0	0	0
Base yr. + 10yrs.	2015	0	0	0
Base yr. + 15yrs.	2020	0	0	0
Commercial Operations				
Base yr.	2005	0	0	0
Base yr. + 5yrs.	2010	0	0	0
Base yr. + 10yrs.	2015	0	0	0
Base yr. + 15yrs.	2020	0	0	0
Total Operations				
Base yr.	2005	33,300	22,377	48.8%
Base yr. + 5yrs.	2010	35,200	22,377	57.3%
Base yr. + 10yrs.	2015	37,400	22,377	67.1%
Base yr. + 15yrs.	2020	39,600	22,377	77.0%

NOTES: TAF data is on a U.S. Government fiscal year basis (October through September).
AF/TAF (% Difference) column has embedded formulas.

The large difference in the increase in forecast Airport operations between the Airport forecast and the TAF is due to three factors: 1) the TAF does not include any increase in future operations, 2) the higher number of existing based aircraft than is recorded in Form 5010. The actual growth rate is 1.2% per year, and 3) the change to Sundance Aviation as the FBO with flight training services.

Table 3.8 Template for Summarizing and Documenting Airport Planning Forecasts

Table 3.8 Template for Summarizing and Documenting Airport Planning Forecasts

AIRPORT NAME: Richland, Washington
Specify base year: 2005

	A. Forecast Levels and Growth Rates					Average Annual Compound Growth Rates			
	Base Yr. Level	Base Yr. + 1yr.	Base Yr. + 5yrs.	Base Yr. + 10yrs.	Base Yr. + 15yrs.	Base yr. to +1	Base yr. to +5	Base yr. to +10	Base yr. to +15
Passenger Enplanements									
Air Carrier	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Commuter	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
TOTAL	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Operations									
Itinerant									
Air carrier	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Commuter/air taxi	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Total Commercial Operations	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
General aviation	19,300	19,520	20,400	21,700	23,000	1.1%	1.1%	1.2%	1.2%
Military	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Local									
General aviation	14,000	14,160	14,800	15,700	16,600	1.1%	1.1%	1.2%	1.1%
Military	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
TOTAL OPERATIONS	33,300	33,680	35,200	37,400	39,600	1.1%	1.1%	1.2%	1.2%
Instrument Operations	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Peak Hour Operations	12	12	13	14	14	0.0%	1.6%	1.6%	1.0%
Cargo/mail (enplaned+deplaned tons)	305	305	305	310	310	0.0%	0.0%	0.2%	0.1%
Based Aircraft									
Single Engine (Non-jet)	142	144	151	160	169	1.4%	1.2%	1.2%	1.2%
Multi Engine (Non-jet)	6	6	6	7	7	0.0%	0.0%	1.6%	1.0%
Jet Engine	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Helicopter	5	5	5	6	6	0.0%	0.0%	1.8%	1.2%
Other	36	36	38	40	43	0.0%	0.0%	0.0%	0.0%
TOTAL	189	191	200	213	225	1.1%	1.1%	1.2%	1.2%

	B. Operational Factors				
	Base Yr. Level	Base Yr. + 1yr.	Base Yr. + 5yrs.	Base Yr. + 10yrs.	Base Yr. + 15yrs.
Average aircraft size (seats)					
Air carrier	0.0	0.0	0.0	0.0	0.0
Commuter	0.0	0.0	0.0	0.0	0.0
Average enplaning load factor					
Air carrier	0.0%	0.0%	0.0%	0.0%	0.0%
Commuter	0.0%	0.0%	0.0%	0.0%	0.0%
GA operations per based aircraft	176	176	176	176	176

Note: Show base plus one year if forecast was done. If planning effort did not include all forecast years shown interpolate years as needed, using average annual compound growth rates.

NOTE: Right hand side of worksheet has embedded formulas for average annual compound growth rate calculations.

Section 4 – Facility Requirements

The Facility Requirements section of this document will compare the existing airfield and landside facilities with the Airport operations and aircraft forecast needs for the future.

AIRPORT DESIGN CRITERIA

Airport Reference Code

The airport reference code (ARC) is a criterion that defines critical airport dimensions by the characteristics of the aircraft that are operating at the Airport. This code is defined specifically by the approach category and design group of the aircraft. The approach category of the aircraft is determined by 1.3 times the stall speed of the aircraft in its landing configuration at its maximum landing weight and is represented by a letter A, B, C, D, or E representing ranges of approach speeds. The design group of the aircraft is based on the wingspan of the aircraft and is designated by a roman numeral I, II, III, IV, V, or VI representing maximum wingspan. Table 4.1 shows aircraft standards based on the Airport Reference Code for smaller general aviation, non-commercial type airports.

Table 4.1 Aircraft Standards based on Airport Classification

	A-I	A-II	B-I	B-II
Wingspan	<49 feet	<79 feet	<49 feet	<79 feet
Approach Speed	<91 knots	<91 knots	<121 knots	<121 knots

Critical Aircraft

Critical aircraft is the specific type or family of aircraft that is the most demanding of the facilities from a size, weight, or speed standpoint**.** The critical aircraft for the Airport is chosen by selecting the most demanding aircraft, or family of aircraft using the airfield, with a minimum of 500 itinerant operations per year. Most of the based aircraft at the Richland Airport are small (<12,500 lbs), single engine aircraft of Approach Category A (speed less than 91 knots) or B (speed less than 121 knots) and of Design Type I (wingspan < 49') or II (wingspan <79'). A small number of larger planes regularly conduct operations at the Airport. These include the DHL Metroliner, the Fish and Wildlife Service Air Tractor 802F, and a MedStar King Air. Annual operations are estimated to be in excess of 2,360 for these aircraft (See Table 3.6). Their characteristics correspond to Approach Category B and design group II (wingspan < 79') for which the Airport is currently configured. The B-II designation requires the Airport to accommodate the needs of aircraft with approach speeds less than 121 knots and a wingspan less than 79 feet. Table 4.2 summarizes the critical aircraft dimensional standards based on the Airport Reference Code of B-II.

Table 4.2 Critical Aircraft Designations (for Metroliner III)

Airport Reference Code (ARC)	B-II
Approach Speed	<121 knots
Wingspan	<79 feet
Maximum Takeoff	16,000 lbs
Helicopter	<6,500 lbs

Although the Richland Airport is currently designated for ARC B-II and meets lateral clearance standards, discussions with some of the Airport users indicated that additional runway length would more adequately meet current needs. The current freight operator representatives from DHL revealed that they recently downgraded from a Beech 1900 to a Metroliner III aircraft because the larger aircraft could not take off from Richland Airport when fully loaded. This situation is worse when temperatures are higher. Excess cargo is shipped via ground transportation. As their cargo carrying needs grow, they are likely to upgrade to a Shorts 330 or 360 plane, or possibly a DC-9. These larger planes have wingspans of approximately 75 feet and require a longer runway to accommodate a fully-loaded plane. The ARC would remain B-II for their aircraft.

Operators of the U.S. Fish and Wildlife Service plane stationed at the Richland Airport during the fire season also indicated that a fully-loaded plane ready to fight fires requires the entire 4,000 foot runway for take-offs and that additional runway length would be desirable. The FWS has provided a temporary station for three years.

A summary of the larger aircraft anticipated to use the Richland Airport and their characteristics and operations is shown in Table 4.3.

Table 4.3 Forecasted Family of Aircraft for Richland Airport

AIRCRAFT	ARC	*(knots)* APPCH SPEED	*(knots)* TAKEOFF DISTANCE	*(knots)* LANDING DISTANCE	*(feet)* WING-SPAN	*(feet)* LENGTH	*(ft.)* HT.	*(lbs)* WT.	2006 ANNUAL OPERATIONS
Air Tractor 802F	B-II	94	4260 (4)	2935 (4)	58	36.2	13.0	16,000	Varies (1)
Beechcraft KingAir 200	B-II	103	3065 (4)	3385 (4)	54.5	43.8	15.0	12,500	475 (2)
Metroliner III	B-II	112	4520 (4)	4700 (4)	57.0	59.3	16.7	16,000	1,300 (3)
Shorts 330 (Future)	B-II	110	5090 (4)	5020 (4)	74.7	58.0	16.3	22,600	1,300 (3)
Shorts 360 (Future)	B-II	110	5230 (4)	4865 (4)	74.8	70.7	23.9	26,500	1,300 (3)

(1) This aircraft is operated by the U.S. Fish and Wildlife Service for firefighting purposes.
(2) This is the MedStar plane. Operations were estimated by MedStar, based on an average of historical data.
(3) DHL has indicated their plane has over 1,300 annual operations. Only one of these three planes would be used. As their freight hauling needs increase, a larger plane (such as the Shorts 330 or Shorts 360) is likely to be used.
(4) Estimated minimum required landing and takeoff distances are based on manufacturer-supplied data.

Due to the lack of precision approach, it is currently anticipated that the Richland Airport will be unable to provide service for some DHL and MedStar flights. MedStar representatives indicated that they expect provisions to be added to the Airport that will allow precision approach in the near future. This will enhance their ability to serve the community's critical healthcare needs by providing air ambulance service during times that might otherwise

prohibit landing due to limited visibility. DHL representatives also expressed a desire to have precision approach capabilities to provide enhanced consistency for product delivery on air freight service.

From the operations and usage forecast for the Richland Airport, it appears that the Airport will continue to serve a number of small private aircraft in approach categories A and B and that an Airport Reference Code of B-II will continue to serve the foreseeable needs. It is also evident that additional length for the primary runway, as well as precision approach, would provide improved safety and operational efficiencies for some of the larger aircraft. This runway length need will be evaluated in the following sections.

AIRSIDE FACILITIES

The Airport is presently classified for ARC B-II standards Non-precision Approach. The FAA AC 150/5300-13 "Airport Design" recommends standard widths, minimum clearances, and other dimensional criteria for runways, taxiways, safety areas, aprons, and other physical airport features. Dimensions are recommended based on Aircraft Approach Category and Airplane Design Group designations (ARC). For the Richland Airport, the ARC is sufficient at this time, but a precision approach off Runway 01-19 should be considered. For clarification, Tables 4.4 (for Runway 08-26) and 4.5 (for Runway 01-19) summarize the design requirements for the B-II aircraft as compared to existing dimensions.

Table 4.4 Airport Design Standards Evaluation – Runway 08-26

	EXISTING DIMENSIONS(ft)	B-II STANDARDS(ft)	B-II STANDARDS MET? (Y/N)
Runway centerline to taxiway centerline	240/220	240	Y*
Runway centerline to aircraft parking area	320	250	Y
Runway centerline to helicopter touchdown	N/A	500	Y
Runway width	100	75	Y
Runway shoulder width	25	10	Y
Runway safety area width	150	150	Y
Runway safety area length beyond runway end	300	300	Y
Runway OFA width from runway centerline	250	250	Y
Runway OFA length beyond runway end	300	300	Y
Taxiway centerline to parallel Taxilane centerline	115	105	Y
Taxiway width	40	35	Y
Taxiway shoulder width	10	10	Y
Taxiway safety area width	79	79	Y
Taxiway OFA width from taxiway centerline	65.5	65.5	Y

*A portion of Runway 26 is 220 feet from the centerline of its parallel taxiway, east of Taxiway A. This is the only dimensional deficiency of the Richland Airport with regards to an ARC B-II non-precision airport.

Table 4.5 Airport Design Standards Evaluation – Runway 01-19

		APPROACH VISIBILITY			
	EXISTING DIMENSIONS (ft)	>3/4 MILE B-II STANDARDS (ft)	MET?	<3/4 MILE B-II STANDARDS (ft)	MET?
Runway centerline to taxiway centerline	300	240	Y	300	Y
Runway centerline to aircraft parking area	365	250	Y	400	N
Runway centerline to helicopter touchdown	N/A	500	Y	N/A	
Runway width	75	75	Y	100	N
Runway shoulder width	12	10	Y	10	Y
Runway safety area width	150	150	Y	300	N
Runway safety area length beyond runway end	300	300	Y	600	N
Runway object free area width from runway centerline	250	250	Y	400	N
Runway object free area length beyond runway end	300	300	Y	600	N
Taxiway centerline to parallel Taxilane centerline	N/A	105	Y	105	Y
Taxiway width	40	35	Y	35	Y
Taxiway shoulder width	10	10	Y	10	Y
Taxiway safety area width	79	79	Y	79	Y
Taxiway object free area width from taxiway centerline	65.5	65.5	Y	65.5	Y

All criteria for Runway 01-19 are met for non-precision approach procedures (>3/4 mile visibility); however, several improvements are necessary to meet the requirements for a precision approach, namely the lengthening and widening of the runway, the installation of glide slope equipment, the painting of precision and hold position markings, and the installation of Instrument Landing System (ILS) signs.

Runway

Federal Aviation Administration AC 150/5060-5, "Airport Capacity and Delay" defines the capacity of an airport runway as related to the runway configuration, percent of arrivals, percent of touch-and-go's, aircraft mix, and exits from the runway. Though the annual service volume was not determined for this airport, operations are currently 33,300 per year

and forecast to increase to 42,600 in year 2026. Based on the number of aircraft operations, the Airport has sufficient capacity for future growth.

The required runway length is calculated using the FAA Airport Design Computer Software and is derived from an airport elevation of 391' above mean sea level, the Mean Normal Maximum Temperature of 89°F, and the maximum difference in runway elevation at the centerline of 7.33 feet for Runway 08-26 and 2.38 feet for Runway 01-19. The FAA model divides aircraft (under 16,000 lbs max. gross weight) into four groupings for the calculation of length. For the Richland Airport, the runway lengths are predicted as follows:

Runway 08-26	
Accommodate 75% of small airplanes	2,620 feet
Accommodate 95% of small airplanes	3,160 feet
Accommodate 100% of small airplanes	3,780 feet
Accommodate small airplanes with 10 or more seats	4,320 feet
Runway 01-19	
Accommodate 75% of small airplanes	2,620 feet
Accommodate 95% of small airplanes	3,160 feet
Accommodate 100% of small airplanes	3,780 feet
Accommodate small airplanes with 10 or more seats	4,320 feet

The runway length requirement to accommodate 100% of small airplanes is 3,780 feet. With the present runway length of 3,995 feet and 4,009 feet respectively, the Airport is able to accommodate all of the anticipated operations. However, after speaking with Airport users, several of the critical aircraft (when weighed down with cargo) may exceed the 16,000 lbs max gross weight. At this time, they use the entire runway length in its current state. As air freight needs increase, the current provider indicates that a larger plane would be needed rather than increasing the number of trips and overall weight to 26,500 lbs. A runway extension is required to operate larger planes; more discussion on this is provided in the next subsection. The Richland Airport is also used as an alternate airport when an emergency arises and nearby airports are unable to accommodate the aircraft. These may be large commercial aircraft requiring a lengthened runway.

Runway 08-26 currently has a width of 100 feet and Runway 01-19 is 75 feet wide. This width is adequate for the minimum standard of 75 feet. Runway 01-19 would need to be widened to 100 feet for a precision approach. Conversion to a precision approach less than 3/4 mile requires a runway length of 4,200 feet and a 34:1 approach; the runway length is the minimum airport landing surface requirements that must be met. The proposed runway extension of 215 feet to the north in Phase II will accommodate this minimum.

Runway Length Extension Need

DHL is a worldwide freight shipping company that has operated daily flights in and out of the Richland Airport with previous operations of 1300 per year. Their demand has increased significantly in recent years, a trend that is expected to continue over the next several years. Currently, a Metroliner aircraft is used to transport cargo in and out of the Richland Airport

by air. However, the aircraft is not capable of completely meeting the current load demands. The current runway length precludes an upgrade to a larger aircraft, thus ground transportation is used to ship the remaining parcels. As demand for freight service continues to increase, DHL anticipates that a larger aircraft will be needed in the next 3 to 5 years or they will be forced to relocate their facilities. Discussions with DHL representatives revealed that their preference is to upgrade to a Shorts 330 or 360, or possibly a DC-9 aircraft. Information from Air Cargo Carriers indicates that the Shorts 330 aircraft would need at least 4,725 feet in runway length, with a longer runway desirable during slippery conditions. (Refer to DHL letter dated November 27, 2006 in the Appendix.)

Northwest MedStar (providing emergency medical transport) has recently moved to the Richland Airport from the Tri-Cities Airport in Pasco. Regional medical facilities exist in the City of Richland at Kadlec Hospital. A King Air 200 is used and MedStar staff indicate that their desirable runway length is 4,000 feet; however, additional length would ensure normal operations during less-than-ideal conditions.

The Fish and Wildlife Service provides fire service from the Richland Airport in the summertime. The pilot of the plane used indicated that, when full, the plane uses every foot of runway available and that additional runway length would be desirable.

Future plans should be implemented to extend Runway 1-19 to as close to 5,000 feet Takeoff Distance Available (TODA) from Runway 19 as practical.

Precision Instrument Approach

Both DHL and Northwest MedStar indicate that Precision Approach capabilities would enhance their operations and provide more consistent service during adverse weather conditions. MedStar indicated that there are operational constraints due to fog without Precision Approach instrumentation and they expect that the Richland Airport would have such equipment at some point in the future. Consideration should be given to provide for a Precision Approach on Runway 19 in existing or future conditions.

Three items are required for a Precision Approach: a glide slope, a localizer, and an approach lighting system. Runway 19 currently has a localizer and a Medium Intensity Approach Lighting System (MALS). The MALS needs to be upgraded to a MALSR, which is a MALS with Runway Light Indicators. This upgrade, along with the installation of glide slope equipment on the west side of Runway 19, is required for the Precision Approach. Additional improvements will need to be done to the airfield, including, but not limited to, the extension of Runway 19 to a minimum of 4,200 feet, painting of precision markings, the relocation of hold markings and signs to 250' from the runway centerline, installation of ILS signs, relocation of several hangars, etc. The timing of the installation of the Precision Approach will be based on the availability of FAA programmed funding.

Crosswind Runway

The Richland Airport has a north-south runway as well as an east-west runway, which provides 95% coverage for wind conditions. At one time, the Airport had another north-west to south-east runway, but this has been removed. Current provisions seem to be adequate for providing crosswind operations.

Helipads

There are currently no FAA-approved helicopter approach facilities at the Airport. MedStar operates a mobile helipad that is located on the apron adjacent to their hangar when in use. When necessary, MedStar and other helicopters park in the southern tie-down area. The present 1,490 helicopter operations are expected to increase to 2,000 within 20 years. Stakeholders have voiced concern for helicopter operations in the vicinity of the main tie-down area. Gravel and debris has damaged parked aircraft. Although there is not a need for specific helicopter approach facilities, there is a need to isolate helicopter parking away from fixed aircraft. Up to four helipads should be considered for the area south of the main tie-down apron along Taxiway A. No helicopter approaches are planned.

Taxiway and Taxilanes

Taxiway A, parallel to Runway 01-19, has a width of 40 feet. The runway centerline to taxiway centerline distance is 300 feet. These dimensions are adequate to meet B-II standards. Taxiway B, parallel to Runway 08-26, is also 40 feet. The centerline-to-centerline distance is 220 feet, which is 20 feet short of the 240 foot requirement. On the west end of Runway 08, the distance is 240 feet. The taxilanes along the south side of Runway 26 are of sufficient distance to meet standards at 115 feet.

Runway Protection Zone (RPZ)

The RPZ is a trapezoidal shaped area centered off the extended runway centerline. Its function is to protect the people and property on the ground beyond the runway ends. Recent changes in regards to roads and obstructions within an RPZ clearly state that no roads or objects are permitted within the RPZ boundary. It further encourages that the RPZ be owned by the Airport sponsor. The dimensions recommended in the "Airport Design Criteria" section are still valid and based on the runway remaining as a non-precision approach. With the exception of the current end of Runway 19, the land is acquired for RPZ acreage. In regards to the current end of Runway 19, it is necessary to close Saint Road since it resides within the RPZ. The closure of Snyder Road will be necessary with the future extension of the runway. It is also important to protect the future area off the ends of Runway 08 and 19 to prevent any incompatible land use and building or structure impacts.

Threshold Evaluation

The threshold requirements were identified in the "Airport Design Criteria" section and are still valid.

Objects Affecting Navigable Airspace

The FAA Regulations (FAR) Part 77, "Objects Affecting Navigable Airspace," apply to existing and manmade objects. These guidelines define the critical areas in the vicinity of the airports that should be kept free of obstructions. Currently, there are several obstructions within the navigable airspace, namely hangars and power poles. When Runway 19 is upgraded to a precision approach, the Part 77 airspace requirements will become more restrictive. The approach surface slope becomes 50:1 for the first 10,000 feet and will require the relocation of transmission lines along SR-240 and the closure or relocation of several roads. The primary surface will become 1,000 feet wide and as a result, the 7:1 transitional surface will require

the relocation of several hangars along the east side of the runway. Also required will be the widening of the runway, the relocation of the MALSR, the installation of glide slope equipment, the painting of precision and hold position markings, and the installation of ILS signs.

Navigational and Landing Aids

Navigational aids and landing aids are sufficient at this time. Upgrade to a precision approach will require the installation of glide slope equipment on the west side of Runway 19. In addition, the existing localizer must be relocated to bring it into compliance with FAA design criteria. The localizer is located approximately 400' south of the Runway 01 end while the required spacing is 1,000'-2,000'. The terrain drops dramatically south of the antenna and must be filled in to allow relocation out to the required 1,000' minimum distance. The localizer equipment building and antenna were adjusted and relocated by FAA in 2008.

Airport Lighting, Signing, and Markings

Airport lighting, signing and markings are adequate for the Airport. Upgrade of the approach will require precision markings on Runway 19 and relocation of the hold position markings and signs to 250' from the runway centerline.

Tie-Downs

There are currently 98 tie-down spaces located in two general areas of the Airport, as described in Section 2. Approximately 15 tie-downs are occupied at any given time; however, special events occur — such as fly-in events — where tie-downs are used extensively. Fly-in events to the Airport are also sponsored by the FBO. The busiest is held over a 3-day period in June in conjunction with the "Cool Desert Nights," which can bring in as many as 200 aircraft over the weekend.

There are also many light and ultra-light sport planes and gliders based at the Richland Airport that use the apron/tie-down area southeast of the two runways to support their activities. Some ultra-light craft are also based at the Airport, but not stored on site. These planes are usually assembled in the apron/tie-down area prior to flights.

The existing tie-down space appears adequate. It is recommended that it be retained for use of the sport aircraft activities and fly-in events.

Hangar Space

As discussed in Section 2, the current based aircraft figure is at least 189. There are 105 hangar spaces currently provided with 95-100% being occupied. Some hangars have multiple aircraft stored in them, including aircraft under construction. There are approximately 15 small airplanes being stored at tie-downs; many of the owners would prefer they be stored in hangars. Current forecasts for based aircraft indicate an additional 53 aircraft in the next 20 years (see Table 3.3).

A total of 39 new hangars have been constructed in the last seven years. This does not include a new large hangar that was finished last fall and is now occupied by MedStar and others. Based on the assumption that most aircraft owners would prefer to store airplanes in

hangars, there will be a need for additional space in the next 20 years to accommodate approximately 60-65 planes of various sizes. It is assumed that many hangars will be used to store multiple aircraft, as is currently the case. There is existing land available south of Runway 26 at the east end that would accommodate approximately 20 planes (assuming a mixture of small and large planes); therefore, additional space for 40-45 aircraft will be needed to store the anticipated increase in based aircraft as well as those currently stored at tie-downs.

Assuming similar growth rates for the 20-50-year time period, it is estimated that an additional 100 hangars should be planned for the period beyond the 20-year planning cycle.

Fencing

Current perimeter fencing is inadequate and only covers the southeast area. Additional perimeter fencing should be installed around both ends and on the north side.

ARFF

There are no ARFF facilities at the Airport.

Fueling Facilities

The fueling facilities are currently adequate. The FBO operator Sundance Aviation has installed additional fuel tanks and dispensing facilities in the vicinity of MedStar.

Fixed Base Operators/Aviation Use Development

Fixed Base Operators/Aviation Use Development is adequate.

Auto Vehicle Parking and Airport Access

Vehicle parking and airport access are adequate for the current needs of the Airport. Additional access may be needed in the future to develop nearby property owned by the Port.

Utilities

Utility services are currently adequate. At the current rate of expansion, it is likely that the Port-owned land in the vicinity of the Airport that is served by utilities will be built-out in the near future. Additional space for hangars, as well as other industrial land with available utilities, should be incorporated into the Master Planning effort. Significant utility development will be required in the northwest area to accommodate proposed hangar and FBO operations.

Pavement Management Report - 2006

A Pavement Management Report was prepared by Applied Pavement Technology, Inc. in February, 2006. The report summarizes the results of a visual inspection and analysis of existing airport pavements. Pavement condition is ranked by a Pavement Condition Index (PCI) per AC 150/5380-6a, "Guidelines and Procedures for Maintenance of Airport Pavements."

With minor exceptions, the airport pavements were reported to be in good condition. The report makes the following recommendations for maintenance and improvements:

2007	3" AC Overlay of Runway 1-19
	3" AC Overlay of Stub Taxiways Between Hold Lines and Runway 1-19
	3" AC Overlay of Stub Taxiway Between Apron and Taxiway B
2010	4" AC Overlay of Runway 08-26
	4" AC Overlay of Runway 26 Run-Up Apron
	4" AC Overlay of Taxiway B Between Taxiway A and Runway 26

Industrial/Commercial Land

There has been a significant amount of industrial/commercial development on the Port's property in the vicinity of the Richland Airport (nearly 140,000 sq. ft. of buildings) since 1998 (about 20,000 sq. ft. on average per year). Port of Benton staff indicates that property southeast of the Airport area is very nearly built out and accommodations for future industrial development need to be planned for.

Although similar growth rates of industrial development are not likely to continue at other industrially zoned Port property in the vicinity of the Airport, if such rates were to continue, there would be a need for over 90 acres in the next 20 years and 230 acres in the 50-year timeframe (this assumes only a 10% Floor Area Ratio or building-to-total-land ratio, with the remaining land for roads, parking lots, landscaping, open space, etc.).

It is recommended that, of the remaining undeveloped land owned by the Port of Benton in the vicinity of the Airport, appropriate quantities be reserved for future Airport Operations Area to accommodate the future hangar needs described above. Other land should be identified for airport-related industrial development. Given the growth of the City of Richland, it would also be prudent for the Port of Benton to acquire additional land surrounding the Airport to be used for non-airport related industrial uses that would serve to provide a buffer with adjacent land uses.

SUMMARY OF AIRPORT FACILITY NEEDS

The following is a summary of the Airport airside and landside facility needs:

Runway length – Runway 01-19 should be extended to 5,000 feet to accommodate DHL's anticipated upgrade to a larger aircraft. DHL's aircraft is, and will likely remain, the critical aircraft for the Airport. In the interim, when Runway 19 is converted to a Precision Approach, its length will need to be 4,200 feet with a 34:1 approach.

Precision Approach – Runway 19 should be modified to accommodate Precision Approach standards for less than 3/4 mile visibility.

Relocate Taxiway B – Taxiway B, alongside Runway 26, should be relocated 20 feet further from the runway.

Widen Runway 19 – Runway 19 should be widened to 100 feet to meet Precision Approach standards for <3/4 mile visibility.

Future Air Freight needs – Provide for a future Air Freight service area.

Tie-Down, Hangar and Industrial Land needs – Table 4.6 depicts the short- and long-term needs for tie-down, hangar, and industrial land in the vicinity of the Airport.

Table 4.6 Future Tie-Down, Hangar, and Industrial Needs

LAND USE	EXISTING	2026 NEEDS	2055 NEEDS
Tie-downs	98 spaces	3 additional spaces	8 additional spaces
Hangars	109 spaces	32 additional spaces	80 additional spaces
Commercial/Light Industrial land	60 acres	92 acres for additional development	230 acres for additional development

Section 5 – Airport Improvement Alternatives

Based on the summary of needs in Section 4, five alternatives addressing both airside and landside facilities at the Richland Airport have been identified as part of the Airport Layout Plan update. These alternatives consider minimum improvements to Airport facilities while maintaining compliance with Airport design standards and guidelines, and other more extensive improvements. While five alternatives are proposed, other improvement scenarios can be devised by selecting among the various improvement elements. An Airport Weather Observation Station (AWOS) has been recently constructed in the northwest Airport quadrant and is shown on the alternative drawings. The five proposed alternatives are described as follows:

Alternative I – Convert Runway 19 to a Precision Approach Runway

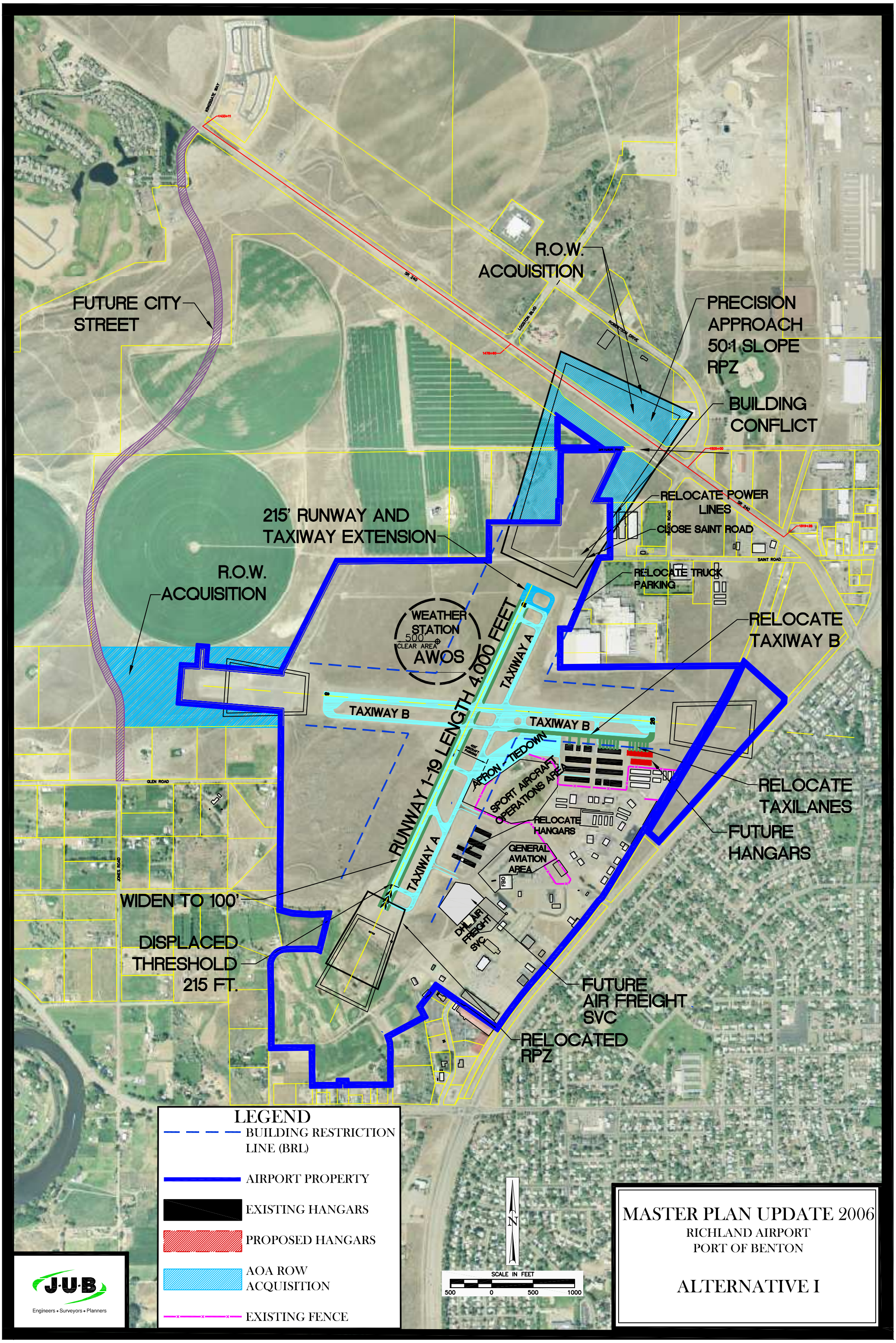
Alternative I maintains the existing Airport facilities with minor improvements, but changes the approach characteristics for Runway 19 to a Precision Approach with visibilities less than 3/4 mile. The Precision Approach runway will provide MedStar and DHL with additional opportunities for landing in inclement weather. Converting Runway 01-19 to a Precision Approach requires longer Safety Areas on both runways. With the topographical drop-off at the end of Runway 01, this threshold will have to be displaced. Components of Alternative I include the following:

- Relocate Taxiway B to meet separation standards
- Provide for a future Air Freight Service area
- Construction of two remaining T-hangar buildings next to Runway 26
- Provide for a Precision Approach of Runway 19 to include the following:
    - Provide a precision landing Runway Protection Zone (RPZ) on Runway 19
    - Extend the safety area on Runway 01 to 600 feet
    - Displace the threshold on Runway 01 215 feet
    - Extend Runway 19, 215 feet
    - Extend Taxiway A, 215 feet
    - Widen Runway 01-19 to 100 feet
    - Relocate Taxiway A hangars out of the Object Free Area (OFA)
    - Acquire properties to protect the precision RPZ
- Acquire additional property to protect Runway 08
- Close Saint Street within the RPZ

Alternative II – Extend Runway 01-19 to 4,700 feet length (extend north off Runway 19)

Alternative II incorporates most of the elements of Alternative I and provides improved service, accommodating larger aircraft for DHL with the following additional elements:

- Extend Runway 19, 915 feet
- Extend Taxiway A, 915 feet
- Relocate or lower transmission lines along SR-240. The existing 15kV transmission lines can be relocated underground in their present location but the power company is hesitant to relocate the 115kV lines underground due to the cost involved. The cost for the relocation is estimated at $1,550,000. While there is a possibility to lower the lines, the presence of a lightning protection rod on top of each tower still creates an obstruction to navigable airspace.


FUTURE CITY STREET
R.O.W. ACQUISITION
PRECISION APPROACH 50:1 SLOPE RPZ
BUILDING CONFLICT
215' RUNWAY AND TAXIWAY EXTENSION
RELOCATE POWER LINES
CLOSE SAINT ROAD
RELOCATE TRUCK PARKING
R.O.W. ACQUISITION
WEATHER STATION
CLEAR AREA
AWOS
RELOCATE TAXIWAY B
TAXIWAY A
TAXIWAY B
RUNWAY 1-19 LENGTH 4,000 FEET
APRON - TIEDOWN
SPORT AIRCRAFT OPERATIONS AREA
RELOCATE HANGARS
RELOCATE TAXILANES
FUTURE HANGARS
GENERAL AVIATION AREA
FBO
DHL AIR FREIGHT SVC
WIDEN TO 100'
DISPLACED THRESHOLD 215 FT.
FUTURE AIR FREIGHT SVC
RELOCATED RPZ
KINGSGATE WAY
SR 240
LOGSTON BLVD
ROBERTSON DRIVE
APRON ROAD
SAINT ROAD
GLEN ROAD
JONES ROAD
LEGEND
BUILDING RESTRICTION LINE (BRL)
AIRPORT PROPERTY
EXISTING HANGARS
PROPOSED HANGARS
AOA ROW ACQUISITION
EXISTING FENCE
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Engineers • Surveyors • Planners
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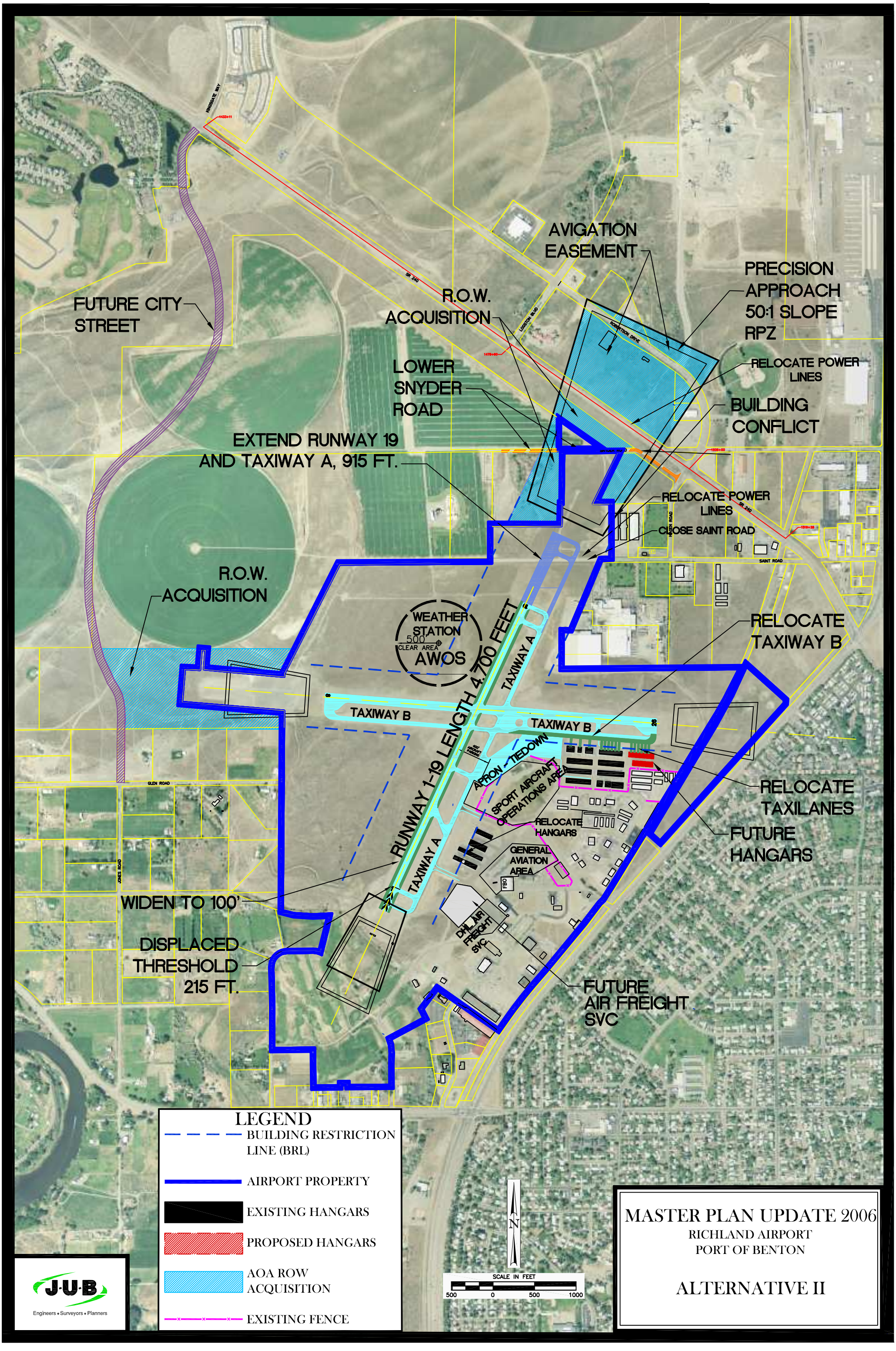
RICHLAND AIRPORT
PORT OF BENTON
ALTERNATIVE I


AVIGATION EASEMENT
PRECISION APPROACH 50:1 SLOPE RPZ
FUTURE CITY STREET
R.O.W. ACQUISITION
LOWER SNYDER ROAD
RELOCATE POWER LINES
BUILDING CONFLICT
EXTEND RUNWAY 19 AND TAXIWAY A, 915 FT.
RELOCATE POWER LINES
CLOSE SAINT ROAD
R.O.W. ACQUISITION
WEATHER STATION
500' CLEAR AREA
AWOS
RELOCATE TAXIWAY B
TAXIWAY B
TAXIWAY A
RUNWAY 1-19 LENGTH 4,700 FEET
APRON - TIEDOWN
SPORT AIRCRAFT OPERATIONS AREA
RELOCATE HANGARS
RELOCATE TAXILANES
FUTURE HANGARS
GENERAL AVIATION AREA
FBO
DHL AIR FREIGHT SVC
WIDEN TO 100'
DISPLACED THRESHOLD 215 FT.
FUTURE AIR FREIGHT SVC
KINGSGATE WAY
SR 240
ROBERTSON DRIVE
LOGSTON BLVD
SAINT ROAD
GLEN ROAD
JONES ROAD
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PROPOSED HANGARS
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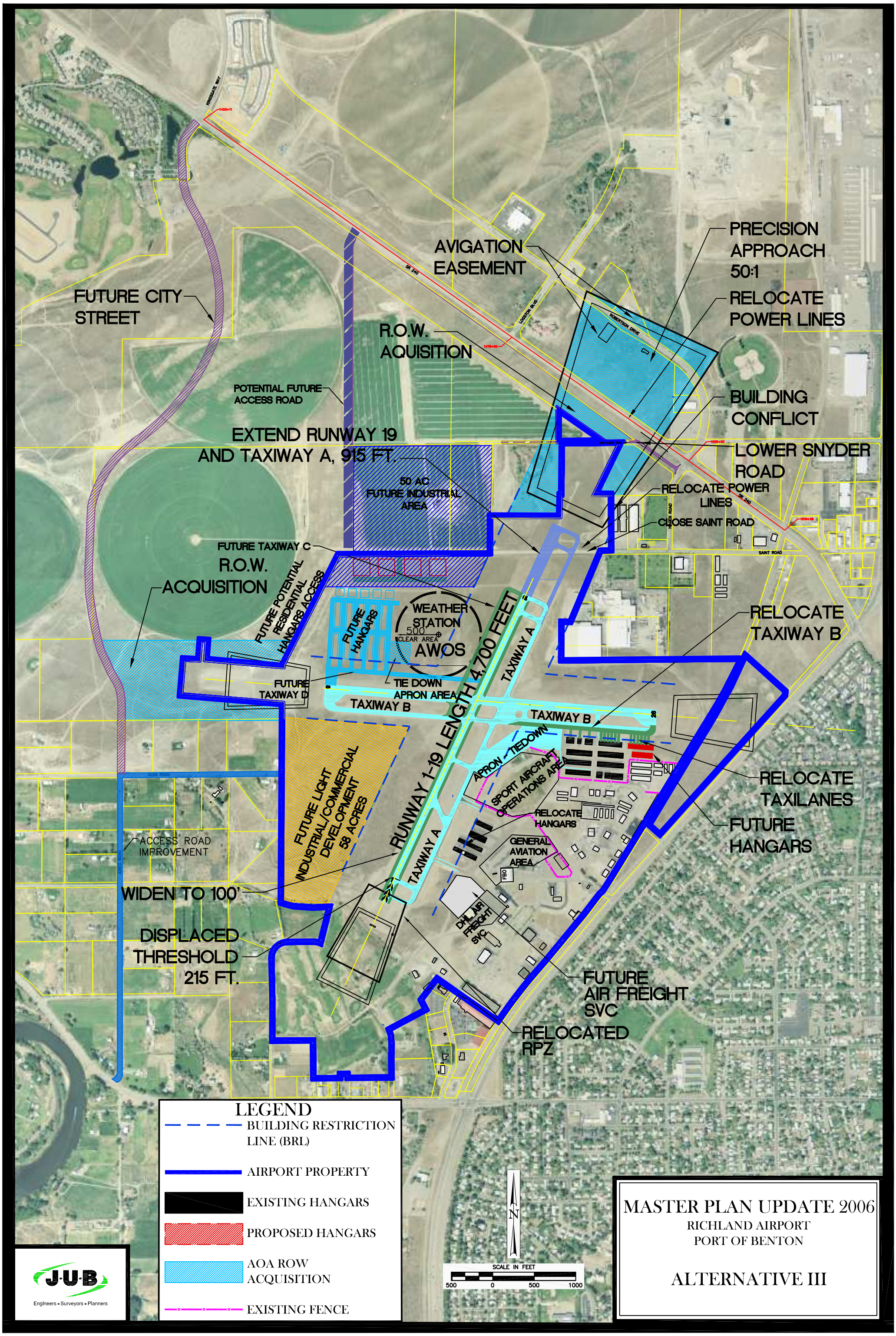
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SR 240
LOSTON BLVD
1478+60
ROBERTSON DRIVE
AVIGATION EASEMENT
PRECISION APPROACH 50:1
FUTURE CITY STREET
R.O.W. AQUISITION
RELOCATE POWER LINES
POTENTIAL FUTURE ACCESS ROAD
BUILDING CONFLICT
EXTEND RUNWAY 19 AND TAXIWAY A, 915 FT.
1609+00
LOWER SNYDER ROAD
50 AC FUTURE INDUSTRIAL AREA
RELOCATE POWER LINES
CLOSE SAINT ROAD
1819+28
SAINT ROAD
FUTURE TAXIWAY C
R.O.W. ACQUISITION
FUTURE POTENTIAL RESIDENTIAL HANGARS ACCESS
FUTURE HANGARS
WEATHER STATION
500' CLEAR AREA
AWOS
RELOCATE TAXIWAY B
FUTURE TAXIWAY D
TIE DOWN APRON AREA
TAXIWAY B
TAXIWAY A
RUNWAY 1-19 LENGTH 4,700 FEET
APRON - TIEDOWN
SPORT AIRCRAFT OPERATIONS AREA
RELOCATE TAXILANES
FUTURE HANGARS
RELOCATE HANGARS
GENERAL AVIATION AREA
FBO
ACCESS ROAD IMPROVEMENT
FUTURE LIGHT INDUSTRIAL/COMMERCIAL DEVELOPMENT 58 ACRES
WIDEN TO 100'
DHL AIR FREIGHT SVC
DISPLACED THRESHOLD 215 FT.
FUTURE AIR FREIGHT SVC
RELOCATED RPZ
LEGEND
BUILDING RESTRICTION LINE (BRL)
AIRPORT PROPERTY
EXISTING HANGARS
PROPOSED HANGARS
AOA ROW ACQUISITION
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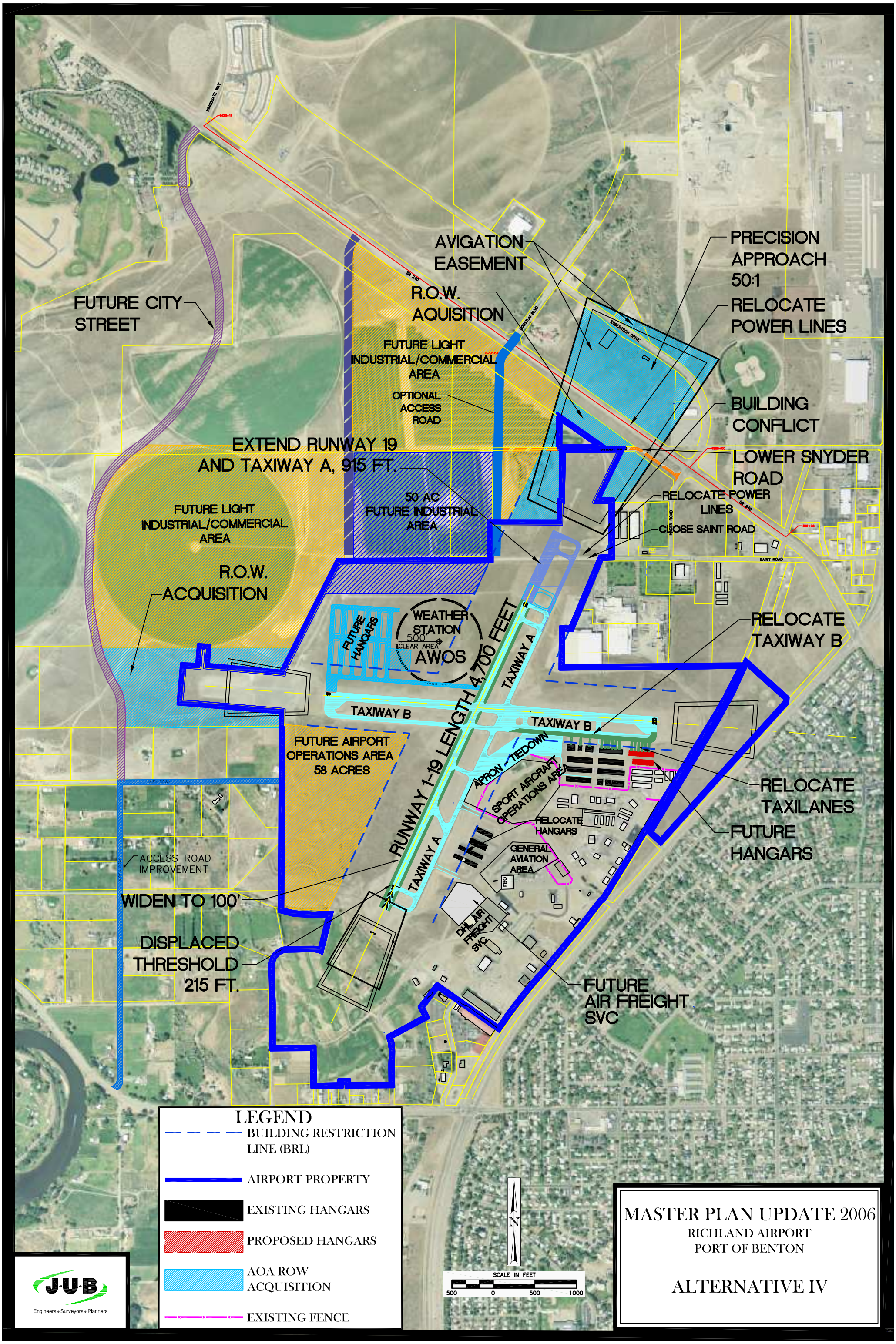
PORT OF BENTON
ALTERNATIVE III


KINGSGATE WAY
1433+11
FUTURE CITY STREET
SR 240
AVIGATION EASEMENT
R.O.W. AQUISITION
JOSSTON BLVD
FUTURE LIGHT INDUSTRIAL/COMMERCIAL AREA
OPTIONAL ACCESS ROAD
ROBERTSON DRIVE
PRECISION APPROACH 50:1
RELOCATE POWER LINES
BUILDING CONFLICT
EXTEND RUNWAY 19 AND TAXIWAY A, 915 FT.
1505+00
LOWER SNYDER ROAD
FUTURE LIGHT INDUSTRIAL/COMMERCIAL AREA
50 AC FUTURE INDUSTRIAL AREA
RELOCATE POWER LINES
HAGEN ROAD
CLOSE SAINT ROAD
1919+28
SAINT ROAD
R.O.W. ACQUISITION
FUTURE HANGARS
WEATHER STATION
500' CLEAR AREA
AWOS
RELOCATE TAXIWAY B
TAXIWAY A
TAXIWAY B
TAXIWAY B
FUTURE AIRPORT OPERATIONS AREA 58 ACRES
RUNWAY 1-19 LENGTH 4,700 FEET
APRON - TIEDOWN
SPORT AIRCRAFT OPERATIONS AREA
RELOCATE TAXILANES
RELOCATE HANGARS
FUTURE HANGARS
GENERAL AVIATION AREA
FBO
TAXIWAY A
ACCESS ROAD IMPROVEMENT
WIDEN TO 100'
DHL AIR FREIGHT SVC
DISPLACED THRESHOLD 215 FT.
FUTURE AIR FREIGHT SVC
LEGEND
BUILDING RESTRICTION LINE (BRL)
AIRPORT PROPERTY
EXISTING HANGARS
PROPOSED HANGARS
AOA ROW ACQUISITION
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PORT OF BENTON
ALTERNATIVE IV

FUTURE CITY STREET

AVIGATION EASEMENT

PRECISION APPROACH 50:1 SLOPE RPZ

R.O.W. AQUISITION

BUILDING CONFLICT

RELOCATE POWER LINES

CLOSE SAINT ROAD

R.O.W. ACQUISITION

WEATHER STATION
500' CLEAR AREA
AWOS

RELOCATE TAXIWAY B

RUNWAY 1-19 LENGTH 4,700 FEET

TAXIWAY A

TAXIWAY B

TAXIWAY B

APRON - TIEDOWN

SPORT AIRCRAFT OPERATIONS AREA

RELOCATE HANGARS

RELOCATE TAXILANES

FUTURE HANGARS

GENERAL AVIATION AREA

FBO

DHL AIR FREIGHT SVC

WIDEN TO 100'

FUTURE AIR FREIGHT SVC

EXTEND RUNWAY 1 AND TAXIWAY A, 700 FT.

RELOCATED RPZ

UNIDENTIFIED FILL AMOUNT TBD FOR RUNWAY SAFETY AREA

KINGSGATE WAY

SR 240

LOGSTON BLVD

ROBERTSON DRIVE

SAINT ROAD

GLEN ROAD

JONES ROAD

LEGEND

- BUILDING RESTRICTION LINE (BRL)
- AIRPORT PROPERTY
- EXISTING HANGARS
- PROPOSED HANGARS
- AOA ROW ACQUISITION
- EXISTING FENCE

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PORT OF BENTON

ALTERNATIVE V

- Relocate SR-240; the cost associated with relocating SR-240 outside of the future Runway 19 RPZ is approximately $2 million. This does not include the cost related to the relocation of the transmission lines as mentioned above. This relocation will also have an impact on existing businesses to the north of SR-240 in regards to ROW issues. Since SR-240 is a major highway and there may not be a feasible alternative or economical way to relocate it, the road may remain in its current location.
- Close Snyder Road within the future RPZ.

Alternative III – Accommodate 20-Year Airside and Landside Development Needs

Alternative III identifies space both within and outside of the current Airport property where both airside development (hangars) and landside development (light industrial development) could occur. The elements of Alternative III are as follows:

- All of Alternative II elements
- Provide box, T-hangar, and apron/tie-down space in northwest quadrant
- Plan for future Taxiway C
- Plan for future Taxiway D
- Provide light industrial development space in the southwest Airport quadrant
- Extend access from SR-240 to accommodate traffic to the southwest Airport quadrant
- Provide light industrial space along the north Airport boundary in northwest Airport quadrant
- Plan for potential residential hangar space west of west Airport boundary in northwest Airport quadrant (not selected)
- Plan for future light industrial space on 50 acres north of north boundary in northwest Airport quadrant

Alternative IV – Accommodate Long-Term Development Needs

Alternative IV anticipates expansion of the existing Airport operations area and an increased need for light industrial development space beyond the 20-year period. It includes all of the components of Alternative III, except that the southwest Airport quadrant is reserved for future Airport operations and larger areas north of the present Airport property are planned for future light industrial land uses.

Alternative V – Extend Runway 01-19 to 4,700 feet (extend both Runways 01 and 19)

Alternative V extends Runway 01-19 through a combination of Runway 01 and Runway 19 extensions. This alternative avoids impact to the property north of SR-240 and the relocation of major power lines along SR-240.

Each of the alternatives is depicted in the following exhibits.

A public open house meeting to discuss the Richland Airport Master Plan Update was held in Richland on June 7, 2006. In general, both the public and major stakeholders are conducive to the widening and lengthening of the runway and its associated parallel taxiway. They are also in agreement to acquire sufficient land for future Airport needs. There is support for additional helipads to be located separately from aircraft parking to prevent flying debris from damaging aircraft parked at the Airport. They are also in favor of the future hangar layouts, a proposed fueling site, and a proposed separate direct taxiway to the tie-downs and

FBO apron. Additional stakeholder comments are discussed in the Land Use Planning section of this report.

RECOMMENDATION

The Richland Airport currently operates under an Airport Reference Code of B-II and will continue to do so into the future. Of the various alternatives discussed above, it is the recommendation of this report that a modified version of Alternative IV be chosen because it best resolves the following key issues:

- Implements many recommendations that meet FAA safety requirements,
- Completes several pavement rehabilitation projects,
- Provides considerable land-side acquisition for future development, and
- Increases both aircraft operations and based aircraft storage.

Alternative IV contains work that is also included in Alternatives I through III, namely a need to maintain the existing Airport facilities, provide improved service by accommodating larger aircraft that will require at least 5,000 feet of runway length, and provide space both within and outside of the current Airport property where both hangar development and light industrial development could occur. It also provides the need for additional hangar space due to growth and the acquisition of additional acreage in the foreseeable future for light industrial and commercial development at the Airport. It is in the best interest of the Port to pursue acquisitions sooner than later to protect property from being developed that would hinder future expansion at the Airport. All airport property purchased with Federal funds, and any future land acquisition utilizing such funds, will be designated aeronautical use. One item mentioned in Alternative I that will not be included in this recommendation is the 215-foot displacement of Runway 01 to the north, when the runway is converted to a precision approach. Conversion to a precision approach with less than 3/4 mile requires a runway length of 4,200 feet and a 34:1 approach. Since the runway will be lengthened 215 feet under Phase II from 4,009 feet to 4,224 feet, the south end of the runway will no longer need to be displaced.

Alternative IV, with minor modifications, will be implemented in three major phases with a series of staging or sub-phases that will be required. Phase I will accomplish a rehabilitation of Runway 01-19 in 2009, followed by 08-26, and a realignment of the east end of Taxiway B. Additional work will include the construction of several taxilanes and helipads.

During Phase II construction, the current non-precision approach on Runway 19 will be upgraded to a precision approach with visibilities less than 3/4-statute mile. This precision approach will provide both MedStar and DHL with additional opportunities for landing in inclement weather. It will also be beneficial to the Fish and Wildlife Service that provides fire service out of Richland and requires a minimum 4,000-foot runway to operate.

Converting Runway 19 to a precision approach less than 3/4-statute mile requires a runway length of 4,200' and a 34:1 approach. This conversion during Phase II will require a longer safety area on both runway ends as well as the widening of the runway to 100 feet. Due to the topographical drop-off at the end of Runway 01, the ends of both Runway 19 and Taxiway A will be extended on the north, a distance of 215 feet, increasing the runway length to 4,224

feet. The runway extension will require right-of-way acquisition, the lowering of transmission power lines, and the relocation of Navaids. The extension of Runway 01 RSA to 600 feet will impact operations of the golf course due to topographical limits. Additional work during Phase II will be the rehabilitation of existing taxiways and the construction of new taxiways, aprons, tie-downs, taxilanes, and hangars.

Phase III will extend both Runway 19 and Taxiway A an additional 700 feet to the north for a total runway length of 4,924 feet. The precision approach will be relocated and, as a result, it will present specific airspace conflicts that will need to be resolved by the necessary relocation of hangars, roadways, and utilities. Some of the additional work during this phase includes taxiway and service ramp construction, property acquisition for RPZ, AOA, and future light industrial and commercial use, and security fence installation.

It is anticipated that the work in all of these phases will be staged such that Airport improvements in regards to runway widening and lengthening, property acquisition, avigation easement, precision approach installation, hangar construction, and light industrial and commercial development can be done based on available funding. The Capital Improvement Plan (CIP) shown in the Financial Plan section of this report describes in greater detail both the timeline and the estimated costs for each of these improvements.

In regards to the precision approach at Richland, the FAA Airport District Office (ADO), along with FAA ANI, has stated that the FAA is not installing any ILS at General Aviation (GA) airports, because at this time, there isn't sufficient justification of the need in comparison to the cost. Furthermore, even some air carrier airports have been turned down for an ILS. Contrary to this statement from the FAA, this is not the case for GA airports in other western states. When these airports were contacted in regards to their ILS installation, the following information was provided. The process to obtain an ILS begins with conversations between the FAA ADO and the Director or Manager of the airport or its representative. These conversations are to solicit the support from the FAA for the installation of an ILS. As a result of these discussions, the airport or its representative will be asked to prepare a detailed description of the work involved, a justification for the ILS, and a detailed cost estimate. In order for the funds to be appropriated, an engineer's statement of probable cost needs to be determined. The Port Commissioners have approved pursuing a precision approach. It is also crucial that the political process be started in a concentrated effort to approach staff members of the various political representatives with jurisdiction over the airport, in order to champion the project and solicit support for the ILS. This can be done through a combination of phone calls, visits, and letters. The congressional staff will guide the Port and its representative in contacting both Senators and Representatives to insert the appropriate wording into an appropriation bill for the ILS. Once the project is identified and approved by the Legislature, it will be placed in the annual budget. Once in the budget, the project will be scheduled, designed, and constructed by FAA F&E. This entire process needs to start early enough in order for the new authorization to be in and approved for the start of the Federal fiscal year, which begins every October 1st.

Section 6 – Land Use Planning

In 1993, the Washington State legislature enacted legislation requiring cities and counties to develop regulations that protect airports from the siting of incompatible land uses adjacent to airports. Although the Port of Benton owns much of the land adjacent to the Airport operations area, many of the alternatives presented in this Master Plan envision an expanded Runway Protection Zone. Resulting changes in the associated Part 77 spaces will occur as improvements are made. Therefore, it is recommended that the Port of Benton work with the City of Richland to incorporate appropriate references to airports in their Comprehensive Plans and also adopt zoning ordinances appropriate for the areas surrounding the Airport.

One of the major stakeholders in the area, Lamb-Weston (ConAgra Foods), has expressed concern that they do not want any airport improvements to restrict their ability to accomplish some of their expansion plans that are critical to their future operation. These include expansion of their existing main facility to the east and expansion of their land application waste treatment facility to include winter pond storage when required by the Department of Ecology. They have also requested a preference to keep the land use as agricultural to provide them with a tax advantage. They also have a concern about airspace conflicts with their existing facilities. The FAA Western Flight Procedures Office in reviewing the proposed ILS at Richland for extending the runway 700 feet, ran the ILS final and did not find any impact.

Suggested items for consideration in the Comprehensive Plans are discussed below. Recommended ordinance components are proposed as well. Ordinance numbers appropriate to the City and County should be supplied as necessary. Appropriate changes to the City Zoning maps should be made based on maps included in this report. The Port is presently working with the City and Lamb-Weston on Land Use compatible changes.

COMPREHENSIVE PLAN CONSIDERATIONS

The Comprehensive Plan and Zoning Ordinance for the City of Richland currently identify the Airport as an essential public facility. Consideration could be given to include a description of the Airport and its operations and to list policies discouraging incompatible land uses adjacent to the Airport. In general, Comprehensive Plans should provide guidance to look after the public safety, well being and quality of life around the perimeter of an airport, as well as the Runway Protection Zone (RPZ).

WSDOT Aviation's guidelines cover several issues including height, noise, safety and overall compatibility. For example, the Airport itself should be zoned "industrial" or "airport district". The county could pursue a number of tools to limit certain incompatible uses adjacent to the Airport that are currently permitted in the agricultural zone. An overlay is one option; addressing the issues through direct zoning may also be appropriate. Sample language follows:

- Local planning authorities should discourage land use patterns that would increase population densities in the vicinity of the Airport, consistent with WSDOT Aviation's airport land use compatibility program. Depending on airport characteristics, location

and amount of usable open space adjacent to a general aviation airport, incompatible land uses may include:

* Dense residential development
* Public assemblies and large concentrations of people
* Hospitals and medical facilities, K-12 schools
* Hazardous/explosive material
* Development that attracts wildlife (especially birds) or generates distracting lights or glare, dust or smoke or electronic signals

- The appropriate application of an Airport Hazard Overlay Zone would require adoption of the Airport Layout Plan into the respective transportation elements of the City's comprehensive plan, as well as mapping and adoption of implementing regulations by the City.

- WSDOT Aviation recommends that towns, cities, and counties located near or adjacent to a public use airport adopt disclosure notice regulations within their development code. The disclosure notice should be required for all new development or substantial alterations in the building or use. Aviation Notice Requirements are generally set forth within the local jurisdictions development code, i.e. subdivision regulations, zoning code regulations or both. The local jurisdiction, together with the Airport sponsor, should determine the affected area. Many jurisdictions require notice requirements within 5,000 feet of an airport. Others require notice within FAR Part 77 "Imaginary Surfaces", or within a portion of the Airport Influence area.

ZONING ORDINANCE CONSIDERATIONS

The following sample zoning and land use language should be reviewed by the Airport's attorneys and then discussed with the City of Richland Planning Department for incorporation into City documents:

AIRPORT OVERLAY ZONE (AP-O)

Sections:

X.Y.010 Purpose
X.Y.020 Authority
X.Y.030 Applicability
X.Y.040 Definitions
X.Y.050 Airport Overlay Zones Established
X.Y.060 Airport Zone Height Limitations
X.Y.070 Use Restrictions
X.Y.080 Nonconforming Uses
X.Y.090 General Review Procedures

X.Y.010 Purpose

The purpose of the Airport Overlay (AP-O) district is to protect the viability of the Richland Airport as a significant resource to the community by encouraging compatible land uses, densities and reducing hazards that may endanger the lives and property of the public and aviation users. The AP-O classification identifies a series of imaginary

surfaces and safety zones within the Airport influence area that has historically been prone to hazards associated with aircraft and airports. This chapter is based on aircraft accident data from the National Transportation Safety Board (NTSB) and the Federal Aviation Regulations (FAR) Part 77 Imaginary Surfaces. As the name implies, this classification is laid over the existing City of Richland zoning districts. Densities and land use requirements of the underlying zoning districts are consistent with the NTSB standards and provide for maximum protection to the public, health, safety and general welfare of the community and for those citizens working and residing within the Airport influence area.

X.Y.020 Authority

This chapter is adopted pursuant to RCW 36.70 and 36.70A, which requires cities and counties to enact development regulations within its jurisdiction to discourage the siting of incompatible land uses adjacent to general aviation airports for the purpose of promoting the public health, safety, and general welfare of City and County residents and aviation users.

X.Y.030 Applicability

The provisions of this chapter shall apply to all lands, buildings, structures, natural features or uses located within those areas that are defined by the AP-O Airport Overlay Zone designated on the Official City of Richland Zoning Map.

X.Y.040 Definitions

The following terms shall have the meanings indicated:

"Airport" means the Richland Airport.

"Airport elevation" means the highest point of an airport's useable landing area measured in feet from sea level. The Richland Airport is three hundred ninety-one (391) feet above mean sea level.

"Approach surface" means a surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in Section X.Y.060. The perimeter of the approach surface coincides with the perimeter of the approach zone.

"Approach, Transitional, Horizontal, and Conical Zones". These zones are defined in Section X.Y.050.

"Conical surface" means a surface extending outward and upward from the periphery of the horizontal surface at a slope of twenty to one (20:1) for a horizontal distance of four thousand feet.

"Hazard to air navigation" means an obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.

"Height" in determining the height limits in all zones and as shown on the approach and clear zone map, this datum shall be mean sea level elevation unless otherwise specified.

"Horizontal surface" means a horizontal plane one hundred fifty (150) feet above the established airport elevation, the perimeter of which plane coincides with

the perimeter of the horizontal zone. This is five hundred forty-one (541) feet above mean sea level for the Richland Airport.

"Nonconforming use" means any pre-existing structure, object of natural growth, or use of land which is inconsistent with the provisions of this chapter or any subsequent amendment.

"Obstruction" means any structure, growth, or other object, including a mobile object, which exceeds a limiting height set forth in Section X.Y.060.

"Person" means an individual, firm, partnership, corporation, company, association, joint stock association, or governmental entity; including a trustee, receiver, assignee, or similar representative of any of them.

"Precision runway" means a runway extended that may be used for precision approach procedures.

"Primary surface" means a surface longitudinally centered on a runway with a width of two-hundred fifty (250) feet. When the runway has a specially prepared hard surface, the primary surface extends two hundred feet beyond each end of the runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

"Runway" means a defined area on an airport prepared for landing and take-off of aircraft along its length.

"Structure" means an object (including a mobile object) constructed or installed by persons, including but without limitation, buildings, towers, cranes, smokestacks, earth formations, and overhead transmission lines.

"Transitional surfaces" means these surfaces extend outward at ninety-degree angles to the runway slope of seven feet horizontally for each foot vertically (7:1) from the sides of the primary and approach surfaces to where they intersect with the horizontal surface.

"Tree" means any object of natural growth.

"Utility runway" means a runway that is constructed for and intended to be used by propeller-driven aircraft of twelve thousand five hundred 12,500) pounds maximum gross weight or less.

"Visual runway" means a runway extended solely for the operation of aircraft using visual approach procedures.

X.Y.050 Airport Overlay Zones Established

In order to carry out the provisions of this chapter, zones are established which include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces, and conical surfaces as they apply to the Richland Airport. The imaginary air surfaces are those air spaces above and around airports that require protection from potential obstructions that might interfere with airport traffic. The size of the imaginary surfaces is based upon the category of each runway. The outer limit of the imaginary surfaces included in the Airport Overlay District is shown on the City of Richland Zoning Maps. The map is on file with the building and planning department. An area located in more than one zone is considered to be only in the zone with the more restrictive height limitation. The various zones are defined as follows:

A. Approach Zone. The inner edge of this approach zone coincides with the width of the primary surface and is two hundred fifty (250) feet wide for Runway No. 01-19 and 08-26. The approach zone expands uniformly to the width of one thousand two hundred fifty (1,250) feet at a horizontal distance of five thousand (5,000) feet from the primary surface. Its centerline is the continuation of the centerline of the runway.

B. Transitional Zone. Transitional zones are the areas beneath the transitional surfaces.

C. Horizontal Zone. Horizontal zones are established by swinging arcs of five thousand (5,000) feet radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs by drawing lines tangent to those arcs. Horizontal zones do not include approach and transitional zones.

D. Conical Zone. Conical zones are established as the area commencing at the periphery of the horizontal zones and extending outward for a horizontal distance of four thousand (4,000) feet.

X.Y.060 Airport Zone Height Limitations

No structure shall be erected, altered, or maintained and no tree shall be allowed to grow in any zone, as defined in this chapter, to a height in excess of the applicable height limit established for that zone. The applicable height limitations for each of the zones are established as follows:

A. Visual Approach Zone. Slopes twenty feet outward for each foot upward (20:1) beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of five thousand (5,000) feet along the extended runway centerline.

B. Precision Approach Zone. Slopes fifty feet outward for each foot upward (50:1) beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of five thousand (5,000) feet along the extended runway centerline.

C. Transitional Zones. Slope seven feet outward for each foot upward (7:1) beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of one hundred fifty (150) feet above the airport elevation.

D. Horizontal Zone. One hundred fifty (150) feet above the airport elevation or at a height of five hundred forty-one (541) feet above mean sea level.

E. Conical Zone. Slopes twenty feet outward for each foot upward (20:1) for four thousand (4,000) feet beginning at the periphery of the horizontal zone and at one hundred fifty (150) feet above the airport elevation and extending to a height of three hundred fifty (350) feet above the airport elevation.

X.Y.070 Use Restrictions

The following standards shall be applied to all lands in the Airport Overlay Zones:

A. With the exception of those necessary and incidental to airport operations, no uses shall be permitted that allow buildings, structures, vegetation or other development that penetrates the imaginary air surfaces described above.

B. No uses shall be allowed that causes electrical interference with the operation of radio or electronic signals at the airport or between the airport and aircraft.

C. No structure, device or other object shall be placed that makes it difficult for pilots to distinguish between airport lights and other lights, impairs visibility, or otherwise endangers the takeoff, landing or maneuvering of aircraft.

D. No use, building or structure shall emit smoke, steam, ash, dust, vapor, gas or other emissions that may conflict with operations at the airports.

E. No use shall be permitted that would foster an increase in bird population and thereby increase the likelihood of a bird impact problem.

F. A note shall be recorded with the City Auditor for each lot when subdivision, short subdivision, biding site plan, building permit or other development activity is located within the Horizontal Zone and those areas identified as "Natural Obstructions" on the Overlay Map. Additionally, the note shall specifically state when properties are located within the Approach surfaces of the airport runways. The statement shall essentially read as follows:

> "The subject property is located within an Airport Overlay district in which a variety of aviation activities occur. Such activities may include but are not limited to noise, vibration, chemicals, odors, hours of operation and other associated activities."

X.Y.080 Nonconforming Uses

A. Effect Not Retroactive. The provisions of this chapter shall not be construed to adversely affect any existing structure of use as of its effective date, nor require any change in the construction, alteration or intended use of any prior structure, the construction or alteration of which was begun prior to its effective date, so long as it is diligently prosecuted.

B. Marking and Lighting. The owner of any existing nonconforming structure or tree is required to permit the installation, operation, and maintenance of markers and lights deemed necessary by the operating authority of the Airport to indicate to the operators of aircraft the presence of obstructions. The markers and lights shall be installed, operated, and maintained at the expense of the operating authority of the Airport.

X.Y.090 General Review Procedures

No use, building, structure, or development activity shall be established, altered or relocated by any person, firm or corporation, except as otherwise authorized by this chapter and shall be processed in accordance with applicable provisions of the underlying zone, and the following:

A. Land use applications within any portion of the AP-O zone shall be subject to the prescribed review of Richland Municipal Code.

B. The review authority may require the applicant to submit either or both of the following:

1) A certificate from an engineer or land surveyor that clearly states that no airspace obstruction will result from the proposed use.

2) The maximum elevation of proposed buildings or structures based on the established airport elevation and NAVD 1988-reference datum. Elevations shall be determined by an engineer or land surveyor.

C. Federal Aviation Regulation Part 77, Objects Affecting Navigable Airspace, requires that anyone who is proposing to construct, or alter, an object that affects airspace must notify the Federal Aviation Administration (FAA) prior to its construction. The specific form which is used to notify the FAA is FAA Form 7460-1, Notice of Proposed Construction or Alteration. In filing the form, the proponent is required to submit very specific information about the project such as a complete description of the proposed project, the latitude and longitude coordinates locating the object, its' height above ground level (AGL), site elevation above mean sea level (AMSL), total height (AMSL), and the nearest airport. Typical projects include cell phone towers, top-mount antennas, buildings, power lines, radio broadcast towers, and temporary construction equipment such as cranes. If the proposal is going to emit any electromagnetic broadcast signals, the proponent must also specify which radio frequencies will be used.

The purpose of the 7460-1 notification requirement is to allow the FAA to conduct an airspace analysis on the proposal to determine whether or not the object will adversely affect airspace or NAVAIDS. If, during the course of its analysis, the FAA determines that the proposed object will penetrate airspace or adversely affect NAVAID equipment, the FAA can require the proponent reduce the height of the object, change the broadcast frequency, or outfit the object with obstruction marking and lighting. In cases where the FAA determines the object will be a "hazard" to air navigation, the FAA can issue a hazard determination, in which case the project will be prohibited from being constructed.

Section 7 – Financial Plan

Through the evaluation of the facility requirements for development of the Airport layout plan, the improvements needed at the Richland Airport over the 20-year planning period from 2007 to 2026 have been determined. In this section of the Master Plan, the capital improvement plan is considered in association with financial forecasts to provide the Airport with the basis for planning the funding of these improvements over the next 20 years. With limited outside funding, the Airport must rely heavily on available FAA airport funding to complete projects.

CAPITAL IMPROVEMENT PLAN (CIP)

The capital improvement plan develops both the timeline for the Airport improvements and the estimated costs for those improvements. The plan is divided into three phases: Phase I 2007-2011, Phase II 2012-2016, and Phase III 2017-2026. The timeline for the Capital Improvement Plan projects was guided by a number of factors. First priority was given to time sensitivity issues, such as safety, necessary maintenance projects, and acquiring property before development occurs. Pavement maintenance project schedules were based on a standard lifetime for pavement of 20 years. From that point, the timeline built upon itself, with the less critical projects being placed further along in the timeline.

Each project has been assigned a total cost, which is then applied by percentage to its potential funding sources. Projects that are FAA eligible are supported by 95 percent/5 percent shared funding, where 95 percent of the total cost is covered by an FAA grant and 5 percent is covered by the Airport. Richland Airport currently receives approximately $150,000 per year in Non-Primary Entitlement funds from the FAA. These funds are dependent upon Congress's authorization each year. Though projects are FAA eligible, this does not ensure that funds will be available or granted to the project by the FAA. Though not guaranteed, the Washington State Department of Transportation Aviation Division can also provide airport grants. In the instance that grants from the FAA and the state fund a project, 95 percent of the project cost is covered by the FAA grant, 2.5 percent of the cost is covered by the state and 2.5 percent is covered by the Airport. Costs for projects that are not eligible for FAA or state funding are applied to developers (as applicable) or to the Airport. Projects that are not eligible for FAA funding include hangar construction and rehabilitation, private hangar and building development, industrial property acquisition, and utility extensions for development. Table 7.1 summarizes the proposed capital improvement program (CIP) for the Richland Airport.

Phase I (2007-2011)

This phase will correct non-standard deficiencies and develop the loop area of Airport Way. In particular, Taxiway B will be realigned, and Runway 8-26 will be rehabilitated. New taxilanes, hangars, and helipads will be constructed. Property acquisition to meet FAA requirements for the Runway 19 RPZ will also take place. The Port will be solely responsible for hangar costs as it does not qualify for FAA assistance; the hangars themselves will be constructed using public or private funds with no FAA AIP funds as shown in the CIP estimate.

Phase II (2012-2016)

The second phase will accomplish various airfield improvements consisting of phased construction of Taxiway C, aprons, tie-down areas, and the rehabilitation of a portion of Taxiway B. One of the major improvements during this phase is beginning the installation of a precision approach for Runway 19. This will require an environmental assessment, right-of-way acquisitions, lowering of transmission power lines, runway widening, and extending of both Runway 19 and Taxiway A 215 feet to the north, for a total runway length of 4,224 feet. Also required are the subsequent relocation of the MALSR, and the installation of glide slope equipment. Phasing of these projects will help alleviate the large cost of these improvements. Development of the northwest area of the airport will begin in this phase with construction of taxilanes and t-hangars.

Phase III (2017-2026)

This phase will continue the work of Phase II in regards to the precision approach. This will require environmental assessments, right-of-way acquisitions, relocation of transmission power lines and Navaids. Both Runway 19 and Taxiway A will be extended an additional 700 feet to a total runway length of 4,924 feet. This will require roadway closures and the construction of new access roads. Other projects during this phase include further development of the northwest area of the airport, property acquisition for Runway 08 RPZ, property acquisition for future AOA and light industrial/commercial use, installing security fencing, constructing an air freight service ramp, and Taxiway D.

Table 7.1 Capital Improvement Program

Priority	Project Description	Total Cost	Funding Source FAA - AIP	Local/Private
	YEAR 2007 – 2011			
1	Runway 01-19 MIRL Circuit Upgrade	Complete	Complete	Complete
2	Construct MedStar Taxilane Extension	Complete	Complete	Complete
3	Runway 19 RPZ Land Acquisition (Gartin)	$ 306,000	$ 290,700	$ 15,300
4	Rehabilitate Runway 01-19 and Connecting Taxiways	Complete	Complete	Complete
5	Taxiway B Realignment and Connecting Taxiways Overlay	$ 285,000	$ 270,750	$ 14,250
6	Construct Taxilanes and Hangars in Airport Way Loop Area	$ 5,000,000	$ 1,000,000	$ 4,000,000
7	Helipad Apron (4) and Taxilane off Taxiway A	$ 126,000	$ 119,700	$ 6,300
8	Rehabilitate Runway 08-26 and Run-up Apron	$ 1,300,000	$ 1,235,000	$ 65,000
	Subtotal Year 2007 – 2011	**$ 7,017,000**	**$ 2,916,150**	**$ 4,100,850**
	YEAR 2012 – 2016			
1	Construct Taxiway C, Apron and Tie-downs Ph. I	$ 642,000	$ 609,900	$ 32,100
2	Phase I Environmental Assessment for Runway 01-19 and Taxiway A 215 ft Extension (4,224') Precision Approach	$ 150,000	$ 142,500	$ 7,500
3	Rehabilitate Taxiway B west of Runway 01-19	$ 167,000	$ 158,650	$ 8,350
4	Construct Taxiway C – Phase II	$ 340,000	$ 323,000	$ 17,000
5	Phase I Right of Way Acquisition for Runway 01-19 and Taxiway A 215 ft Extension (4,224')	$ 1,400,000	$ 1,330,000	$ 70,000
6	Lower SR-240 Transmission Power Lines for Runway 01-19 and Taxiway A 215 ft Extension (4,224')	$ 190,000	$ 180,500	$ 9,500
7	Phase I Runway 01-19 and Taxiway A 215 ft Extension (4,224'), Runway Widening, MALSR Relocation, and Glide Slope Installation	$ 1,600,000	$ 1,520,000	$ 80,000
8	Hangar (3) Construction by Runway 26	$ 2,625,000		$ 2,625,000
9	Construct Taxilanes in Northwest Airport Quadrant for T-Hangars incl. Utilities – Phase I	$ 1,530,000	$ 1,453,500	$ 76,500
10	Construct T-Hangar Buildings in Northwest Airport Quadrant – Phase I	$ 3,750,000		$ 3,750,000
	Subtotal Year 2012 – 2016	**$12,394,000**	**$ 5,718,050**	**$ 6,675,950**

Priority	Project Description	Total Cost	Funding Source FAA - AIP	Funding Source Local/Private
	YEAR 2017 – 2026			
1	Construct Taxilanes in Northwest Airport Quadrant for T-Hangars – Phase II	$ 832,000	$ 790,400	$ 41,600
2	Construct T-Hangar Buildings in Northwest Airport Quadrant – Phase II	$ 3,750,000		$ 3,750,000
3	Phase II Environmental Assessment for Runway 01-19 and Taxiway A 700 ft Extension (4,924') Precision Approach	$ 150,000	$ 142,500	$ 7,500
4	Relocate SR-240 Transmission Power Lines for Runway 01-19 and Taxiway A 700 ft Extension (4,924')	$ 1,550,000	$ 1,472,500	$ 77,500
5	Phase II Right of Way Acquisition for Runway 01-19 and Taxiway A 700 ft Extension (4,924')	$ 600,000	$ 570,000	$ 30,000
6	Phase II Runway 01-19 and Taxiway A 700' Extension (4,924') and MALSR Relocation	$ 1,300,000	$ 1,235,000	$ 65,000
7	Close Snyder Road and Construct Access Road to SR-240	$ 398,000	$ 378,100	$ 19,900
8	Property Acquisition for Runway 08 RPZ	$ 1,400,000	$ 1,330,000	$ 70,000
9	Furnish and Install Security Fence	$ 260,000	$ 247,000	$ 13,000
10	Construct Air Freight Service Ramp	$ 370,000	$ 351,500	$ 18,500
11	Construct Taxiway D	$ 310,000	$ 294,500	$ 15,500
12	Construct Optional Access Road to SR-240	$ 393,000	$ 373,350	$ 19,650
13	Property Acquisition for Future AOA on 57 Acres in the Northwest Airport Quadrant	$ 3,420,000		$ 3,420,000
14	Property Acquisition for Light Industrial / Commercial Development on 65 Acres in the Northwest Airport Quadrant	$ 3,900,000		$ 3,900,000
	Subtotal Year 2017 – 2026	**$18,633,000**	**$ 7,184,850**	**$11,448,150**

Note: All Amounts are in 2006 Dollars

FINANCIAL PLAN

The purpose of this section is to propose phased capital improvements for the Richland Airport and evaluate the financial feasibility of achieving their implementation. These capital improvements are identified as individual projects. They are prioritized and allocated into 5-, 10-, and 20-year development timeframes.

Several elements are included in this financial feasibility task. Recommended Richland Airport capital improvement projects are set forth. They are then prioritized and delineated by phase for implementation. Corresponding Airport, State and FAA funding allocations, by individual capital project and by phase, are then established (see Table 7.1). A combined capital and operating budget forecast is then prepared as a future road map for Airport development. This process shows the ability of the Airport to fund these proposed capital improvements over time.

Approach

Analysis of any historical operating data at Richland Airport helps provide a basis for projecting future revenue streams and expenditure obligations of the Airport from operations. Coupling any Airport net operating income with Airport Improvement Program (AIP) funds from the FAA (plus required state and sponsor matching contributions) provides the capital improvement funds for the Airport. By forecasting the future financial picture, an assessment can be set forth of the Airport's capacity to implement the facility improvements discussed earlier in this document.

Historical operating statements were prepared for Richland Airport. These revenue and expense data were separated out of more comprehensive operating information prepared annually by the Port of Benton. The staff was asked to develop an understanding of the flow of financial information such as the receipt of rents and other funds or payment of an invoice or other expenditure through to the financial statements used to prepare this report. This was useful in clarifying the nature of the information contained in each account classification.

The financial forecast is based partially on the historical information gathered from Richland Airport operations. In preparing this statement, revenues and expenses were classified into "operating" and "non-operating" categories. The definition of "operating" revenues or expenses is those receipts and disbursements that were incurred on an on-going basis in the regular course of business. Operating revenues primarily represent ground rents. Examples of operating expenditures include employee benefits, repair expenses (building, runway, internal roads and grounds), utilities, and other administrative expenses. Although depreciation is an on-going expense incurred in the course of business, it is a non-cash expense.

Those revenues and expenses considered "non-operating" include funds received or expended on a one-time or sporadic basis. Examples of these revenues include grant funds and asset sales. Examples of "non-operating" expenditures include payments made for capital projects and possible loan repayments. Inter-fund transfers and loans were also considered "non-operating".

Once all the accounts are classified as operating or non-operating, they were grouped together. Accounts that are related were combined and subtotaled for clarity. Additional lines were inserted to provide a subtotal of revenues and related expenses. These subtotals assist in demonstrating sources and uses of Airport funds.

Operations Analysis

Annual operating data for 2006 at Richland Airport is presented in Table 7.2. This data was separated from more comprehensive Port operating statements.

Table 7.2 Annual Operating Data 2006

Operating Expenses	
Administration	$ 41,600
Fuel Purchases	N/A
Maintenance	41,500
Insurance	5,000
Utilities	23,000
Total Expenses	**$111,100**
Revenues	
Ground Leases	$ 85,000
Facility Rentals	80,000
Fuel Sales	8,500
Total Revenues	**$173,500**

Aside from grants, the primary revenues are obtained from Airport ground leases and facility rentals. Total annual revenues from these are $165,000 per year.

Currently, no revenue is generated from tie-downs, landing fees, or airport parking at Richland Airport.

In recent years, Richland Airport has been running an operating surplus. Operating revenue exceeded expenses in 2006 by $62,400.

Financial Forecast

Upon completion of the historical analysis of the Richland Airport, a financial forecast was prepared. This forecast was developed on a yearly basis for 2007 through 2011.

Financial forecasting is the estimation of future revenue and expense streams. While historical data and development plans are the best indicators of what these streams may be, future financial performance is affected by many events and outside influences. Some of these include the effects of inflation, liability legislation on small aircraft and major impacts on the region's economy such as changes in agriculture water rights. As the forecasting horizon moves further out, these outside influences and events compound and often have a more profound effect on the entity's financial performance. Because of these outside influences, forecasts beyond a five year horizon should be viewed more as an indication than as an estimate.

In preparing the financial forecast for Richland Airport, potential revenue and expense items were examined for reasonableness. Given the near-term outlook for continued low inflation, projected revenues and expenses were escalated at very modest 5% rates. Admittedly, this is conservative. Currently, however, there is nothing on the near-term economic horizon to suggest that inflation will accelerate.

The 2007-2011 financial forecasts for Richland Airport are presented in Table 7.3. It assumes that no new key sources of operating revenues will be implemented during this five-year forecast. Possible sources of new revenues could come from landing fees; however, the Airport must judge the potential profitability of such fees, given corresponding costs for collection and administration.

Table 7.3 Financial Forecast 2007 to 2011

Operating Expenses (5 Years)	
Administration	$ 241,500
Fueling	0
Maintenance	241,000
Insurance	29,000
Utilities	133,500
Total Expenses	**$ 645,000**
Revenues (5 Years)	
Ground Leases	$ 493,000
Facility Rentals	464,000
Fuel Sales	49,500
Subtotal	**$ 1,006,500**
Five Year Net	**$ 361,500**
Annual Net	**$ 72,300**

It is projected that the net annual revenue for the Richland Airport will average approximately $72,300 in terms of actual cash flow.

The forecast shows that five capital improvement projects are to be implemented during the 2007-2011 forecast period. These itemized projects may be funded, in part, through grants reflecting 95 percent participation by the FAA. The grant funds are dependant upon authorization by Congress each year and are not guaranteed. The local capital cost of these five projects will total an estimated $100,850 – an average of $33,617 per year, over the remaining three years. The hangar construction is expected to be done by developers.

This financial forecast shows that Richland Airport will continue to operate in the black over the next five years. Finally, any forecast has unforeseen elements; unexpected expenditures may arise. The uncertainty associated with a new AIP program should also be expected. Should federal grant monies diminish, certain capital improvements may have to be funded from other sources (such as borrowing).

APPENDIX

AIRPORT LAYOUT PLAN

- **Cover Sheet**
- **Airport Layout Plan**
- **Airport Airspace Plan**
- **Airport Airspace Profile**
- **Runway 1-19 Inner Approach Plan and Profile**
- **Runway 8-26 Inner Approach Plan and Profile**
- **Exhibit "A" and Land Use**

DHL LETTER

AIRPORT LAYOUT PLAN CHECKLIST

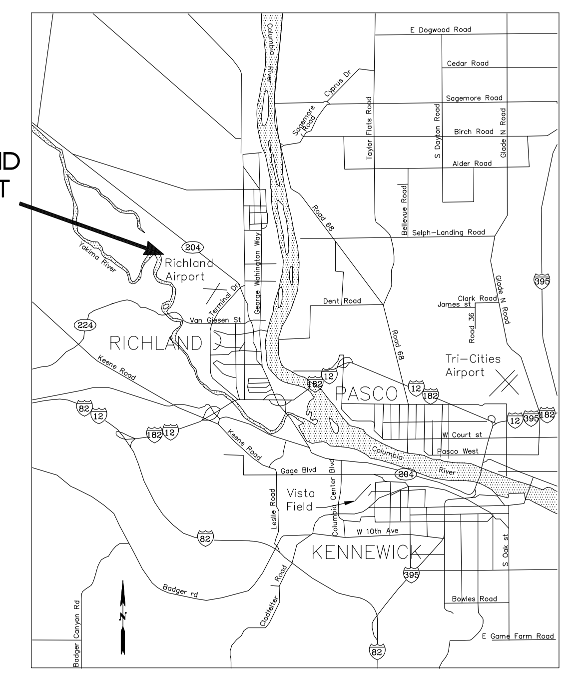
Richland Airport
Richland, Washington
Airport Layout Plan
AIP 3-53-0056-14
December 2008

INDEX OF SHEETS

Sheet Number	Sheet Title
1	Cover Sheet
2	Airport Layout Plan
3	Airport Airspace Plan
4	Airport Airspace Profile
5	Runway 1-19 Inner Approach Plan and Profile
6	Runway 8-26 Inner Approach Plan and Profile
7	Exhibit "A" and Land Use

Location Map

RICHLAND AIRPORT



Vicinity Map

APPROVAL BLOCK	
Signatures	
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Signature	
Title	Date
PORT OF BENTON	
Signature	
Title	Date

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RICHLAND AIRPORT
PORT OF BENTON

COVER SHEET

CAD FILE: 001_-3BG.DWG
PROJ. #: 30-05-020
DRAWING NO. :
DRAWN BY: JBS
DESIGN BY: SWS
CHECKED BY: CAL
SCALE OF SHEET
HOR SCALE: AS SHOWN
VER SCALE: NONE
LAST UPDATED: 12/18

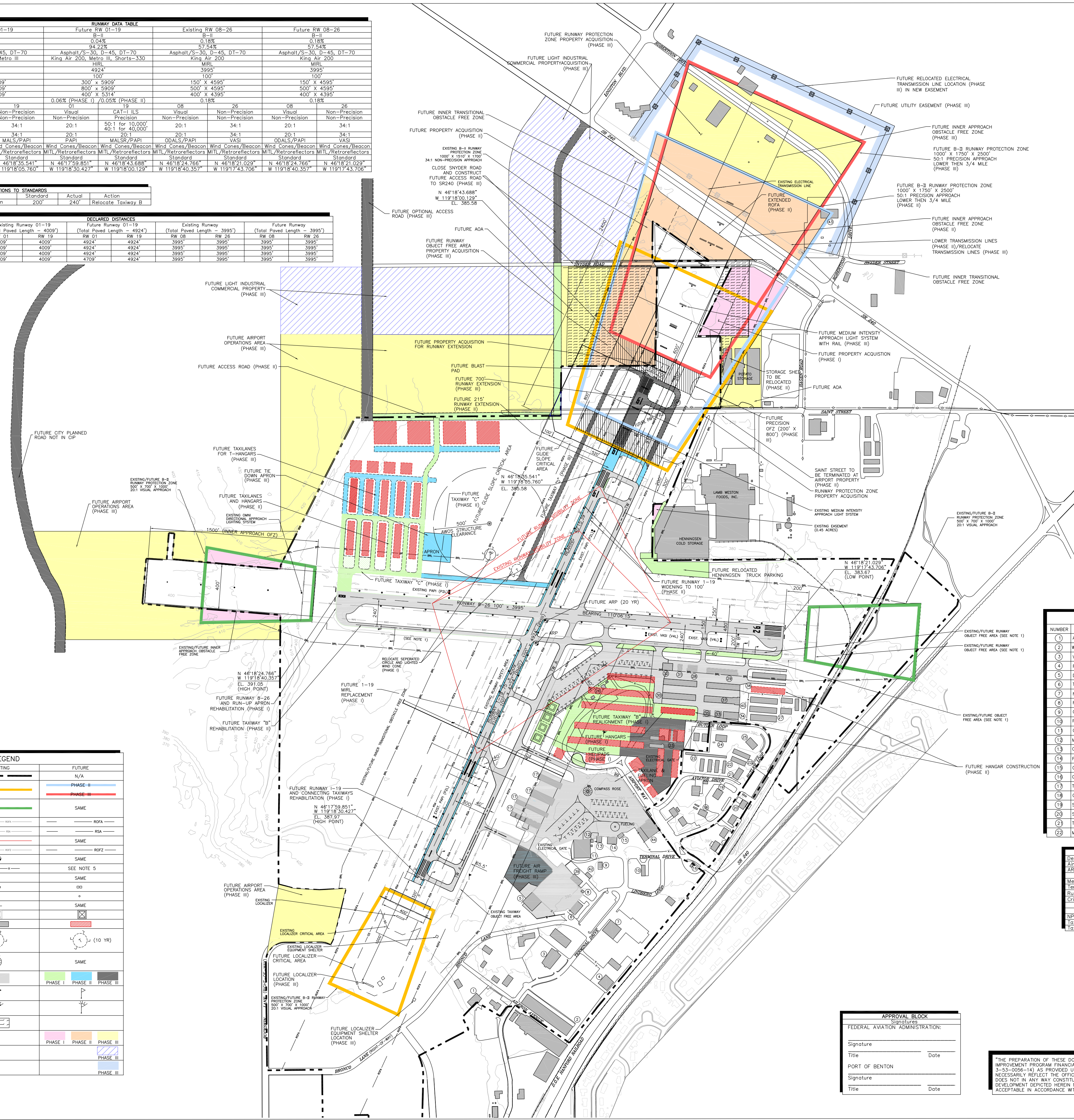
SHEET 1 OF 7

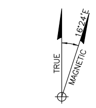
8/03 (JUB-F-VERT)

RUNWAY DATA TABLE								
Description	Existing RW 01-19		Future RW 01-19		Existing RW 08-26		Future RW 08-26	
Airport Reference Code	B-II		B-II		B-II		B-II	
% Effective Gradient	0.06%		0.04%		0.18%		0.18%	
% Wind Coverage	94.22%		94.22%		57.54%		57.54%	
Pavement Type/Strength	Asphalt/S-30, D-45, DT-70		Asphalt/S-30, D-45, DT-70		Asphalt/S-30, D-45, DT-70		Asphalt/S-30, D-45, DT-70	
Critical Aircraft	King Air 200, Metro III		King Air 200, Metro III, Shorts-330		King Air 200		King Air 200	
Runway Lighting	MIRL		HIRL		MIRL		MIRL	
Runway Length	4009'		4924'		3995'		3995'	
Runway Width	75'		100'		100'		100'	
Runway Safety Area	150' X 4609'		300' x 5909'		150' X 4595'		150' X 4595'	
Runway Object Free Area	500' X 4609'		800' x 5909'		500' X 4595'		500' X 4595'	
Runway Obstacle Free Zone	400' X 4409'		400' X 5314'		400' X 4395'		400' X 4395'	
Runway Effective Max Grade	0.06%		0.06% (PHASE I) /0.05% (PHASE II)		0.18%		0.18%	
Runway Designation	01	19	01	19	08	26	08	26
Approach Category	Visual	Non-Precision	Visual	CAT-I ILS	Visual	Non-Precision	Visual	Non-Precision
Runway Markings	Non-Precision	Non-Precision	Non-Precision	Precision	Non-Precision	Non-Precision	Non-Precision	Non-Precision
Part 77 Required Approach	20:1	34:1	20:1	50:1 for 10,000' 40:1 for 40,000'	20:1	34:1	20:1	34:1
Actual Clear Approach	20:1	34:1	20:1	20:1	20:1	34:1	20:1	34:1
Approach Aids	PAPI	MALS/PAPI	PAPI	MALSR/PAPI	ODALS/PAPI	VASI	ODALS/PAPI	VASI
Visual Aids	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon	Wind Cones/Beacon
Taxiway Lighting	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors	MITL/Retroreflectors
Taxiway Markings	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Runway End Coordinates (NAD 83)	N 46°17'59.851" W 119°18'30.427"	N 46°18'35.541" W 119°18'05.760"	N 46°17'59.851" W 119°18'30.427"	N 46°18'43.688" W 119°18'00.129"	N 46°18'24.766" W 119°18'40.357"	N 46°18'21.029" W 119°17'43.706"	N 46°18'24.766" W 119°18'40.357"	N 46°18'21.029" W 119°17'43.706"

MODIFICATIONS TO STANDARDS				
Description	Object	Standard	Actual	Action
Runway 08-26	Runway to Taxiway B Separation	200'	240'	Relocate Taxiway B

DECLARED DISTANCES								
Description	Existing Runway 01-19 (Total Paved Length - 4009')		Future Runway 01-19 (Total Paved Length - 4924')		Existing Runway (Total Paved Length - 3995')		Future Runway (Total Paved Length - 3995')	
	RW 01	RW 19	RW 01	RW 19	RW 08	RW 26	RW 08	RW 26
Takeoff Run Available (TORA)	4009'	4009'	4924'	4924'	3995'	3995'	3995'	3995'
Takeoff Distance Available (TODA)	4009'	4009'	4924'	4924'	3995'	3995'	3995'	3995'
Accelerate-Stop Distance Available (ASDA)	4009'	4009'	4924'	4924'	3995'	3995'	3995'	3995'
Landing Distance Available (LDA)	4009'	4009'	4709'	4924'	3995'	3995'	3995'	3995'

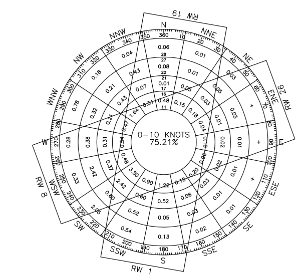




16°24'E MAGNETIC DECLINATION DECEMBER 7, 2006
0°9'W ANNUAL CHANGE

HORIZONTAL DATUM - NORTH AMERICAN DATUM OF 1983
VERTICAL DATUM - NORTH AMERICAN VERTICAL DATUM OF 1929

SCALE IN FEET
300 0 300 600



ALL WEATHER WINDROSE

SOURCE: U.S. DEPT. OF COMMERCE - ESSC

PERIOD OF RECORD: 1961-1965 PASCO AIRPORT 10 MI, ESE.

COVERAGE WITH 13 KNOT CROSSWIND:	
RUNWAY 8-26	87.54%
RUNWAY 1-19	94.22%
COMBINED COVERAGE	97.95%

BUILDING AND USE TABLE			
NUMBER	BUILDING	NUMBER	BUILDING
1	ADVANCED SCIENCES, INC.	23	STORAGE
2	WESTINGHOUSE HANFORD TRAINING CENTER	24	ROBERTS BUILDING
3	VITRO BLDG	25	JRT ELECTRIC
4	FORSYTH BLDG	26	PORT OF BENTON BLDG-RESTROOMS
5	DHL/ PORT OF BENTON BLDG	27	MINI STORAGE
6	TERMINAL BLDG	28	HANGAR
7	NAVAL RESERVE BLDG	29	T-HANGAR
8	FIRE HOUSE	30	T-HANGAR
9	CIVIL AIR PATROL BLDG	31	HANGAR
10	PORT OF BENTON MAINTENANCE HANGAR	32	HANGAR
11	QUONSET HANGAR-SUNDANCE AVIATION	33	HANGAR
12	MAINTENANCE SHED	34	HANGAR
13	OFFICE BLDG	35	HANGAR
14	FBO BLDG/PILOTS LOUNGE-SUNDANCE AVIATION	36	T-HANGAR
15	CONTROL TOWER (CLOSED) & RESTAURANT	37	HANGAR
16	GAS STATION	38	FUTURE-HANGAR
17	T-HANGARS	39	MAINTENANCE BUILDING
18	CROSKREY BUILDING	40	FAA LIGHTING CONTROL BUILDING
19	SCHWAN'S BUILDING	41	FAA LIGHTING CONTROL BUILDING
20	SEARCH AND RESCUE	42	PORT OF BENTON EQUIPMENT SHED
21	TOTAL ENERGY MANAGEMENT, INC	43	ELECTRICAL SUBSTATION
22	MINI STORAGE (TOTAL ENERGY MANAGEMENT, INC)	44	MEDSTAR

AIRPORT DATA TABLE		
Description	Existing B-II	Future B-II
Airport Elevation	391 Ft.	391 Ft.
ARP Coordinates (NAD 83) Lat.	46°18'20.293"N	46°18'22.275"N
Long.	119°18'15.068"W	119°18'13.824"W
Mean Max. Temperature	89.0° F (Est)	89.0° F (Est)
Terminal Navaids	None	None
Runway Surface	Asphalt	Asphalt
Critical Aircraft Wingspan	<79 Ft.	<79 Ft.
Weight	<16,000 lbs.	<30,000 lbs.
App. Speed	<121 Kts	<121 Kts
NPIAS Role	General Aviation	General Aviation
Taxiway Lighting	MITL/ Retroreflectors	MITL/ Retroreflectors
Taxiway Marking	Standard	Standard

NOTES:

1. THIS OBJECT FREE AREA (OFA) IS FOR THE PARALLEL TAXIWAY. IT ENCOMPASSES AND EXTENDS FARTHER THAN THE RUNWAY OFA. ACCORDINGLY THE RUNWAY OFA IS NOT SHOWN.
2. COMPLETE GRAPHIC DEPICTION OF TAXIWAY MARKINGS AND SIGNS, AND PORTIONS OF FUTURE RUNWAY MARKINGS, OMMITED IN ORDER TO RETAIN GRAPHIC CLARITY.
3. TAXIWAY LENGTHS OMMITED FOR GRAPHIC CLARITY.

GRAPHIC LEGEND		
ITEM	EXISTING	FUTURE
AIRPORT PROPERTY LINE		N/A
RUNWAY 01-19 PROTECTION ZONE		PHASE II / PHASE III
RUNWAY 08-26 PROTECTION ZONE		SAME
RUNWAY OBJECT FREE AREA	ROFA	ROFA
RUNWAY SAFETY AREA	RSA	RSA
RUNWAY VISIBILITY ZONE		SAME
RUNWAY OBSTACLE FREE ZONE	ROFZ	ROFZ
AIRPORT REFERENCE POINT		SAME
FENCE		SEE NOTE 5
AIRCRAFT TIEDOWN		SAME
PAPI / VASI		
RUNWAY LIGHTS		
POWER/TELEPHONE POLE		SAME
TRANSMISSION TOWER		
BUILDING		
SEGMENTED CIRCLE AND WIND TEE		(10 YR)
COMPASS ROSE	MN	SAME
AIRPORT PAVEMENT/ROADS		PHASE I PHASE II PHASE III
UNLIGHTED WIND CONE		
LIGHTED WIND CONE		
AVIGATION EASEMENT		
PROPERTY ACQUISITION		PHASE I PHASE II PHASE III
FUTURE LIGHT INDUSTRIAL/COMMERCIAL ACCUSATION		PHASE III
FUTURE ELECTRICAL TRANSMISSION LINE EASEMENT		PHASE III

APPROVAL BLOCK
Signatures
FEDERAL AVIATION ADMINISTRATION:
Signature
Title / Date
PORT OF BENTON
Signature
Title / Date

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RICHLAND AIRPORT
PORT OF BENTON

AIRPORT LAYOUT PLAN

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DESIGN BY: SWS
CHECKED BY: CAL
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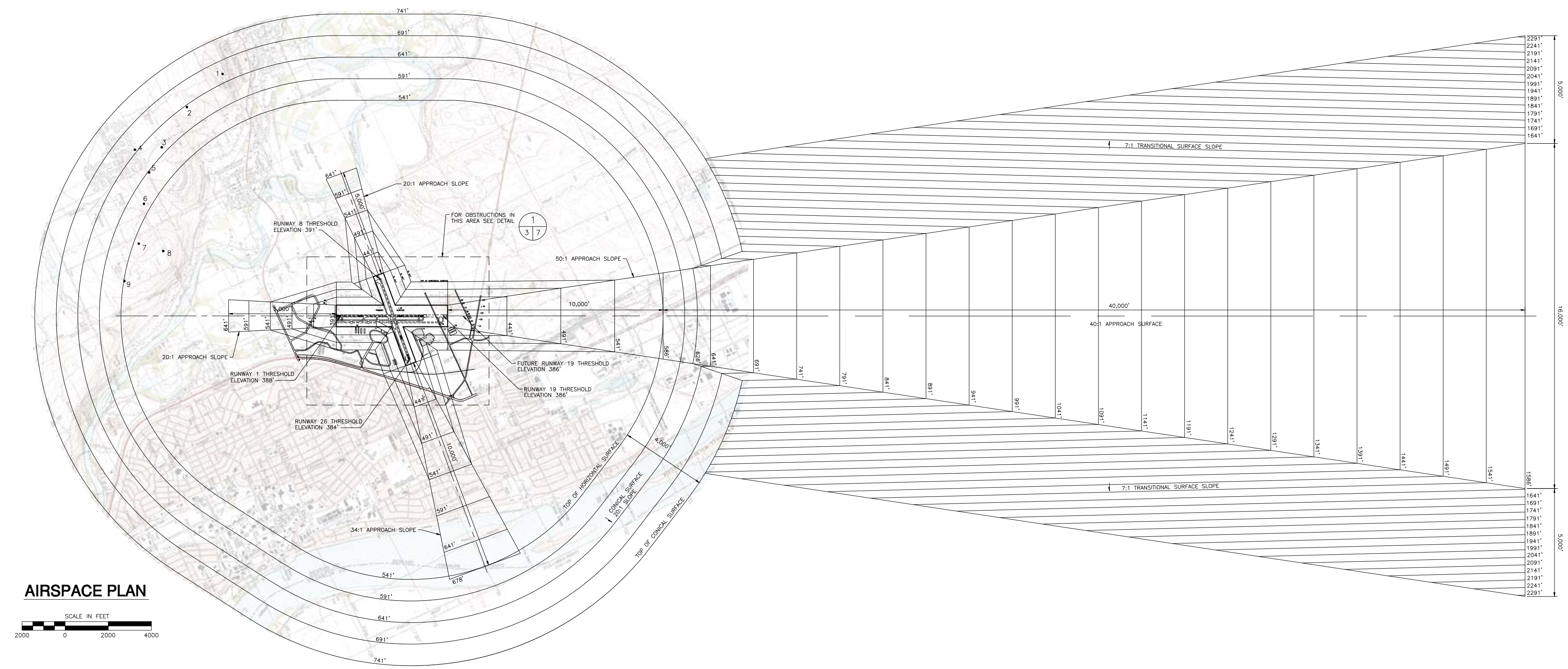
VER SCALE: NONE
LAST UPDATED: 02/05/09

SHEET 2 OF 7



AIRSPACE PLAN

SCALE IN FEET

2000 0 2000 4000

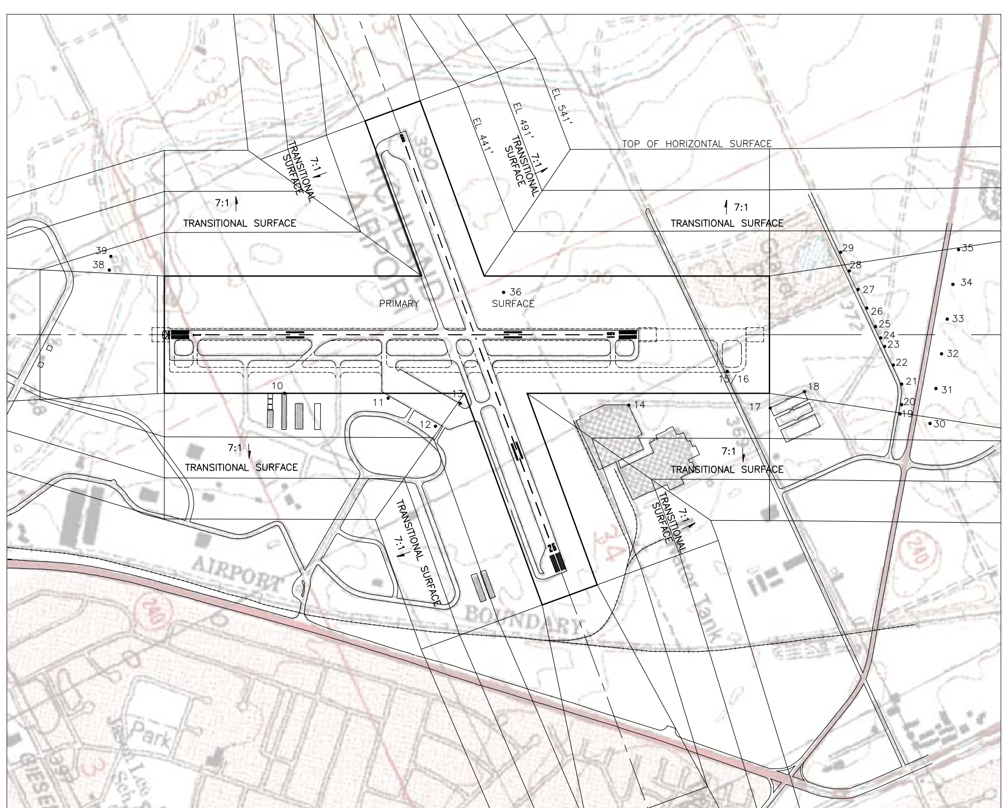
NOTES:

1. ELEVATIONS WERE TAKEN FROM THE 1990 FAA FORM 5010, USGS 7.5 MIN. QUAD MAPS, AS WELL AS ESTIMATED FROM SURVEY. NO FORMAL SURVEY WAS CONDUCTED TO ASCERTAIN EXACT ELEVATIONS OF OBSTRUCTIONS.

2. ROAD ELEVATIONS INCLUDE 15 FOOT CLEARANCE FOR COUNTY ROADS, 17 FOOT CLEARANCE FOR STATE HIGHWAYS, AND 23 FOOT CLEARANCE FOR RAILROADS PER FAR PART 77.

3. THE AIRPORT ELEVATION IS 391 FEET MEAN SEA LEVEL. ALL ELEVATIONS ARE IN FEET ABOVE THE NORTH AMERICAN VERTICAL DATUM OF 1929 (NAVD 29).

4. REFER TO SHEET 4 FOR PROFILES.



DETAIL-AIRSPACE PLAN

SCALE: 1" = 500'

SCALE IN FEET

500 0 500 1000

RUNWAY OBSTRUCTION LEGEND

No.	OBJECT	TOP	PENETRATION EXISTING	PENETRATION FUTURE	ACTION
1	ANTENNA	807'	203'		TO REMAIN
2	POLE	660'	31'		TO REMAIN
3	ANTENNA	663'	67'		TO REMAIN
4	TREE	672'	33'		TO REMAIN
5	CHURCH SPIRE	669'	89'		TO REMAIN
6	POLE	619'	69'		TO REMAIN
7	TREE	608'	67'		TO REMAIN
8	TREE	666'	125'		TO REMAIN
9	POLE	636'	95'		TO REMAIN
10	HANGARS	400'	12'		TO BE RELOCATED
11	POLE	421'	28'		TO BE LOWERED
12	POLE	421'	22'		TO BE LOWERED
13	PIPE	396'	9'		TO BE LOWERED
14	BUILDING	406'	6'		TO REMAIN
15	POLE	410'	13'	24'	TO BE RELOCATED
16	FAA LIGHTING CONTROL BUILDING	388'			TO BE RELOCATED
17	BUILDING	390'		4'	TO BE RELOCATED
18	BUILDING	390'		4'	TO BE RELOCATED
19	POWER POLE	412'		2'	TO BE RELOCATED
20	POWER POLE	412'		3'	TO BE RELOCATED
21	POWER POLE	412'		3'	TO BE RELOCATED
22	POWER POLE	413'		6'	TO BE RELOCATED
23	POWER POLE	414'		8'	TO BE REMOVED
24	POWER POLE	415'		10'	TO BE REMOVED
25	POWER POLE	415'		12'	TO BE REMOVED
26	POWER POLE	416'		13'	TO BE REMOVED
27	POWER POLE	417'		16'	TO BE REMOVED
28	POWER POLE	417'		17'	TO BE REMOVED
29	POWER POLE	418'	2'	20'	TO BE REMOVED
30	TRANSMISSION TOWER	432'	1'	19'	TO BE RELOCATED
31	TRANSMISSION TOWER	431'		17'	TO BE RELOCATED
32	TRANSMISSION TOWER	430'		14'	TO BE RELOCATED
33	TRANSMISSION TOWER	430'		14'	TO BE RELOCATED
34	TRANSMISSION TOWER	427'		10'	TO BE RELOCATED
35	TRANSMISSION TOWER	427'		9'	TO BE RELOCATED
36	LIGHT WIND TEE	392'	6'		TO BE RELOCATED (PHASE III)
38	TREE	424'	19'		TOPPED
39	TREE	442'	20'		TOPPED

TRUE / MAGNETIC 16°24'E

16°24'E MAGNETIC DECLINATION DECEMBER 7, 2006
0°9'W ANNUAL CHANGE

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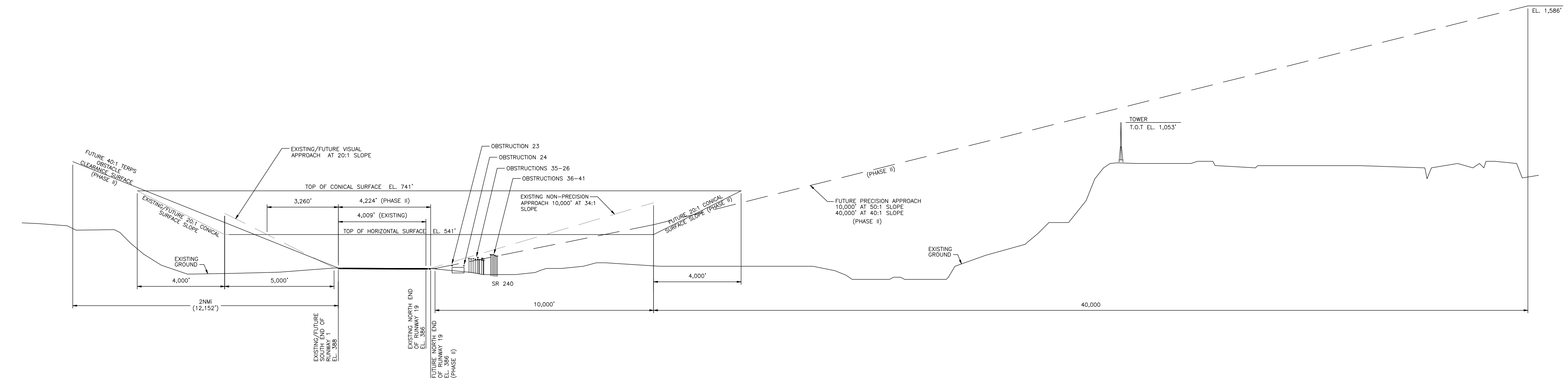
RICHLAND AIRPORT
PORT OF BENTON

AIRPORT AIRSPACE PLAN

CAD FILE: 003_-322.DWG
PROJ. #: 30-05-020
DRAWING NO. :
DRAWN BY: JBS
DESIGN BY: SWS
CHECKED BY: CAL
SCALE OF SHEET
HOR SCALE: AS SHOWN
VER SCALE: NONE
LAST UPDATED: 12/08

SHEET 3 OF 7

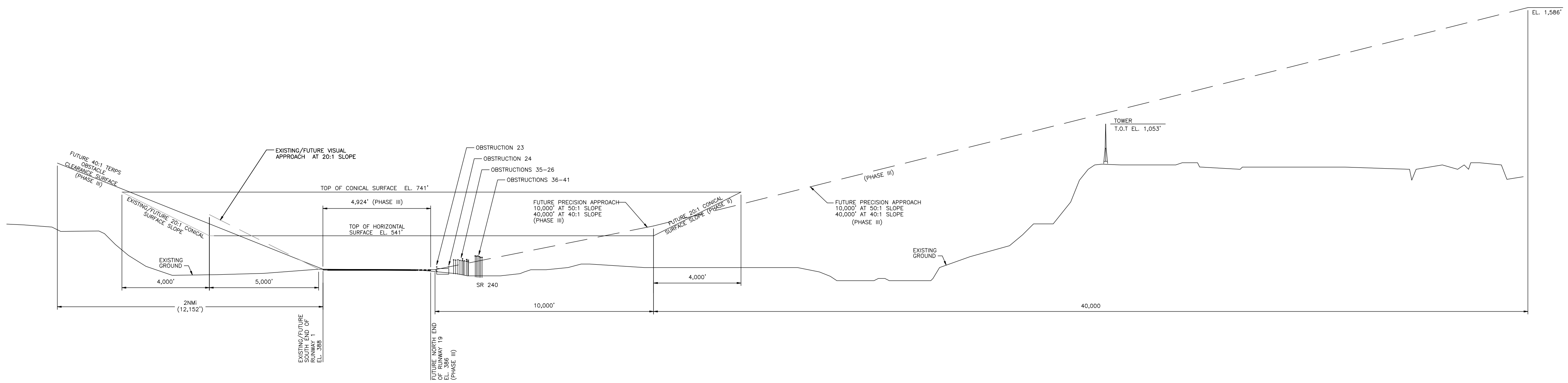


RUNWAY 1-19 AIRSPACE PROFILE (PHASE II)

SCALE: HORIZ. 1" = 2000'
VERT. 1" = 200'

SCALE IN FEET: 2000 0 2000 4000 H

SCALE IN FEET: 200 0 200 400 V

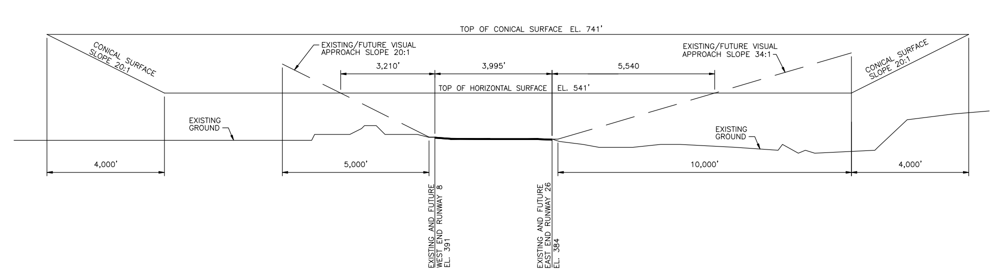


RUNWAY 1-19 AIRSPACE PROFILE (PHASE III)

SCALE: HORIZ. 1" = 2000'
VERT. 1" = 200'

SCALE IN FEET: 2000 0 2000 4000 H

SCALE IN FEET: 200 0 200 400 V



RUNWAY 8-26 AIRSPACE PROFILE

SCALE: HORIZ. 1" = 2000'
VERT. 1" = 200'

SCALE IN FEET: 2000 0 2000 4000 H

SCALE IN FEET: 200 0 200 400 V

NOTES:

1. ELEVATIONS WERE TAKEN FROM THE 1990 FAA FORM 5010, USGS 7.5 MIN. QUAD MAPS, AS WELL AS ESTIMATED FROM SURVEY. NO FORMAL SURVEY WAS CONDUCTED TO ASCERTIAN EXACT ELEVATIONS OF OBSTRUCTIONS.

2. ROAD ELEVATIONS INCLUDE 15 FOOT CLEARANCE FOR COUNTY ROADS, 17 FOOT CLEARANCE FOR STATE HIGHWAYS, AND 23 FOOT CLEARANCE FOR RAILROADS PER FAR PART 77.

3. THE AIRPORT ELEVATION IS 391 FEET MEAN SEA LEVEL. ALL ELEVATIONS ARE IN FEET ABOVE THE NORTH AMERICAN VERTICAL DATUM OF 1929 (NAVD 29).

4. REFER TO SHEET 3 FOR AIRSPACE PLAN AND OBSTRUCTION TABLE.

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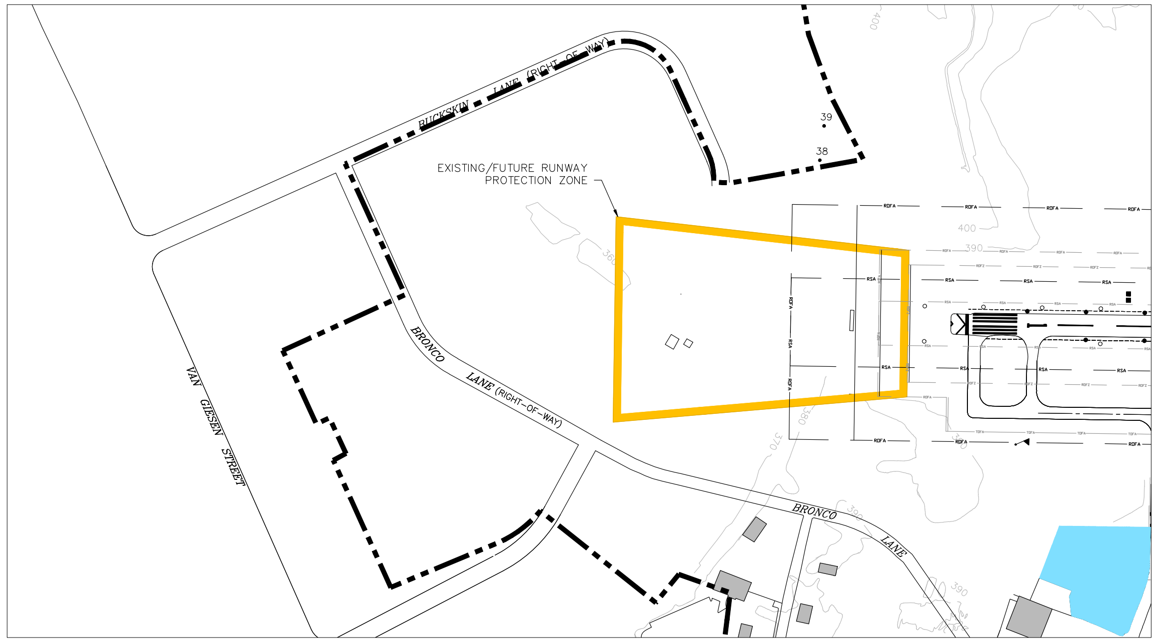
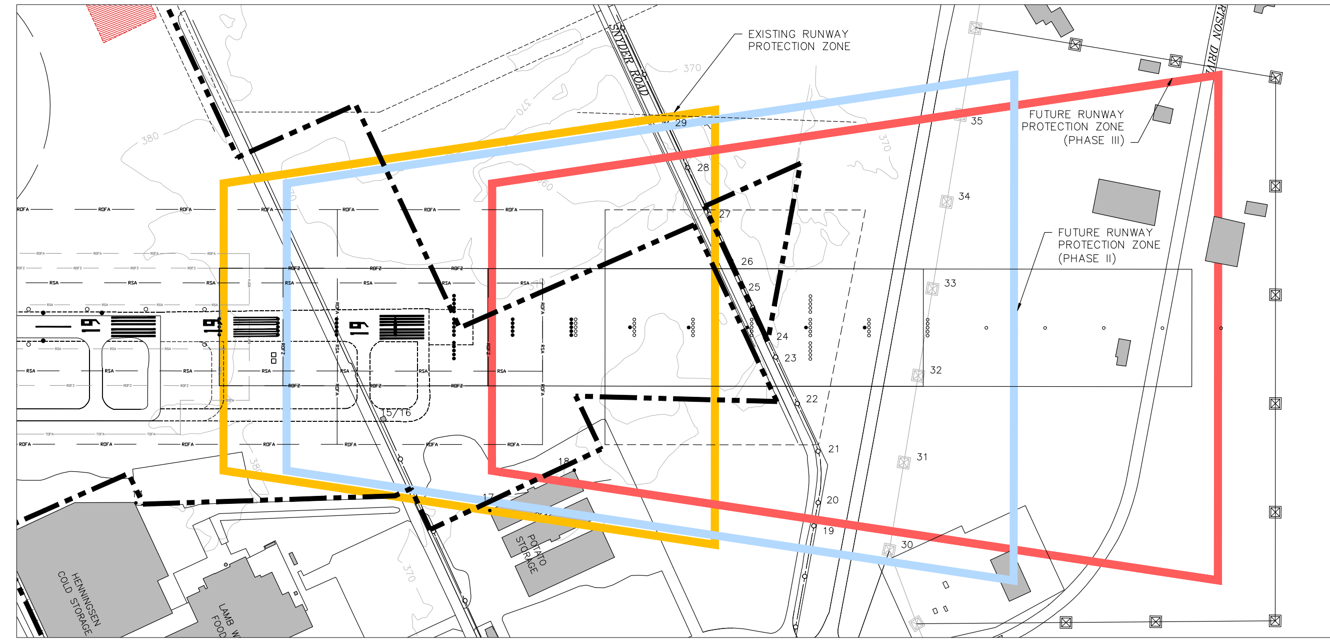
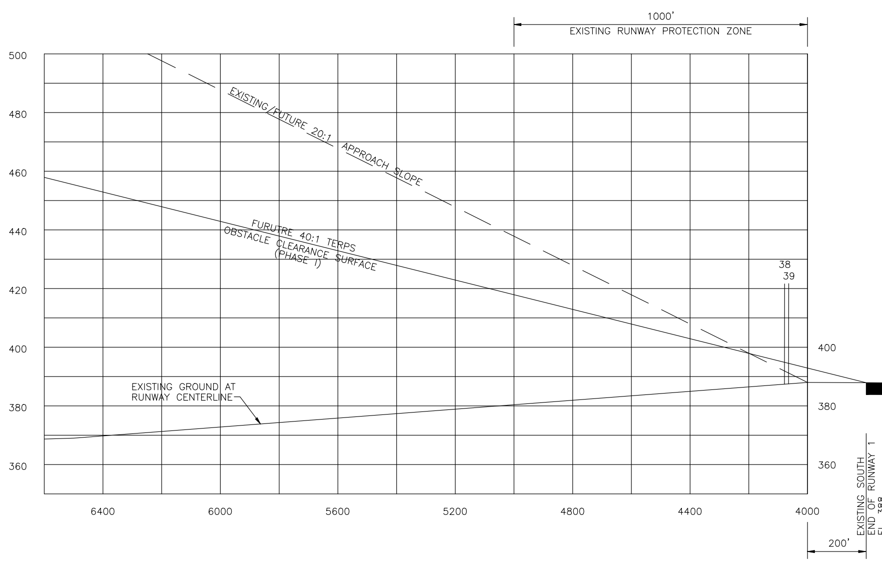
RICHLAND AIRPORT
PORT OF BENTON

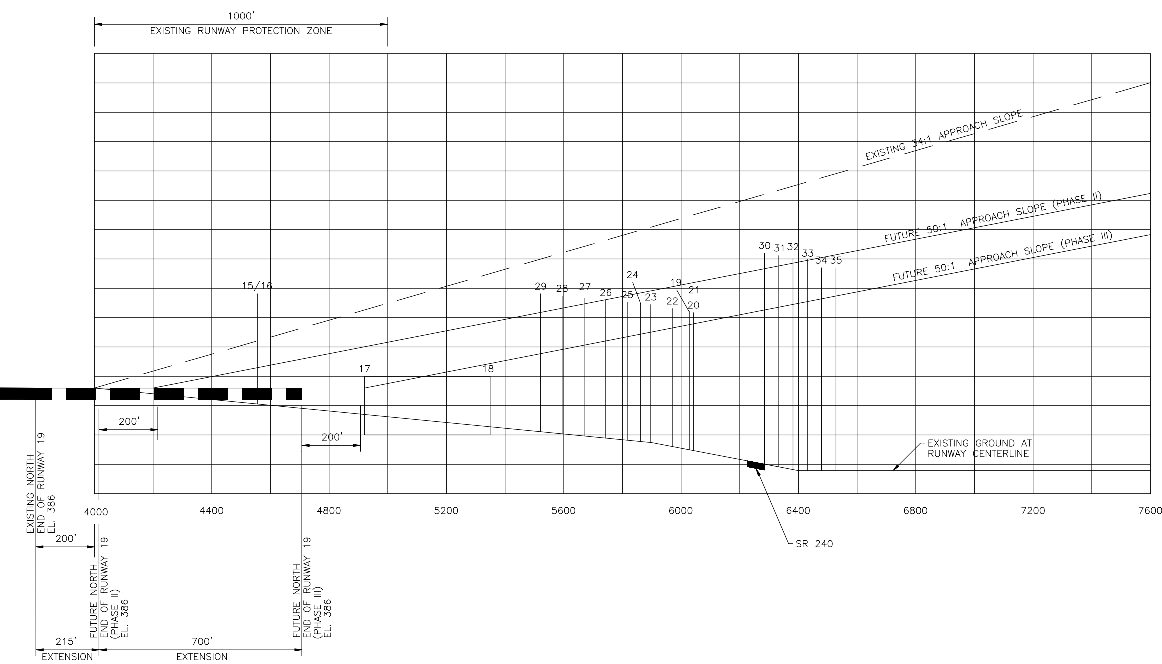
AIRPORT AIRSPACE PROFILE

CAD FILE: 004_-3BL.DWG
PROJ. #: 30-05-020
DRAWING NO. :
DRAWN BY: JBS
DESIGN BY: SWS
CHECKED BY: CAL
SCALE OF SHEET
HOR SCALE: AS SHOWN
VER SCALE: NONE
LAST UPDATED: 12/08









RUNWAY 1-19

SCALE: HORIZ. 1"=200'
VERT. 1"=20'

SCALE IN FEET (H): 200 0 200 400

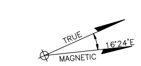
SCALE IN FEET (V): 20 0 20 40

RUNWAY OBSTRUCTION LEGEND

No.	OBJECT	TOP	PENETRATION EXISTING	PENETRATION FUTURE	ACTION
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15	POLE	410'	13'	24'	TO BE RELOCATED
16	FAA LIGHTING CONTROL BUILDING	388'			TO BE RELOCATED
17	BUILDING	390'		4'	TO BE RELOCATED
18	BUILDING	390'		4'	TO BE RELOCATED
19	POWER POLE	412'		2'	TO BE RELOCATED
20	POWER POLE	412'		3'	TO BE RELOCATED

RUNWAY OBSTRUCTION LEGEND

No.	OBJECT	TOP	PENETRATION EXISTING	PENETRATION FUTURE	ACTION
21	POWER POLE	412'		3'	TO BE RELOCATED
22	POWER POLE	413'		6'	TO BE RELOCATED
23	POWER POLE	414'		8'	TO BE REMOVED
24	POWER POLE	415'		10'	TO BE REMOVED
25	POWER POLE	415'		12'	TO BE REMOVED
26	POWER POLE	416'		13'	TO BE REMOVED
27	POWER POLE	417'		16'	TO BE REMOVED
28	POWER POLE	417'		17'	TO BE REMOVED
29	POWER POLE	418'	2'	20'	TO BE REMOVED
30	TRANSMISSION TOWER	432'	1'	19'	TO BE RELOCATED
31	TRANSMISSION TOWER	431'		17'	TO BE RELOCATED
32	TRANSMISSION TOWER	430'		14'	TO BE RELOCATED
33	TRANSMISSION TOWER	430'		14'	TO BE RELOCATED
34	TRANSMISSION TOWER	427'		10'	TO BE RELOCATED
35	TRANSMISSION TOWER	427'		9'	TO BE RELOCATED
36					
37					
38	TREE	424'	19'		TO BE REMOVED
39	TREE	442'	20'		TO BE REMOVED



16°24'E MAGNETIC DECLINATION DECEMEMBER 7, 2006
0°9''W ANNUAL CHANGE

"THE PREPARATION OF THESE DOCUMENTS MAY HAVE BEEN SUPPORTED, IN PART THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-53-0056-14) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

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Kennewick, Washington 99336
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Fax: 509.736.0790
www.jub.com

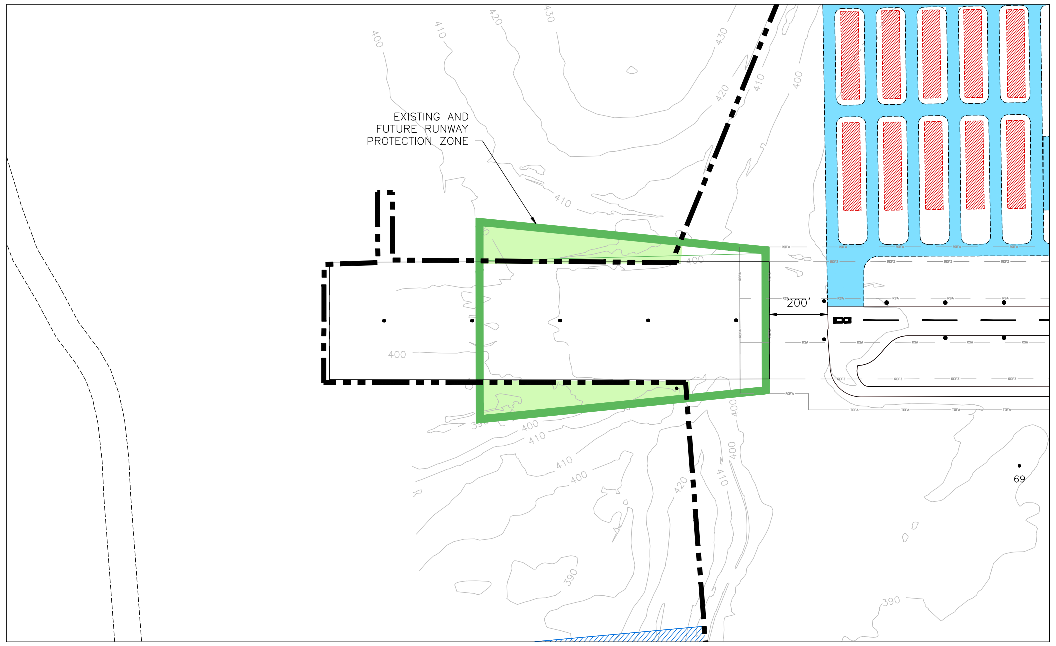
REVISION

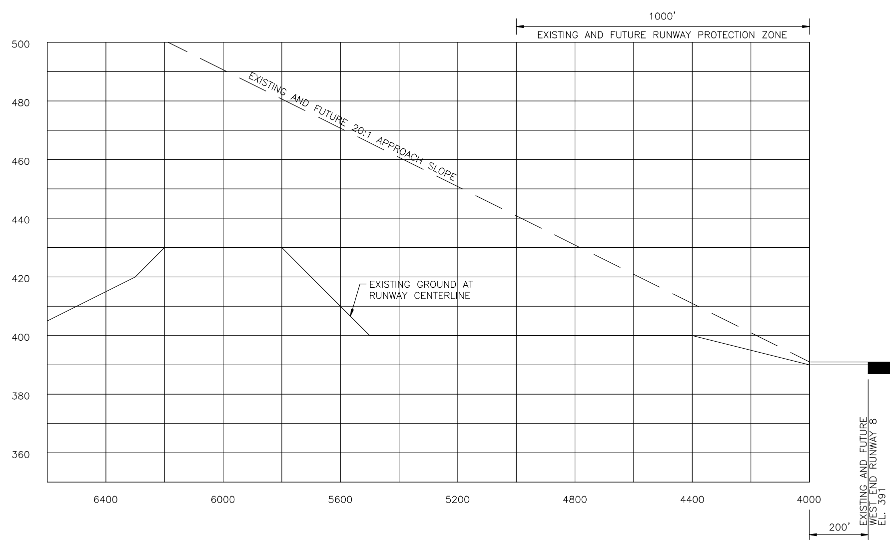
NO.	DESCRIPTION	BY	APR.	DATE

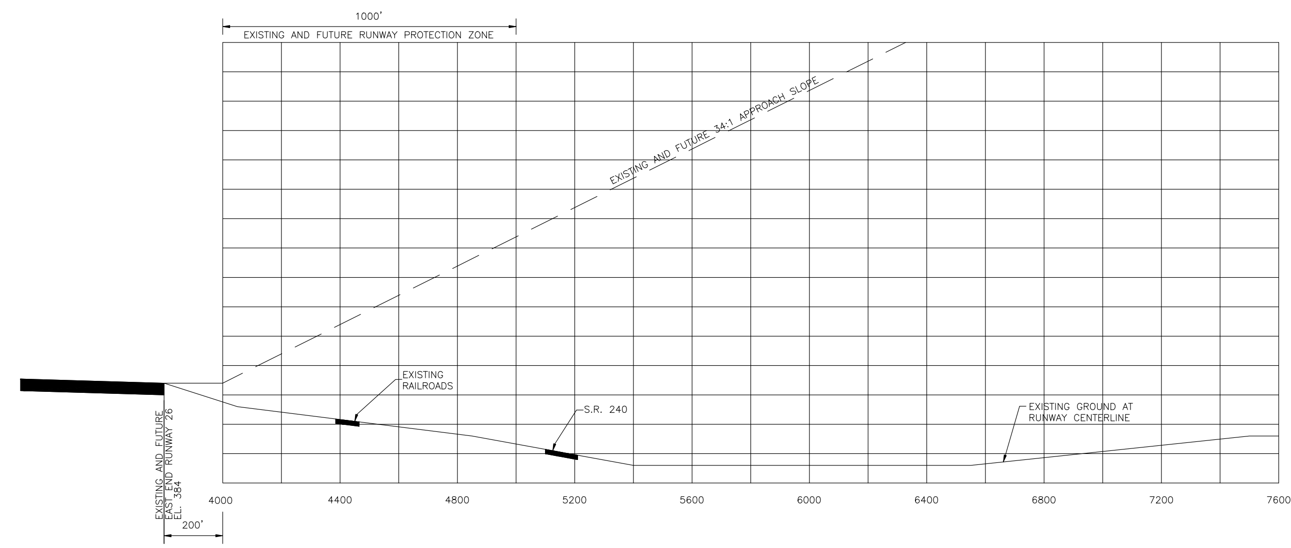
RICHLAND AIRPORT
PORT OF BENTON

RUNWAY 1-19
INNER APPROACH PLAN AND PROFILE

CAD FILE: 055_-321.DWG
PROJ. #: 30-05-020
DRAWING NO. :
DRAWN BY: JBS
DESIGN BY: SWS
CHECKED BY: CAL
SCALE OF SHEET
HOR SCALE: AS SHOWN
VER SCALE: NONE
LAST UPDATED: 12/08

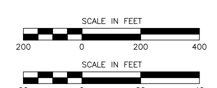




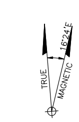


RUNWAY 8-26

SCALE: HORIZ. 1"=200'
VERT. 1"=20'



NOTE:
1. NO RUNWAY OBSTRUCTIONS EXIST AT EITHER APPROACH END.



16°24'E MAGNETIC DECLINATION DECEMEMBER 7, 2006
0°9''W ANNUAL CHANGE

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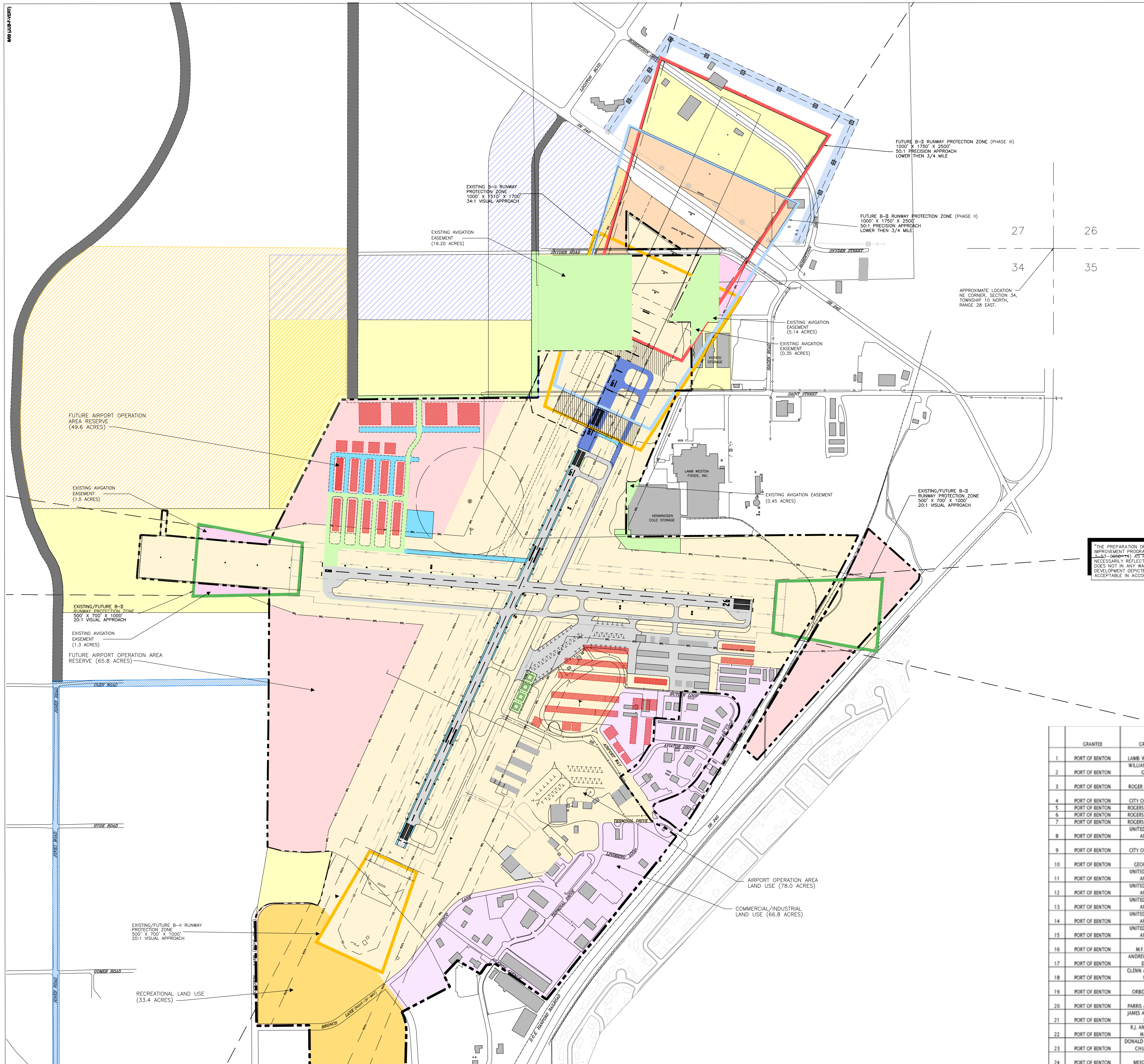
NO.	DESCRIPTION	BY	APPR.	DATE
	REVISION			

RICHLAND AIRPORT PORT OF BENTON

RUNWAY 8-26 INNER APPROACH PLAN AND PROFILE

CAD FILE: 006_-3BH.DWG
PROJ. #: 30-05-020
DRAWING NO. :
DRAWN BY: JBS
DESIGN BY: SWS
CHECKED BY: CAL
SCALE OF SHEET
HOR SCALE: AS SHOWN
VER SCALE: NONE
LAST UPDATED: 12/08

SHEET 6 OF 7



LEGEND

- EXISTING AVIGATION EASEMENTS
- FUTURE AIRPORT OPERATIONS AREA RESERVE
- RECREATIONAL LAND USE
- COMMERCIAL/INDUSTRIAL LAND USE
- AIRPORT OPERATIONS AREA LAND USE
- AIRPORT PROPERTY LINE
- PARCEL BOUNDARY
- (LT) RP2 EXISTING RP2 / RP2 FUTURE RP2
- (LT) RSA EXISTING RSA / RSA FUTURE RSA
- (LT) ROFA EXISTING ROFA / ROFA FUTURE ROFA
- (LT) ROF2 EXISTING ROF2 / ROF2 FUTURE ROF2
- BRL BUILDING RESTRICTION LINE

"THE PREPARATION OF THESE DOCUMENTS MAY HAVE BEEN SUPPORTED, IN PART THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-53-0056-14) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

	GRANTEE	GRANTOR	PARCEL	ACREAGE	BOOK/PAGE	DATE OF RECORD	AIP/ADAP NO.
1	PORT OF BENTON	LAMB-WESTON, INC.	1-2708-300-0002-000	2.08	460/556	4/16/1985	AIP 03-53-0056-01 (APPROACH PROT.)
2	PORT OF BENTON	WILLIAM AND JOAN GARTIN	1-3408-200-0002-000	6.79	395/519	6/20/1980	ADAP 03 (RPZ PROTECTION)
3	PORT OF BENTON	ROGER FOODS, INC.	1-3408-200-0003-000	8.83		11/9/1978	ADAP 02 (RPZ PROTECTION)
4	PORT OF BENTON	CITY OF RICHLAND	1-3408-200-0010-000	6.81	376/743	5/30/1979	ADAP 02 (RPZ PROTECTION)
5	PORT OF BENTON	ROGERS FOODS, INC.	1-3408-200-0012-000	4.67	380/	7/18/1979	N/A
6	PORT OF BENTON	ROGERS FOODS, INC.	1-3408-200-0011-000	38.75	380/	7/18/1979	N/A
7	PORT OF BENTON	ROGERS FOODS, INC.	1-3308-100-0002-000	5.09	380/	7/18/1979	N/A
8	PORT OF BENTON	UNITED STATES OF AMERICA	1-3308-100-0003-000	86.82		2/15/1963	N/A
9	PORT OF BENTON	CITY OF RICHLAND	1-3308-300-0001-000	11.27	418/291	8/12/1981	ADAP 05 (RPZ PROTECTION)
10	PORT OF BENTON	GEORGE MOEN	1-3408-402-0918-014	20.62		6/9/2000	AIP 03-53-0056-10 (APPROACH PROT.)
11	PORT OF BENTON	UNITED STATES OF AMERICA	1-3408-300-0001-006	150.48		2/15/1963	N/A
12	PORT OF BENTON	UNITED STATES OF AMERICA	1-3308-400-0000-000	84.64		8/7/1975	N/A
13	PORT OF BENTON	UNITED STATES OF AMERICA	1-0398-200-0001-000	46		2/15/1963	N/A
14	PORT OF BENTON	UNITED STATES OF AMERICA	1-0498-100-0002-000	15		2/15/1963	N/A
15	PORT OF BENTON	UNITED STATES OF AMERICA	1-0498-100-0001-000	6.22	268/670	4/26/1972	N/A
16	PORT OF BENTON	M.F. COLLIER	1-0498-102-0001-007	5.91	331/845	8/24/1977	ADAP 01 (APPROACH PROT.)
17	PORT OF BENTON	ANDREW AND VEDA ECKERT	1-0498-102-0001-008	5.16	554/2159	1/31/1992	N/A
18	PORT OF BENTON	GLENN AND YVONNE WILDE	1-0498-102-0001-009	5.48	526/53	1/2/1990	N/A
19	PORT OF BENTON	ORBID WILLIAMS	1-0498-102-0002-002	4.28	526/52	1/2/1990	AIP 03-53-0056-03 (APPROACH PROT.)
20	PORT OF BENTON	PARRIS AND RHODES	1-0498-102-0002-003	5.75	335/625	10/14/1977	ADAP 02 (RPZ PROTECTION)
21	PORT OF BENTON	JAMES AND BARBARA RIGGS	1-0498-102-0002-001	5.07	554/2158	1/31/1992	AIP 03-53-0056-03 (APPROACH PROT.)
22	PORT OF BENTON	R.J. AND BARBARA HARMAN	1-0498-102-0002-004	5.28	334/507	9/30/1977	ADAP 02 (APPROACH PROT.)
23	PORT OF BENTON	DONALD AND MILDRED CHURCHWELL	1-0498-102-0003-002	6.19	546/2415	7/12/1991	AIP 03-53-0056-03 (APPROACH PROT.)
24	PORT OF BENTON	MEEGAN SPEAR	1-0498-102-0003-003	6.13	543/552	4/4/1991	AIP 03-53-0056-03 (APPROACH PROT.)

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NO.	DESCRIPTION	BY	APPR.	DATE

REVISION

RICHLAND AIRPORT
PORT OF BENTON

EXHIBIT "A" AND LAND USE

CAD FILE: 008_-3BK.DWG
PROJ. #: 30-05-020
DRAWING NO. :
DRAWN BY: JBS
DESIGN BY: SWS
CHECKED BY: CAL
SCALE OF SHEET
HOR SCALE: AS SHOWN
VER SCALE: NONE
LAST UPDATED: 12/08

DEC - 4 2006

December 1, 2006

Mr. John D. Haakenson
Director of Operations and Maintenance
Port of Benton
3100 George Washington Way
Richland, Washington 99352

RE: RICHLAND AIRPORT RUNWAY LENGTH

Dear Mr. Haakenson:

Our operation recently downgraded the aircraft used to ship cargo in and out of the Richland Airport from a Beechcraft 1900 to a Fairchild Metroliner III. This change was driven by several issues, but, most significantly, the operational performance limitations and prescribed safety margins of our aircraft as a result of the existing runway length at the Richland Airport. Partially due to these limitations, we have had to reorganize our distribution layout within the area. The limited runway length currently available has prevented a much needed upgrade to a larger aircraft, requiring us to ship much of our cargo via ground transportation.

With our current rate of growth, we foresee the need to upgrade our aircraft within the next five years. This resulting upgrade would require a longer runway or the relocation of our air freight facilities to another airport.

I support extending the runway at the Richland Airport to a length of 4,700 feet. This extension will provide us with the flexibility to upgrade our aircraft as needed and retain our current facilities. In addition, installation of an Instrument Landing System would also be of great benefit, allowing us to conduct many flights that would otherwise be precluded by adverse weather conditions. I have spoken to many other operators who have expressed great interest in the future improvements at the airport.

Sincerely,

Bob Christenson
DHL Station Manager
Richland Airport

1845A Terminal Dr
Richland, WA 99352
Phone: +1 509 943-4177
Fax: +1 509 943-3294
www.dhl.com

AIRPORT LAYOUT PLAN CHECKLIST
Airports Division, Northwest Mountain Region
Federal Aviation Administration
April 1997

This checklist is recommended for use by consultants, airport sponsors, and FAA Airports District Office (ADO) personnel to help insure that all pertinent information is reflected on the airport layout plan (ALP) set of drawings. This checklist can be used for the small airports as well as for the larger, more complex ones and therefore every drawing or item in the checklist may not apply in all airport situations. However, certain drawings in the checklist are normally required in every case. These include (1) the airport layout plan drawing, (2) the airport airspace drawing, and (3) the inner portion of the approach surface drawing. The need for the other drawings should be decided on a case-by-case basis. This decision as well as the determination as to which of the individual checklist items for each drawing apply to a given airport situation should be made at the time the workscope is prepared for the development of the new or updated ALP. This involves the ADO working closely with the airport sponsor and their consultant to evaluate and reach agreement on the use of the checklist in the ALP project. The individual checklist items as well as the case-by-case drawings that apply to a given airport situation depend on the nature and complexity of the facility and the evaluation during the ALP workscope determination process. If during or after this process, the airport sponsor or their consultant disagrees with the ADO regarding the applicability of any element of the checklist to a given ALP project, they should provide the rationale for any such disagreement to the ADO. The ADO shall determine whether or not the rationale is acceptable and make the appropriate determination. In summary, this checklist can be used as part of the ALP workscope process, during the preparation of the ALP, and in the draft and final ALP reviews.

AIRPORT: Richland Airport
LOCATION: Richland, WA

SPONSOR/CONSULTANT: J-U-B Engineers, Inc. **DATE:**_____

FAA PROJECT MGR:_____ **DATE:**_____

THIS CHECKLIST WAS COMPLETED FOR (check one):

( ) ALP Workscope Purposes.
( ) ALP Preparation Purposes.
(X) ALP Review Purposes.

Note: Page 10 of this checklist provides specific instructions on its use in terms of checking **YES** or **NO**, with or without **REMARKS**, for each of these purposes.

	YES	NO	REMARKS
I. The ALP Set of Drawings.			
1. Normally Required Drawings.			
a. Airport Layout Plan Drawing.	(X)	( )	_____
b. Airport Airspace Drawing.	(X)	( )	_____
c. Inner Portion of the Approach Surface Drawing.	(X)	( )	_____
2. Case-by-Case Drawings.			
a. Terminal Area Drawing.	( )	(X)	_____
b. Land Use Drawing.	(X)	( )	PART OF EXHIBIT 'A'
c. Airport Property Map Drawing, Exhibit "A".	(X)	( )	_____

Note: Normally, the airport layout plan drawing and the airport airspace drawing should be presented on separate sheets. The Exhibit "A", if done as part of a new or updated ALP set of drawings, should also be depicted on a separate sheet (or sheets for large airports). The other drawings do not necessarily need to be on separate sheets, depending on scale and size of the drawings.

AIRPORT LAYOUT PLAN CHECKLIST

	YES	NO	REMARKS
II. The Airport Layout Plan Drawing.			
1. Features:			
a. Layout of existing & planned facilities & features.	(X)	( )	_____
b. Wind rose & coverage analysis.	( )	(X)	USED PREVIOUS INFORMATION
c. Basic airport & runway data tables.	(X)	( )	_____
d. Legend & building tables.	(X)	( )	_____
e. Title & revision blocks.	(X)	( )	_____
f. Sponsor approval block.	(X)	( )	_____
g. List of approved modifications to FAA airport design standards (with dates), including proposed & planned modification to standards expected to be approved as part of the ALP review & approval process.	( )	(X)	NO MODIFICATIONS
h. List of non-standard conditions & proposed disposition on them.	( )	(X)	NO NON-STANDARD CONDITIONS
2. Preparation guidelines:			
a. Sheet size, recommend 22" x 34".	(X)	( )	SIZE USED IS 30" x 42"
b. Scale, recommend between 1"=200' & 1"=600':			
(1). Show graphic scale.	(X)	( )	_____
(2). Metric conversion table, (optional per Appendix 6, AC 150/5300-13, Airport Design).	( )	(X)	_____
c. North arrow.			
(1) True.	(X)	( )	_____
(2) Magnetic & year of mag. declin.	(X)	( )	_____
(3) North to top or left of drawing.	(X)	( )	_____
d. Wind rose. Explain below in Remarks for Data source if wind data not available for ALP wind rose.			
(1) Data source (weather station) & time period covered.	(X)	( )	_____
(2) Individual & combined coverage, see paragraph 203b of AC 150/5300-13, Airport Design, for info on wind conditions.			
(a). Rwys with 10.5 knots crosswind.	(X)	( )	_____
(b). Rwys with 13 knots crosswind.	( )	(X)	NOT A PART_____
(c). Rwys with 16 knots crosswind.	( )	(X)	NOT A PART_____
(d). Rwys with 20 knots crosswind.	( )	(X)	NOT A PART_____
(e). IFR windrose.	( )	(X)	NOT A PART_____
e. Airport reference point (ARP).			
(1). Existing (nearest sec/NAD 83).	(X)	( )	_____
(2). Ultimate (nearest sec/NAD 83).	(X)	( )	_____

AIRPORT LAYOUT PLAN CHECKLIST

	YES	NO	REMARKS
f. Topo info. Ground contours at intervals of 2' to 10', lightly drawn. Show any principle drainage features.	(X)	( )	_____
g. Elevations.			
(1). Runways. Indicate at existing & ultimate ends, displaced thresholds, touchdown zones, rwy intersections, high & low points to nearest 1/10'.	(X)	( )	_____
(2). Structures on airport. If terminal area plan drawing is not to be included, show top elevations by using building table & numbering system.	(X)	( )	TOP ELEV. NOT AVAIL.
h. Building restriction line (BRL) & runway visibility zone.	(X)	( )	_____
i. Runway details (existing/planned).			
(1). Dimensions (width & length).	(X)	( )	_____
(2). Orientation:			
(a). True bearing to nearest 0.01 degree.	(X)	( )	_____
(b). Show rwy end numbers.	(X)	( )	_____
(3). Lighting (threshold lights).	(X)	( )	_____
(4). Marking.	( )	(X)	_____
(5). Show stage lengths if new rwy or rwy extension will be developed in stages.	(X)	( )	_____
(6). Indicate surveyed existing end coordinates (to nearest 0.01 second, NAD 83) & elevations (to nearest 1/10').	(X)	( )	_____
(7). Monuments (show location of all survey monuments & reference markers. Include note on how monuments are protected).	(X)	( )	_____
(8). Declared distances for each runway direction. Identify any clearway/stopway portions in the declared distances & any rwy portions not included in the declared distances. Depict appropriate details in separate drawing, if needed.	(X)	( )	_____
(9). Any displaced thresholds.	( )	(X)	NONE
(10). Any relocated thresholds.	( )	(X)	NONE
(11). Any clearways.	( )	(X)	NONE
(12). Any stopways.	( )	(X)	NONE
(13). Separation dimensions from BRL and any parallel rwys.	(X)	( )	_____
j. Object free areas (OFAs).	(X)	( )	_____
k. Runway safety areas (RSAs).	(X)	( )	_____
l. Obstacle free zones (OFZs).	(X)	( )	_____

	YES	NO	REMARKS
m. Threshold siting surface may be depicted with dimensions to facilitate identifying object penetrations. Print "No threshold siting surface object penetrations" when no object penetrates the threshold siting surface. Otherwise, identify the object, show the amount of object penetrations, & indicate in a note how they will be eliminated.	(X)	( )	_____
n. Runway protection zone (RPZ) details per paragraph 212, Table 2-4, & Figure 2-3 of AC 150/5300-13, Airport Design.			
(1). Depict size with dimensions.	(X)	( )	_____
(2). Airport interest in RPZ (fee, easement or non-airport). Indicate by note with arrow to each RPZ or with appropriate legend symbol.	(X)	( )	_____
(3). For each RPZ, indicate in a note the approach visibility minimums & aircraft served (i.e., small aircraft, aircraft approach Cat A & B, aircraft approach Cat C & D, or all aircraft).	(X)	( )	_____
(4). Land uses in RPZ. Show any residences & places of public assembly & indicate by note how they will be removed. Depict any roads, railroads, or waterways.	(X)	( )	_____
o. Holding position signs & markings. Show distance from rwy centerline.	(X)	( )	_____
p. Taxiway details (existing/planned).			
(1). Dimensions (width & length).	(X)	( )	_____
(2). Separation dimensions from parallel rwys & taxiways.	(X)	( )	_____
(3). Clearance dimensions to objects, including aircraft parking areas	(X)	( )	_____
q. Apron details (existing/planned).			
(1). Dimensions (width & length).	(X)	( )	_____
(2). Aircraft parking arrangement.	(X)	( )	_____
(3). Any taxilanes.	(X)	( )	_____
r. Navaids & landing light systems (existing/planned).			
(1). Location & type.	(X)	( )	_____
(2). Critical areas outlined with dimensions.	( )	(X)	_____
s. Terminal area (existing/planned).			
(1). Show & identify all main structures. Also show & identify by using building table & numbering system if no terminal area plan drawing.	(X)	( )	_____
(2). Hangar areas & related taxiways.	(X)	( )	_____

AIRPORT LAYOUT PLAN CHECKLIST

	YES	NO	REMARKS
(3). Auto parking & entrance roads.	(X)	( )	_____
t. Wind cone/tee & segmented circle.	(X)	( )	_____
u. Any weather equipment (e.g., ASOS including related critical areas).	(X)	( )	_____
v. Airport service roads.	(X)	( )	_____
w. Airport fencing.	(X)	( )	_____
x. Airport property lines & easements (existing/planned).	(X)	( )	_____
y. Airport data table (existing/ultimate).			
(1). Airport elevation (nearest 1/10').	(X)	( )	_____
(2). Airport reference point, latitude & longitude, nearest sec/NAD 83.	(X)	( )	_____
(3). Mean daily max temperature.	(X)	( )	_____
(4). Combined wind coverage, VFR/IFR (%).	(X)	( )	_____
(5). Airport magnetic variation & date.	(X)	( )	_____
(6). Airport reference code (ARC) for most demanding aircraft accommodated at the airport.	(X)	( )	_____
(7). NPIAS service level (GA, RL, CS, or PCS).	(X)	( )	_____
(8). Taxiway lighting.	(X)	( )	_____
(9). Taxiway marking.	(X)	( )	_____
(10). Airport & terminal navaids.	(X)	( )	_____
(11). Others (indicate in Remarks).	( )	(X)	_____
z. Runway data table for each runway end (existing/ultimate).			
(1). Approach visibility minimums. (Include designated or planned. Indicate V, 1 mile, 3/4 mile, 1/2 mile, CAT II, or CAT III).	(X)	( )	VISUAL3/4 MILE____
(2). FAR Part 77 approach slope.	(X)	( )	_____
(3). Dimensions (width & length).	(X)	( )	_____
(4). Pavement type.	(X)	( )	_____
(5). Pavement design strength.	(X)	( )	_____
(6). Lighting.	(X)	( )	_____
(7). Marking.	(X)	( )	_____
(8). Percent gradient.	(X)	( )	_____
(9). Max grade within rwy length.	(X)	( )	_____
(10). Line of sight requirements.	(X)	( )	_____
(11). Percent wind coverage.	(X)	( )	_____
(12). Visual approach aids (e.g., VASI, REIL, etc.) .	(X)	( )	_____
(13). Instrument approach aids (e.g., ILS, localizer, etc.).	(X)	( )	_____
(14). Airport reference code (ARC) for the runway.	(X)	( )	_____
(15). Identify the critical aircraft. If more than one critical Aircraft involved, then identify further as follows:	(X)	( )	_____
(a). Critical aircraft by wingspan.	(X)	( )	_____
(b). Critical aircraft by approach speed.	(X)	( )	_____

	YES	NO	REMARKS
(c). Critical aircraft by weight.	(X)	( )	_____
(16). Length of haul if critical aircraft over 60K lbs.	( )	(X)	_____
(17). RSA dimensions.	(X)	( )	_____
(18). OFA dimensions.	(X)	( )	_____
(19). OFZ. Specify "No OFZ object penetrations" when no object other than frangible navaids penetrates the OFZ.	(X)	( )	_____
(20). Surveyed end coordinates (to nearest 0.01 second), NAD 83.	(X)	( )	_____
(21). Runway elevations (to Nearest 1/10').			
(a). Existing end.	(X)	( )	_____
(b). Ultimate end.	(X)	( )	_____
(c). Displaced threshold.	( )	(X)	NONE
(d). Touchdown zone.	( )	(X)	NONE
(e). Runway intersections.	(X)	( )	_____
(f). High & low points.	(X)	( )	_____
(22). Declared distances for each runway direction.			
(a). TORA.	(X)	( )	_____
(b). TODA.	(X)	( )	_____
(c). ASDA.	(X)	( )	_____
(d). LDA.	(X)	( )	_____
(23). Others (indicate in Remarks).	( )	(X)	_____
aa.. Legend table. Use standard symbols. (existing/ultimate).	(X)	( )	_____
bb. Building table, identify by number & description. Show top bldg. elevations if no terminal area drawing (existing/ultimate).	(X)	( )	TOP ELEV. NOT AVAIL
cc. Location & vicinity maps.	(X)	( )	_____
dd. Title & revision blocks.	(X)	( )	_____
ee. Approval block.	(X)	( )	_____

III. Airport Airspace Drawing.

1. Includes:			
a. Plan view of FAR Part 77 Subpart C surfaces based on ultimate runway lengths.	(X)	( )	_____
b. Profile views of FAR Part 77 Subpart C approaches (existing/ultimate).	(X)	( )	_____
c. Obstruction data tables, as appropriate.	(X)	( )	_____
2. Preparation guidelines:			
a. Sheet size, recommend same as ALP drawing.	(X)	( )	_____
b. Scale, recommend 1"=2000' for plan view. 1"=1000' (horizontal) & 1"=100' (vertical) for approach profiles.	(X)	( )	1" = 200' VERTICAL
c. Title & revision blocks (same format as ALP drawing).	(X)	( )	_____

	YES	NO	REMARKS
d. Plan view details.			
(1). Use current USGS 7 1/2 minute Quad for base map when Available (highlight lat. & long. grid tick marks on map for plotting purposes). Show area under all applicable FAR Part 77 airport imaginary surfaces.	(X)	( )	_____
(2). Show rwy end numbers.	(X)	( )	_____
(3). 50' elevation contours on all sloping imaginary surfaces.	(X)	( )	_____
(4). When horizontal &/or conical surfaces overlap the approach surface, show the most demanding one with solid lines, the others with dashed lines.	(X)	( )	_____
(5). Show objects by number & give top elevations of any of them that are obstructions. Add note referring to inner portion of the approach surface drawing for details on any close-in approach obstructions.	(X)	( )	_____
(6). For precision instrument approaches, show entire 50,000' approach surface (may show outer portions on separate sheet).	(X)	( )	_____
(7). Include a note on any height or slope protected by local zoning ordinance.	(X)	( )	_____
(8). Identify land uses in the FAR Part 77 area, especially those incompatible with normal airport operations.	(X)	( )	_____
(9). RPZ based on ultimate runway lengths.	(X)	( )	_____
(10). Airport property lines & easements (existing/ultimate).	(X)	( )	_____
e. Approach profile details.			
(1). Depict ground profile representing the <u>composite</u> profile based on highest terrain across width & along length of the approach surface	(X)	( )	_____
(2). Show all obstructions by number plus any other significant objects within the approach surfaces with their top elevations.	(X)	( )	_____
(3). Show existing & ultimate rwy ends & FAR Part 77 approach surfaces.	(X)	( )	_____

	YES	NO	REMARKS
(4). Depict threshold siting surface slope for threshold siting requirements per Appendix 2 of AC 150/5300-13, Airport Design, if applicable	( )	(X)	_____
f. Show profile of entire runway if space available on sheet. As minimum, show end elevations and high/low points (to nearest 1/10').	(X)	( )	_____
g. Obstruction data tables details.			
(1). List all obstructions shown in the plan & profile views.	(X)	( )	_____
(2). Identify obstructions by numbers used in plan & profile views & provide description, amount of FAR Part 77 Subpart C surface penetrations (indicate which surface involved, such as horizontal, conical, primary, etc.), & proposed disposition of the obstruction, including no action.	(X)	( )	_____
(3). If there are any close-in obstructions in the approach areas, include a note referring to the obstruction tables on the inner portion of the approach surface drawing.	(X)	( )	_____

IV. Inner Portion of the Approach Surface Drawing.

1. Includes:			
a. Large scale plan view of the existing & ultimate inner portion of the approach area for each runway end. Usually limited to the area out to where the approach surface reaches 100' height above the runway end.	(X)	( )	_____
b. Profile view of the existing & ultimate inner portion of the approach area for each runway end.	(X)	( )	_____
c. Obstruction tables for the existing & ultimate inner portion of the approach area for each runway end.	(X)	( )	_____
2. Preparation Guidelines:			
a. Sheet size, recommend same as ALP drawing.	(X)	( )	_____
b. Scale, recommend horizontal 1"=200' & vertical 1"=20'.	(X)	( )	_____
c. Title & revision blocks (same format as ALP drawing).	(X)	( )	_____
d. Plan view details.			
(1). Aerial photos for base maps when available.	( )	(X)	NOT AVAILABLE___

	YES	NO	REMARKS
(2). Show obstructions. Also, use numbering system & describe in table.	(X)	( )	_____
(3). Depict airport property lines in area.	(X)	( )	_____
(4). Show elevations & clearances for any roads, railroads, & waterways at the approach surface edges & extended rwy centerline. Number these points & key them to profile view & obstruction table, as appropriate.	(X)	( )	_____
(5). Depict ends of runways, stop-ways, clearways, safety areas, & object free areas (existing/ ultimate).	(X)	( )	_____
(6). Show ground contours drawn lightly.	(X)	( )	_____
(7). Show existing/ultimate approach & any departure RPZs.	(X)	( )	_____
(8). Indicate existing/ultimate FAR Part 77 approach slopes.	(X)	( )	_____
e. Profile view details.			
(1). Depict the ground profile representing the <u>composite</u> profile based on the highest terrain across the width & along the length of the inner portion of the approach surface. Also, show significant features regardless of whether they are obstructions (e.g., fences, stream beds, etc.).	(X)	( )	_____
(2). Identify obstructions with numbers used on plan view & keyed to obstruction table.	(X)	( )	_____
(3). Depict cross-section of any roads, railroads, & waterways where they intersect outer edges of approach surface.	(X)	( )	_____
(4). Show existing & ultimate FAR Part 77 approach slope.	(X)	( )	_____
(5). Depict threshold siting surface slope for threshold siting requirements per Appendix 2 of AC 150/5300-13, Airport Design, if applicable.	( )	(X)	_____
f. Obstruction table details.			
(1). Separate table for each existing & ultimate approach surface. Specify type & slope of FAR Part 77 approach surface.	(X)	( )	_____

	YES	NO	REMARKS
(2). Identify obstructions by numbers used in plan & profile views & provide description, amount of approach surface penetration, & proposed disposition of the obstructions, including no action.	(X)	( )	_____

V. Terminal Area Drawing.

1. Terminal area for larger, more complex airport. Show large scale plan view of the terminal area.	( )	(X)	_____
2. Preparation guidelines:			
a. Sheet size, recommend same as ALP drawing.	( )	(X)	_____
b. Scale, recommend between 1"=50' & 1"=100'.	( )	(X)	_____
c. Large scale plan view of terminal area (or areas) showing details of aprons, buildings, hangars, parking lots, etc. (existing/planned).	( )	(X)	_____
d. Building restriction line.	( )	(X)	_____
e. Depict separations between objects & taxiways, taxilanes, & tiedowns.	( )	(X)	_____
f. Title and revision blocks (same format as ALP drawing).	( )	(X)	_____
g. Building data table.			
(1). Include structure ID No. that correspond to the structure ID No. depicted on plan view of terminal area.	( )	(X)	_____
(2). Show top elevations of structures.	( )	(X)	_____
(3). Obstruction marking & lighting (existing/planned).	( )	(X)	_____
(4). Indicate if structures meet airport lateral clearance standards (e.g., BRL requirements).	( )	(X)	_____
h. Legend. Include symbol for showing planned removal, abandonment, etc.	( )	(X)	_____

VI. Land use drawing.

1. Drawing depicts existing & recommended land uses within and outside the existing & ultimate airport property. Off airport land uses should be shown to at least the outer boundary of the 65 DNL area. Land uses should be depicted by general use categories (e.g., agricultural, recreational, industrial, commercial, etc.).	(X)	( )	_____

AIRPORT LAYOUT PLAN CHECKLIST

	YES	NO	REMARKS
2. Provides plan for leasing revenue producing areas on the airport, for guidance on compatible land uses in close proximity to runways, for line of sight between runway ends and within runway visibility zones, & for guidance to local authorities for establishing appropriate zoning in the airport environs.	(X)	( )	_____
3. Preparation guidelines:			
a. Sheet size, recommend same as ALP drawing.	(X)	( )	_____
b. Scale, recommend same as ALP drawing.	(X)	( )	_____
c. Title and revision blocks (same format as ALP drawing).	(X)	( )	_____
d. Base map. Aerial photo when available.	( )	(X)	NOT AVAILABLE
e. Legend. Use standard drafting symbols to show existing & recommended land uses by general category. Use notes to identify the existing and recommended land uses.	(X)	( )	_____
f. Public facilities & other uses in the airport environs.			
(1). Indicate all major existing & recommended land uses.	(X)	( )	_____
(2). Depict the location of all public facilities (e.g., schools, hospitals, parks, etc.).	(X)	( )	_____
(3). Show governmental jurisdictional boundaries.	(X)	( )	_____
(4). Indicate established flight tracks.	( )	(X)	NOT AVAILABLE
(5). Show current noise contours, if available (give date of data used for the contours).	( )	(X)	NOT AVAILABLE
g. Airport drawing details.			
(1). Normally limited to the primary existing and future airport features (rwys, txys, aprons, RPZs, terminal bldgs, & navaids).	(X)	( )	_____
(2). Show enough details to determine aeronautical areas versus non-aeronautical areas & to determine limit lines for areas to be kept in grass or limited to low growing crops.	(X)	( )	_____
h. Show in the drawing and/or describe in a note any special land use concerns.			
(1). Flood plain area.	(X)	( )	_____
(2). DOT Section 4f land.	(X)	( )	_____
(3). Area that may require SHPO coordination.	(X)	( )	_____
(4). Landfills in the airport environs (within 5 miles).	(X)	( )	_____

	YES	NO	REMARKS
(5). Any other land use concerns based on master plan study or community involvement and coordination.	(X)	( )	_____
i. Table of existing land use ordinances by number, date, & land use type.	(X)	( )	_____

VII. Airport property map (Exhibit "A").

1. Purpose: The primary intent of the airport property map, Exhibit "A" drawing, is to identify all land which is designated airport property and to provide an inventory of all parcels which make up the airport. It is a document that must be on file in the ADO as part of the development project application process. If it is not on file, or needs updating, this drawing can be prepared as part of the ALP set of drawings and this is the case here.	(X)	( )	_____
2. Definition: The Exhibit "A" is a document unique to the AIP. It should not be confused with a Property Plan or Plot Plan. As a minimum, the Exhibit "A" must show the current airport boundary compiled from deed research, available mapping/surveys, & field verification, as required. Physical survey of boundaries is generally not required. In those instances where field survey may be considered necessary, the property line & runways should be tied to the State grid system. Requests for participation in field surveys will be considered on a case-by-case basis. Standards for precision & accuracy would be part of this review. All of above has been considered.	(X)	( )	_____
3. General preparation guidelines:			
a. Recommend sheet size same as ALP drawing. This drawing must be on a separate sheet.	(X)	( )	COMBINED WITH LAND USE DWG.
b. Title & revision blocks (same format as ALP drawing). Clearly label as Exhibit "A" Airport Property Map.	(X)	( )	_____
c. Legend. Use standard drafting symbols.	(X)	( )	_____
4. Specific Exhibit "A" required items:			
a. A clear identification of the outside airport property boundary.	(X)	( )	_____
b. Each parcel making up the entire airport must be shown & numbered. In addition, parcels which were once airport property must also be shown. Leased areas should not be shown.	(X)	( )	LEASED AREAS PART OF LAND USE

AIRPORT LAYOUT PLAN CHECKLIST

	YES	NO	REMARKS
c. Both fee & easement interests must be shown and separately designated.	(X)	( )	_____
d. Delineate runways, taxiways, RPZs, RSAs, OFAs, aprons, BRLs, terminal buildings, & navaids (existing/planned).	(X)	( )	_____
e. Magnetic & true north arrows.	(X)	( )	_____
f. Each line type which identifies airport boundary, parcel boundary, RPZs, BRLs, easements, etc. must be clearly shown in the legend.	(X)	( )	_____
g. The plan view with related data table and/or notes must show an inventory of all parcels by number, including the grantor, grantee, type of interest, acreage, book & page, & date of recording. They must also show FAA project number if acquired under a grant; PFC application number if acquired with Passenger Facility Charges; Surplus Property Transfer or AP-4 Agreement if applicable; type of easement (clearing, avigation, utility, right of way, etc.); and if released, date of FAA approval.	(X)	( )	_____
h. The purpose of acquisition if acquired under a Federal grant (approach protection, aeronautical, noise compatibility, current or future development) based on the grant description must be indicated plus any special conditions.	(X)	( )	_____
i. If the Exhibit "A" is being prepared for submittal as part of a land acquisition project, the parcels being acquired must also be shown.	(X)	( )	_____
j. The Exhibit "A" must be drawn to scale, all information must be on one sheet if possible, & should be no larger than the ALP drawing sheet size & be legible. There should be an index sheet if the Exhibit "A" involves several sheets for the larger airports.	(X)	( )	_____
k. The Exhibit "A" must be dated & amended whenever there is a change to any airport property.	(X)	( )	_____
l. There should be sufficient descriptive data (i.e., section, township & range, lot & block, metes & bounds) to enable accurate location of current & future parcels on the drawing.	(X)	( )	_____

AIRPORT LAYOUT PLAN CHECKLIST

	YES	NO	REMARKS
m. Points of reference for tracing parcels from a deed description by scaling should be shown. As new parcels are acquired, the Exhibit "A" should add their associated bearings & lengths to enable quick confirmation of the parcel's location.	(X)	( )	_____
n. Perimeter fencing, only if it does not obscure airport boundary lines.	(X)	( )	_____

Specific Instructions:

1. If used for ALP workscope preparation purposes, YES or NO should be checked for each checklist item to indicate whether or not it is required for the ALP drawings for the given airport. Or, to avoid having to check every single item and help facilitate the process, only check NO for items that are not required with the understanding that if an item is not checked YES or NO (i.e., left blank or unchecked), then it is required. This should be done as a joint effort by the airport sponsor (and their consultant) and the ADO in developing the ALP workscope. Any item requiring explanations should be given as remarks.

2. If used for ALP preparation purposes, the preparer (airport sponsor and their consultant) should check YES or NO to indicate whether or not the appropriate checklist items are reflected on the ALP drawings. Any item requiring explanations should be given as remarks. The checklist completed by the preparer should (shall, if so stated in an agreed to ALP workscope) be submitted to the ADO with the draft ALP drawings.

3. If used for ALP review purposes, the ADO reviewer should check YES or NO to indicate whether or not all appropriate checklist items were reflected on the ALP drawings in a satisfactory manner. Any item requiring explanations should be given as remarks. The checklist completed by the ADO should be submitted to the preparer with the marked-up draft ALP drawings.

References:

The ALP checklist above is based primarily on Appendix 7 of AC 150/5300-13, Airport Design, including changes 1 through 5. Change 5 is dated 2/14/97. Appendix 7 covers ALP components and preparation. The Airport Property Map (Exhibit "A") component of the ALP checklist is based primarily on AC 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects, dated 3/29/96.