MASTER PLAN

SOUTHWEST WASHINGTON REGIONAL AIRPORT

FINAL REPORT – FEBRUARY 2011

URS

KELSO-LONGVIEW REGIONAL AIRPORT
"Molt Taylor Field"

SOUTHWEST WASHINGTON REGIONAL AIRPORT

MASTER PLAN UPDATE

February 2011

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SOUTHWEST WASHINGTON REGIONAL AIRPORT MASTER PLAN

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CHAPTER 1 – SUMMARY REPORT

1.1 INTRODUCTION

The Southwest Washington Regional Airport (KLS), located in Cowlitz County in southwestern Washington, lies along Parrott Way and Talley Way between the Coweeman and Cowlitz Rivers, approximately two miles southeast of the city of Kelso and one mile northwest of the Interstate 5/State Route 432 Interchange.

The Southwest Washington area includes both Clark and Cowlitz Counties, with a combined population of over 500,000 as well as portions of Wahkiakum County. The Washington State Department of Transportation (WSDOT) recommended in the Long-term Air Transportation Study (LATS) that KLS be improved to function as the Regional Service Airport for Southwest Washington. A Regional Service Airport is defined as being capable of accommodating and serving the needs of business jet aircraft as well as traditional GA activity. The basic criteria for classifying airports as Regional Service facilities include:

- Airport serves a large community or multiple communities (service area population of 5,000 to 400,000),
- An ability to accommodate aircraft with maximum takeoff weight over 12,500 pounds,
- A "jet capable" runway at least 4,000 feet long,
- A low visibility instrument approach, and
- The availability of jet fuel.

Acting upon this recommendation, the City of Kelso and the Kelso Regional Airport Authority agreed to rename the Kelso Regional Airport as the Southwest Washington Regional Airport in 2009.

According to FAA records, the number of aircraft based at KLS peaked in the early 1980's with 112 aircraft. Since that time, there has been a gradual decline in based aircraft with a current resident aircraft population of 74. Aircraft operations peaked in 1979 with over 93,000 operations compared to approximately 41,000 operations in the most recent reporting period.

At present, KLS has an Airport Reference Code (ARC) of B-I. This was determined using the criteria set forth in Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-13, Airport Design. This category reflects the operating requirements of

the most demanding aircraft to regularly use the airport (those which generate 500 or more itinerant operations per year) in this case, the Beech King Air.

1.2 MASTER PLAN GOALS AND OBJECTIVES

The master plan for the Southwest Washington Regional Airport is intended to provide the following:

- To provide a framework for long-range planning,
- To graphically present preferred airport development concepts,
- To define the purpose and need for development projects,
- To comply with all applicable FAA requirements,
- To enable the airport to achieve its mission of improving it's service level to that of a Regional Service Airport,
- To assure compatible land use in the vicinity of the airport,
- To support the financial health of this regional asset, and
- To identify and justify facility requirements for anticipated airport users.

In addition, the city of Kelso identified a series of specific issues to be addressed in the master plan, including;

1. **Runway Length** – The length of the runway needs to be assessed in order to determine if additional length is required for KLS to fill the role of a Regional Service Airport.

2. **Land Acquisition** – The 2000 Master Plan and the LATS Study predicted that the number of based aircraft at KLS would continue to grow. It was forecast that up to 281 aircraft could be based there in the future. However, given current conditions, the airport only has land area available to build hangars for approximately 110 aircraft. This master plan was intended to address this issue and make recommendations as to the best approach to increasing the land area available should the based aircraft numbers increase as projected.

3. **Land Utilization** – All existing airport land should be studied and a plan developed for its maximum utilization.

4. **Precision Approach** – The plan must be developed to evaluate, establish, and activate an instrument approach with the lowest possible minimums, possibly an LPV Approach. This planning will include coordination with FAA's Flight Procedures Division to preliminarily assess the best strategy to acquiring this improved procedure. In addition, all planning should look to the future and assure a path to NEXTGEN compatibility.

5. **Drainage** – The plan must acknowledge both existing and future drainage issues associated with the area from the airport to the Coweeman River. Recognizing that much of this area is off airport, the Master Plan needs to consider the drainage impacts of recommended improvements and make suggestions as to how to mitigate these.

6. **Wildlife Mitigation** – Portions of airport property that are currently undeveloped have become attractive to wildlife, particularly deer and geese with an increasing presence of other species. In order to keep the airport's operation safe, the city contracted with the USDA to develop a Wildlife Assessment and Management Plan. The Master Plan Update incorporates the results and recommendations from this study into the Airport Layout Plan and Airport Capital Improvement Program.

7. **Land Use Compatibility** – An Aviation Land Use Compatibility Plan was developed to identify zoning and land use regulations for all the land within the Airport Influence Area. The goal is to protect the airport from encroachment and the public from potential hazards.

8. **Governance** – The Master Plan Update examined alternative governance models for the airport that are consistent with the support and management of a Regional Service Airport and meet all of FAA's requirements for airport sponsorship.

9. **Business Plan** – The Master Plan Update reviewed and provided guidance on operating the airport as a business. It included a review of existing airport operations and regulations, financial management, airport management, market factors, land use and economic benefits.

1.3 MASTER PLAN PROCESS

The master plan will satisfy the need of the City to establish a 20-year vision for the airport and update and verify the results of studies that were completed since the previous master plan was adopted. Preparation of the master plan involved a linear process that consisted of the following steps.

Determination of Airport Requirements: Under this step the existing airport facilities were inventoried, 20-year activity forecasts were developed, and an assessment made regarding the need for facility expansion, maintenance and enhancement projects to meet the anticipated demand increases.

Alternative Development Options: After the needs of the airport's users were identified in Step 1, a series of analyses were conducted to assure that these are met in a manner that is compatible with the community and the environment. The primary alternatives focused on runway extension and hangar development.

Implementation Planning: Upon adoption of a final 20-year airport plan, plans were developed to provide details on phasing, financing and construction of the individual projects that are the building blocks of the 20-year development program.

Coordination and Public Participation: Throughout the preparation of the master plan, the project team coordinated with the users of the airport, governmental agencies, civic groups and residents of the area.

1.4 COORDINATION AND PUBLIC INPUT

A coordination program was initiated at the beginning of the study to provide a means for ongoing communication between the City of Kelso, FAA, airport stakeholders and users, and community representatives. Information concerning the study's progress was disseminated to the airport users and the public to promote the plan's recommendations through a series of five technical advisory committee meetings, three open public meetings and individual coordination meetings with state and local groups and agencies.

Public presentations were made at the completion of the demand forecast, at the completion of the alternative analysis and at the completion of the implementation plan.

1.5 STUDY FINDINGS

1.5.1 AVIATION DEMAND FORECASTS

Forecasting future aviation demand is a key step in the master planning process. The demand forecasts provide the primary basis for determining the type, size, and timing of future aviation facility development at the airport. Consequently, the demand forecasts influence nearly all subsequent phases in the development of the master plan update.

Aviation demand forecasts ultimately serve four purposes in development of the master plan; specifically, they provide the basis for:

- Determining the necessary capacity of the airfield, apron areas, and airside/landside access circulation and parking facilities;
- Determining the airport's role and resulting size and type of expansion needed for existing facilities to accommodate future demand;
- Estimating the potential environmental effects of the airport's operation on the surrounding community, such as noise and air quality impacts; and
- Evaluating the financial feasibility of alternative airport development proposals.

The demand forecasts developed for KLS assumed that all aircraft that desire to base at the airport could be accommodated without regard to the current basing capacity.

Total airport operations at KLS are shown in Exhibit 1-1.

Exhibit 1.1: Summary of Forecasts

	2007	2012	2017	2022	2027
Based Aircraft					
Single-Engine Piston	66	74	78	81	84
Multi-Engine	4	7	10	14	17
Turbojet	1	2	4	5	7
Rotor	0	0	0	0	0
Other	3	3	2	1	1
Total	74	86	94	101	109
Annual Operations					
Itinerant					
Air Taxi	1,745	1,889	2,045	2,214	2,397
General Aviation	18,489	20,017	21,670	23,460	25,398
Military	714	773	837	906	980
Total Itinerant	20,948	22,679	24,552	26,580	28,775
Local					
General Aviation	19,912	21,556	23,337	25,265	27,351
Military	0	0	0	0	0
Total Local	19,912	21,556	23,337	25,265	27,351
Total Annual Operations	40,860	44,235	47,889	51,845	56,126

STUDY RECOMMENDATIONS

The following improvements were recommended for KLS after a thorough examination of the contribution and impact they would have on both the airport and the community. A detailed maintenance program for airside and landside facilities was also formulated to preserve the existing airport infrastructure. The Airport Capital Improvement Program (ACIP) consists of actions that continue to support the development of the airport by providing growth in airfield access and infrastructure for aeronautical purposes with nominal to no increased negative impact on the airport's environs. After careful analyses the planning team finalized a series of development recommendations for the various areas of the airport. Included in these recommendations are:

AIRFIELD IMPROVEMENTS

To accommodate the needs of the business jets that are expected to use the airport in the future, as well as to meet the LATS criteria for a Regional Service Airport, it is recommended that the runway be extended to a total length of 5,500 feet (an extension of 600 feet).

Taxiway A needs to be relocated to provide for the minimum separation distance of 240 feet that is specified in the FAA Design Criteria for a BII airport.

A new, non-precision instrument approach procedure should be provided to Runway 30 to increase the general useability of the airport.

All current obstructions to the FAR Part 77 Surfaces that exist on airport property should be removed.

Any obstructions to FAR Part 77 Surfaces off airport property should be addressed and either removed or lighted to assure that future approach capabilities are not adversely impacted.

GENERAL AVIATION IMPROVEMENTS

Aircraft based at KLS are stored in several areas. These include private hangars on land leased from the City, City-owned T-hangars leased to private parties and apron tiedown positions. The long-term based aircraft forecast for KLS anticipates 109 aircraft at the airport by 2027. Although the forecast number of aircraft appears to be within the overall capacity of the airport, the high level of demand for hangar space currently exceeds the supply available at the airport. With 39 additional aircraft anticipated to base at the airport over the 20-year-planning period, the majority of aircraft will need to be

accommodated in hangars since this is the preference of the aircraft owner community at KLS. In addition to this anticipated growth, 19 city-owned hangars on the west side of the runway are planned for removal due to their penetration of the FAR Part 77 Imaginary Surfaces. Furthermore, 19 additional west side hangar positions (one city owned and 18 private facilities) are also planned for eventual removal/replacement due to their age and condition. Combining the number of additional new hangars with those needed to replace existing facilities, 71 new hangars need to be planned for and located under the Alternatives analysis of this Plan.

OTHER

In support of these major facility improvement and expansion projects are a series of recommendations that are also required at KLS. These include;

- Conduct detailed Environmental Analyses prior to any major facility construction,
- Assure that utility systems are expanded to match development needs,
- Extend security fencing and access road systems where necessary, and
- Evaluate Land Use Regulatory changes to accommodate on-site development recommendations.

AIRPORT LAYOUT PLAN

The recommended improvements, shown graphically on the attached Airport Layout Plan represent the City's vision for the future development at the Southwest Washington Regional Airport.

Exhibit 1.2: Airport Layout Plan

ALP TO BE INSERTED HERE UPON FINAL APPROVAL

Contents

CHAPTER 2 – EXISTING CONDITIONS INVENTORY

2.1 INTRODUCTION

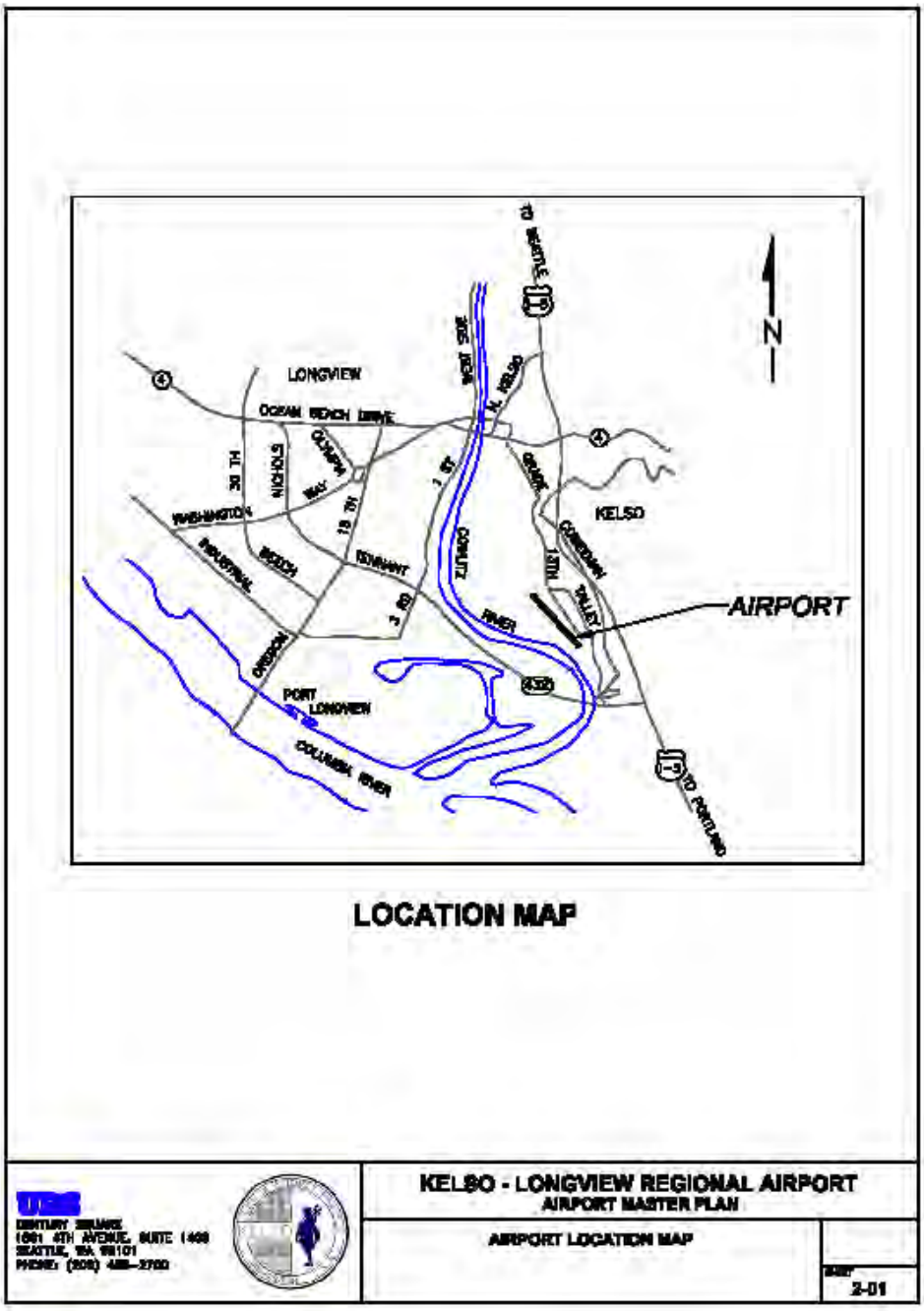
The Kelso-Longview Regional Airport (KLS), located in Cowlitz County in southwestern Washington, lies along Parrott Way and Talley Way between the Coweeman and Cowlitz Rivers, approximately two miles southeast of the city of Kelso and one mile northwest of the Interstate 5/State Route 432 Interchange. The location of the airport is shown in Exhibit 2-1 on the following page.

The airport falls within the Southwest Washington Special Emphasis Area, one of four areas within Washington identified by the State Legislature as being of particular significance under the on-going Washington State Department of Transportation Long-Term Air Transportation Study. The Southwest Washington area includes both Clark and Cowlitz Counties and portions of Wahkiakum County, with a combined population of over 500,000.

The Kelso-Longview Regional Airport was initially served by a grass landing strip until receiving a paved runway in the 1950s. The first major upgrade the airport received occurred in the 1980s with reconstruction and realignment of the runway, along with construction of the east side parallel taxiway. Talley Way was also realigned in the 1980s in anticipation of eventual extension of Runway 30.

According to FAA records, the number of aircraft based at the airport peaked in the early 1980's with 112 aircraft. Since that time, there has been a gradual decline in the number of aircraft based at the airport, with a resident aircraft population of 74 aircraft cited in the most recent reports. Aircraft operations peaked in 1979 with over 93,000 operations compared to approximately 41,000 operations in the most recent reporting period.

The purpose of this chapter of the Master Plan is to document the existing conditions at the airport as a basis for planning changes and improvements that may be needed in the future to address changing conditions and circumstances at the airport. The information contained in this chapter has been compiled from a variety of sources including the previous Master Plan Update, review of FAA records and other public documents, site inspections, as well as interviews with airport management and others. The information regarding the physical airport conditions presented in this chapter was current at the time it was written as of July 2008. Sections including data and statistics were updated in June 2010 to better reflect conditions at the time of publishing.



LOCATION MAP

[author block redacted]	KELSO - LONGVIEW REGIONAL AIRPORT AIRPORT MASTER PLAN
	AIRPORT LOCATION MAP
	SHEET 2-01

2.2 EXISTING AIRPORT PLANS AND DOCUMENTATION

2.2.1 2000 MASTER PLAN UPDATE

The existing Kelso-Longview Regional Airport Master Plan Update was published in October, 2000 and covered the 20-year period from 1999 to 2018. Aviation demand forecasts contained in this Master Plan Update anticipated the number of based aircraft to increase by nearly 50 percent over the planning period reaching 113 aircraft by 2018. Aircraft operations were anticipated to increase by 33 percent over the same period, totaling nearly 51,000 annual operations. The Update anticipated increased activity over time by business class aircraft, particularly noted by a growing percentage of corporate jet operations.

Key recommendations of the Master Plan Update included extending the runway approximately 605 feet to the south and removing airspace obstructions to better accommodate higher performance business class aircraft anticipated to use the airport in the future. The Update also recommended development of additional support and basing facilities for corporate and other general aviation aircraft on the east side of the airport.

The 2000 Master Plan Update also recommended a series of facility improvements at the airport. The exhibit below highlights some of the key changes proposed in the MPU and notes the implementation status of each item. A more comprehensive list of projects and improvements was presented in the Capital Improvement Program (CIP) under the Financial Plan of the Master Plan Update. A project-by-project review of the previous CIP will be conducted later in the preparation of the Master Plan once airport facility requirements have been updated.

Exhibit 2-2: 2000 MPU Project Recommendations

MPU Recommendation	Implementation Status
Remove obstructions to airspace	Obstructions in Rwy. 12 Approach Surface removed. Rwy. 12 displaced threshold removed.
Extend runway 605 feet south	Remains to be implemented
Relocate Talley Way to accommodate runway extension	Remains to be implemented
Develop new corporate aircraft facility area	Alternate corporate hangars location were identified and one hangar was constructed.
Construct additional general aviation hangars	Partial implementation. Additional hangar development in progress.
Construct new midfield crossover taxiway from airport's west side	Remains to be implemented
Undertake comprehensive pavement rehabilitation for airport pavements	On-going
Replace aged, outdated navigation, lighting and security systems	On-going

Source: 2000 MPU

2.2.2 Applicable Federal/State Plans

FAA National Plan of Integrated Airport Systems

The Kelso-Longview Regional Airport is listed in the FAA's National Plan of Integrated Airport Systems (NPIAS). The NPIAS is used by FAA to identify 3,300 airports nationwide deemed significant to the national air transportation system. Airports listed in the NPIAS are eligible to receive Federal grants under the Airport Improvement Program (AIP) to help fund certain airport improvements.

In the NPIAS, KLS is classified as a General Aviation airport which is defined as follows:

> Communities that do not receive scheduled commercial service or that do not meet the criteria for classification as a commercial service airport may be included in the NPIAS as sites for general aviation airports if they account for enough activity (usually at least 10 locally based aircraft) and are at least 20 miles from the nearest NPIAS airport. The activity criterion may be relaxed for remote locations or in other mitigating circumstances.

> The 2,574 general aviation airports in the NPIAS tend to be distributed on a one-per-county basis in rural areas and are often located near the county seat. These airports, with an average of 33 based aircraft, account for 40 percent of the nation's general aviation fleet. They are the most convenient source of air transportation for about 19 percent of the population and are particularly important to rural areas.

The NPIAS is a planning tool used by the FAA to assess national aviation system performance and does not make specific recommendations relative to individual airports.

WASHINGTON STATE DEPT. OF TRANSPORTATION LONG-TERM AIR TRANSPORTATION STUDY

The Washington State Department of Transportation (WSDOT) Long-Term Air Transportation Study (LATS), in progress, represents WSDOT's most current perspective on the State aviation system and KLS's role in it. Under the LATS study, KLS is identified as a Regional Service facility under the classification system used by the state. The basic criteria for classifying airports as Regional Service facilities include:

- Airport serves a large community or multiple communities (service area population of 5,000 to 400,000),
- An ability to accommodate aircraft with maximum takeoff weight over 12,500 pounds,
- a "jet capable" runway at least 4,000 feet long,
- a low visibility instrument approach, and
- the availability of jet fuel.

The Kelso-Longview Regional Airport was classified as a Regional Service Airport under the WSDOT Long-Term Air Transportation Study.

Regional Service Airports may be located in large metropolitan areas, or serve multiple communities. They should be capable of handling high performance aircraft including regional/corporate jets, air ambulances and turboprops. Regional Service airports are assumed to draw from a service area within approximately 60 minutes drive time, while Regional Service Airports in lightly populated areas draw population from as far away as a 90 minute drive. As stated in the LATS, WSDOT's goal for providing access to Regional Service airports is for nearly every Washington resident to have access to a "jet-capable" Regional Service or comparable Commercial Service airport within a 90 minute

drive time. The following exhibit identifies those Washington and Oregon airports reflected in the FAA NPIAS that are in proximity to KLS.

Exhibit 2-3: NPIAS Airports in KLS Vicinity

Airport	NPIAS Classification	WSDOT LATS Classification	Relative Distance & Drive Time
Washington Airports			
Olympia	Commercial Service/Non-Primary	Regional Service	60 miles north/ 60 minutes
Chehalis-Centralia	General Aviation	Local Community > 10 Aircraft	38 miles north/ 38 minutes
Toledo-Winlock (Carlson Memorial Field)	General Aviation	Local Community > 10 Aircraft	25 miles north/ 30 minutes
Pearson Field	General Aviation	Local Community > 10 Aircraft	40 miles south/ 40 minutes
Packwood	General Aviation	Local Community < 10 Aircraft	93 miles northeast/ 105 minutes
Oregon Airports			
Portland Hillsboro Airport	Reliever	Not Applicable	68 miles southwest/ 76 minutes
Portland Troutdale Airport	Reliever	Not Applicable	56 miles southeast/ 56 minutes
Portland Int'l Airport, Oregon	Commercial Service/Primary	Not Applicable	47 miles south/ 46 minutes
Scappoose Airport	General Aviation	Not Applicable	34 miles south/ 55 minutes
Astoria Regional, Oregon	General Aviation	Not Applicable	53 miles southwest/ 83 minutes

Source: URS Corporation

In addition to LATS criteria for classification as a Regional Service Airport, the study also sets forth objectives for the level of facilities and services to be provided at Regional Service airports. The LATS performance objectives for Regional Service facilities are presented below, along with the status of KLS's level of compliance:

Exhibit 2-4: WSDOT LATS Performance Objectives for Regional Service Airports

Regional Service Airport Performance Criteria		KLS Status as of 2000 MPU
Standard runway safety area		✓
Runway Pavement Condition Index (PCI) Value of 75		✓(PCI 81-100)
Taxiway Pavement Condition Index Value of 70		✓(Twy. "A" PCI 81-100)
Apron Pavement Condition Index Value of 70		✓(North Apron PCI 81-100) ✗ (South Apron PCI 21-80)
No obstacles in threshold siting surface		Obstructions Removed
No obstacles in obstacle free zone		✓
Planning documents less than 7 years old		✗
Compatibility policies in comprehensive plan		✓ (Minimal)
Appropriate zoning designation for airport		✓
Land use controlled in runway protection zones		✓ (Partial)
Height hazard zoning or regulations		✓
Zoning discourages incompatible development		✓ Airport Overlay Zone
Runway Length	5,000 feet	✗
Taxiway	Parallel	✓
Instrument Approach	Lower than ¾ mile visibility minimum	✗
Lighting	Medium intensity	Non-Standard
Visual Glide Slope Indicators	VASI/PAPI	✓
Weather Reporting	AWOS or ASOS	✓
Fuel Sales	Jet A and 100LL	✓
Maintenance Service	Major	✓

Source: WSDOT LATS, URS Corporation

Key: ✓ Meets Criterion, ✗ Does Not Meet Criterion

2.3 EXISTING AIRPORT FACILITIES

2.3.1 AIRSIDE

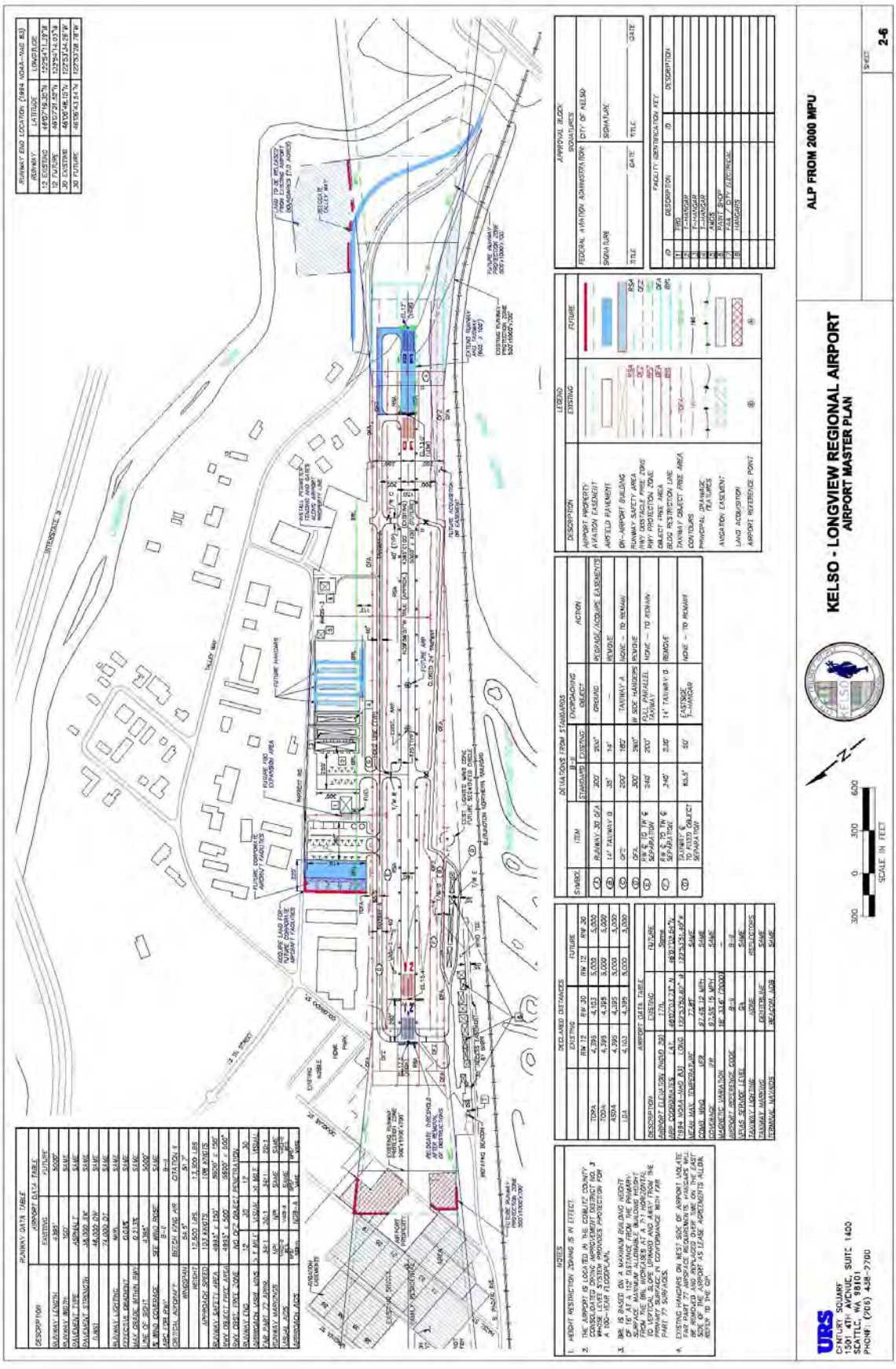
The existing airside facilities at KLS are depicted on the FAA approved Airport Layout Plan drawing as well as summarized on the drawing's data tables. The following exhibit summarizes existing runway facility data at the airport. The approved ALP from the Master Plan Update is presented in Exhibit 2-6.

Exhibit 2-5: Runway Data

Designation	Runway 12/30	
Length	4,391'[1]	
Width	100'	
Pavement Type	Asphalt	
Pavement Strength (in lbs.)		
Single Wheel	38,000	
Dual Wheel	46,000	
Dual Tandem Wheel	74,000	
Lighting	Medium Intensity Runway Lighting (MIRL)	
Effective Gradient	0.09%	
Maximum Grade within Rwy.	0.213%	
Line of Sight	4,391'	
Percent Wind Coverage	VFR	IFR
10.5 knots/12 mph Crosswind	99.57%	99.94%
13 knots/15 mph Crosswind	99.91%	99.99%
Airport Reference Code	B-II	
Critical Aircraft	Beech King Air	
Wingspan	54.5'	
Weight	12,500 lbs.	
Approach Speed	103 knots	
Runway Safety Area	4,991' x 150'	
Object Free Area	4,991' x 500'	
Obstacle Free Zone	No Penetrations	
Runway End Designation	12	30
Approach Visibility Minimums	> 1 mile	Visual
FAR Part 77 Approach Slope	34:1	20:1
Runway Markings	Non-Precision Instrument	Non-Precision Instrument
Visual Aids	PAPI-4 REIL, MIRL	PAPI-4 REIL, MIRL
Approach Aids	GPS/NDB-A	NDB-A

Source: 2000 MPU Airport Layout Plan

Note: 2000 Master Plan Update/Airport Layout Plan indicate runway length is 4,395' however official FAA records reflect 4,391'.


KELSO - LONGVIEW REGIONAL AIRPORT
AIRPORT MASTER PLAN
ALP FROM 2000 MPU
URS
CENTURY SQUARE
1501 4TH AVENUE, SUITE 1450
SEATTLE, WA 98101
PHONE: (206) 438-2700
SCALE IN FEET
SHEET 2-6
RUNWAY DATA TABLE
AIRPORT DATA TABLE
RUNWAY END LOCATION (1984 NOAA-NAD 83)
DECLARED DISTANCES
DEVIATIONS FROM STANDARDS
LEGEND
APPROVAL BLOCK
FACILITY IDENTIFICATION KEY
NOTES

The declared distances for Runway 12/30 for Take-Off Run Available (TORA), Take-Off Distance Available (TODA), Accelerate Stop Distance Available (ASDA) and Landing Distance Available (LDA) are all 4,391 feet.

TAXIWAYS AND APRONS

Taxiway "A" is an unlighted full length parallel taxiway located on the east side of Runway 12/30. The taxiway is 40 feet wide, with a 65.5 foot Taxiway Object Free Area (TOFA) consistent with Airplane Design Group II standards.

The separation distance between the Runway 12/30 and Taxiway A centerlines is 200 feet. This is less than the 240 feet called for in FAA Design Standards for B-II visual runways and instrument runways with visibility minimums not less than ¾ statute mile.

Two aircraft aprons for transient and long-term parking are available immediately north and south of the east side FBO facility. The north apron is approximately 2.5 acres in size, while the slightly smaller south apron is 2 acres. Long-term plans in the 2000 MPU call for expanding the northerly apron to approximately 5 acres in size to accommodate development of corporate aircraft facilities.

PAVEMENT CONDITION

An evaluation of KLS pavement condition was conducted in 2005 under contract to WSDOT/Aviation as part of an update to the Washington Airport Pavement Management System and funded, in part, by the FAA. The evaluation, published in early 2006, was prepared using the Pavement Condition Index (PCI) procedure described in FAA Advisory Circular 150/5380-6A and produced a series of PCI values for airport pavements. The PCI values were analyzed using MicroPAVER pavement management software to provide a series of recommendations for pavement management and rehabilitation at the airport. The recommendations were compiled into a short-term program for actions to be implemented from 2006 through 2012. The recommended actions were not a subject to financial constraint that is it was assumed that monies were available to undertake actions as needed.

Under the evaluation, airport pavements were classified into one of three general categories based on their PCI values and use. The categories generally included pavements requiring no or only preventive maintenance, pavements requiring rehabilitation, and pavements requiring reconstruction. In addition, the report anticipated future pavement maintenance requirements through 2015 based on models of natural pavement wear and deterioration over time. The goal of the program recommendations is to maintain the pavements above critical PCI values.

The pavement evaluation determined that, in 2005, KLS had nearly 1 million square feet of paved surface area, approximately one-half of that devoted to the runway. The vast majority of airport pavement was found to be in good condition with high PCI index ratings and subject only to normal preventive maintenance measures over time. The only pavement found to require major reconstruction was the apron/fueling apron immediately adjacent to and west of the FBO building. Two other small pavement areas required rehabilitation comprised of asphalt overlays. Airport pavements subject to the recommended actions are noted in Exhibit 2-7 on the following page. The balance of airport pavements required only normal preventive maintenance efforts. As of mid-2008 most of these actions remain to be implemented. The new Airport Capital Improvement Program (ACIP) to be developed as part of this master plan will reconsider many of the recommendation made in the 2006 Pavement Conditions Report.

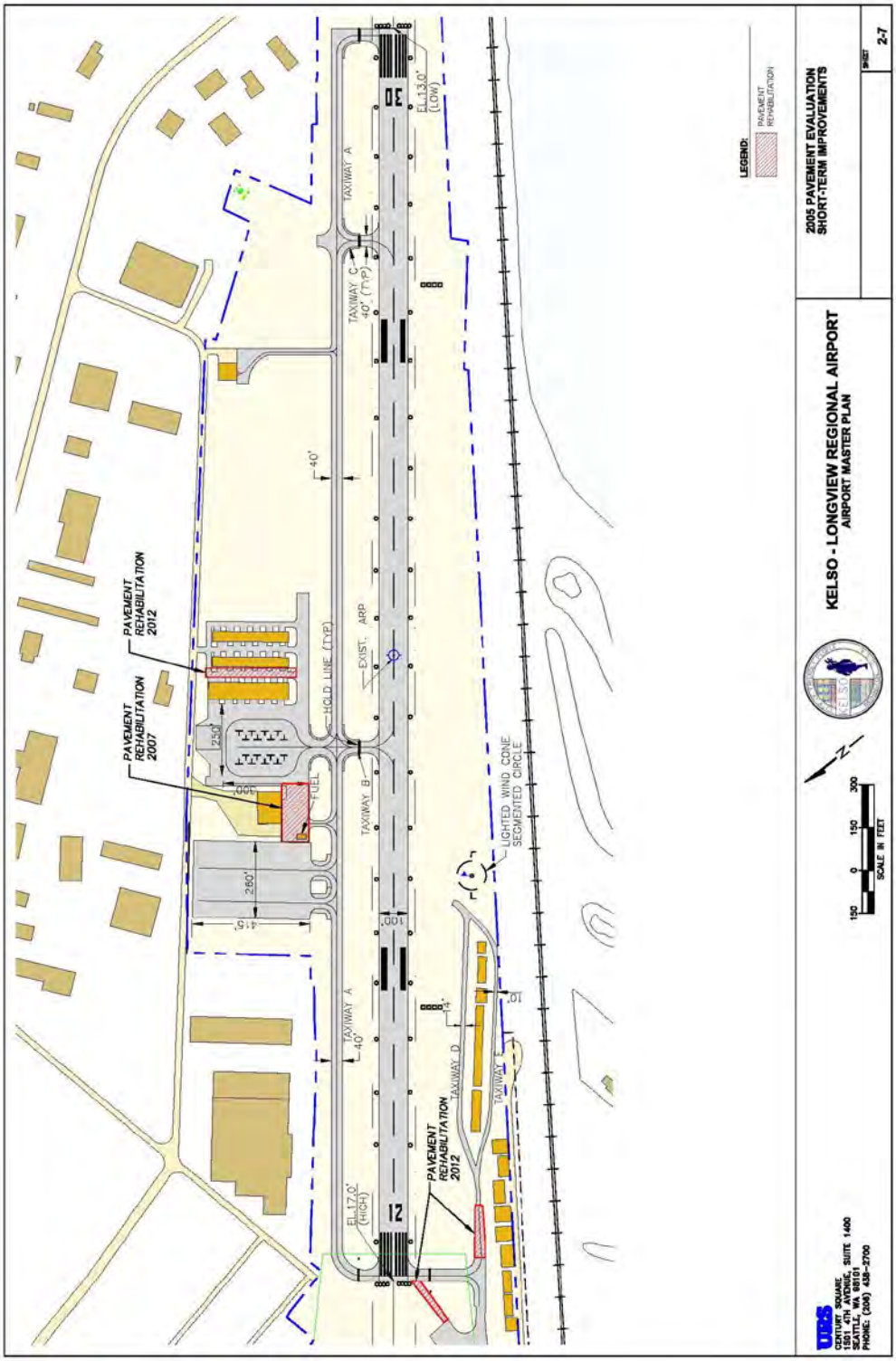
SIGNAGE

Airport runways and taxiways are identified by signs at key locations and intersections as needed.

NAVIGATION AND LANDING AIDS

The following visual and electronic aids to navigation and landing are available at KLS:

- Visual Aids
  - Rotating Beacon
  - Segmented circle with lighted wind cone
  - Precision Approach Path Indicator (PAPI) systems to each runway end.
  - Runway End Identifier Lights (REIL)
- Electronic Aids
  - Non-Directional Beacon (radio navigation aid)


KELSO - LONGVIEW REGIONAL AIRPORT
AIRPORT MASTER PLAN
2005 PAVEMENT EVALUATION
SHORT-TERM IMPROVEMENTS
SHEET 2-7
LEGEND:
PAVEMENT REHABILITATION
PAVEMENT REHABILITATION 2012
PAVEMENT REHABILITATION 2007
PAVEMENT REHABILITATION 2012
TAXIWAY A
TAXIWAY B
TAXIWAY C
TAXIWAY D
TAXIWAY
HOLD LINE (TYP)
EXIST. ARP
FUEL
LIGHTED WIND CONE SEGMENTED CIRCLE
EL 13.0' (LOW)
EL 17.0' (HIGH)
30
12
40'
250'
260'
100'
SCALE IN FEET
150
0
150
300
N
URS
CENTURY SQUARE
1501 4TH AVENUE, SUITE 1400
SEATTLE, WASHINGTON
PHONE: (206) 438-2700

PUBLISHED INSTRUMENT APPROACHES

There are two Non-Precision Instrument Approaches published for KLS - a GPS approach for Runway 12 and a NDB/GPS-A approach. Ceiling and visibility minima for the GPS approach are 960 feet msl and 1¼ mile visibility. The NDB/GPS-A approach has a minimum ceiling of 1,120 msl and a visibility of 1¼ miles. The approach plates for KLS are presented in Exhibits 2-8 and 2-9.

RUNWAY SAFETY AREAS (RSA, OFA AND RPZ)

The FAA has defined a series of areas around runways and taxiways intended to restrict development or placement of objects or structures which may cause damage to aircraft or injuries to passengers. Each of these areas and their design standards, as applicable to KLS, are described below. The dimensions of the various safety areas at KLS are cited in the runway data table above (see Exhibit 2-5).

- **Runway Safety Area** (RSA) - A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. The FAA design standards for Airplane Design Group II runways serving approach category A and B aircraft and runway visibility of not less than ¾ statute mile is 150 wide, centered on the runway and extending 300 feet beyond each runway end. Under the KLS MPU, the existing runway RSA was found to meet FAA design standards.

- **Object Free Areas** (OFA) - A two-dimensional ground area surrounding runways, taxiways, and taxilanes that is clear of objects except those whose location is fixed by function. The Runway OFA dimension is 500 feet, centered on the runway, and extending 300 feet beyond each runway end. The FAA dimensional standard for Taxiway OFAs at airports serving Airplane Design Group II aircraft is 131 feet, centered on the taxiway.

- The MPU found the southwest corner of the runway OFA to be encroached upon by Burlington Northern Railroad property. The affected area extends approximately 750 feet north from the Runway 30 threshold and varies in width from 100 feet at the south end to 50 feet at the north.

Exhibit 2-8: GPS Runway 12 Approach Plate

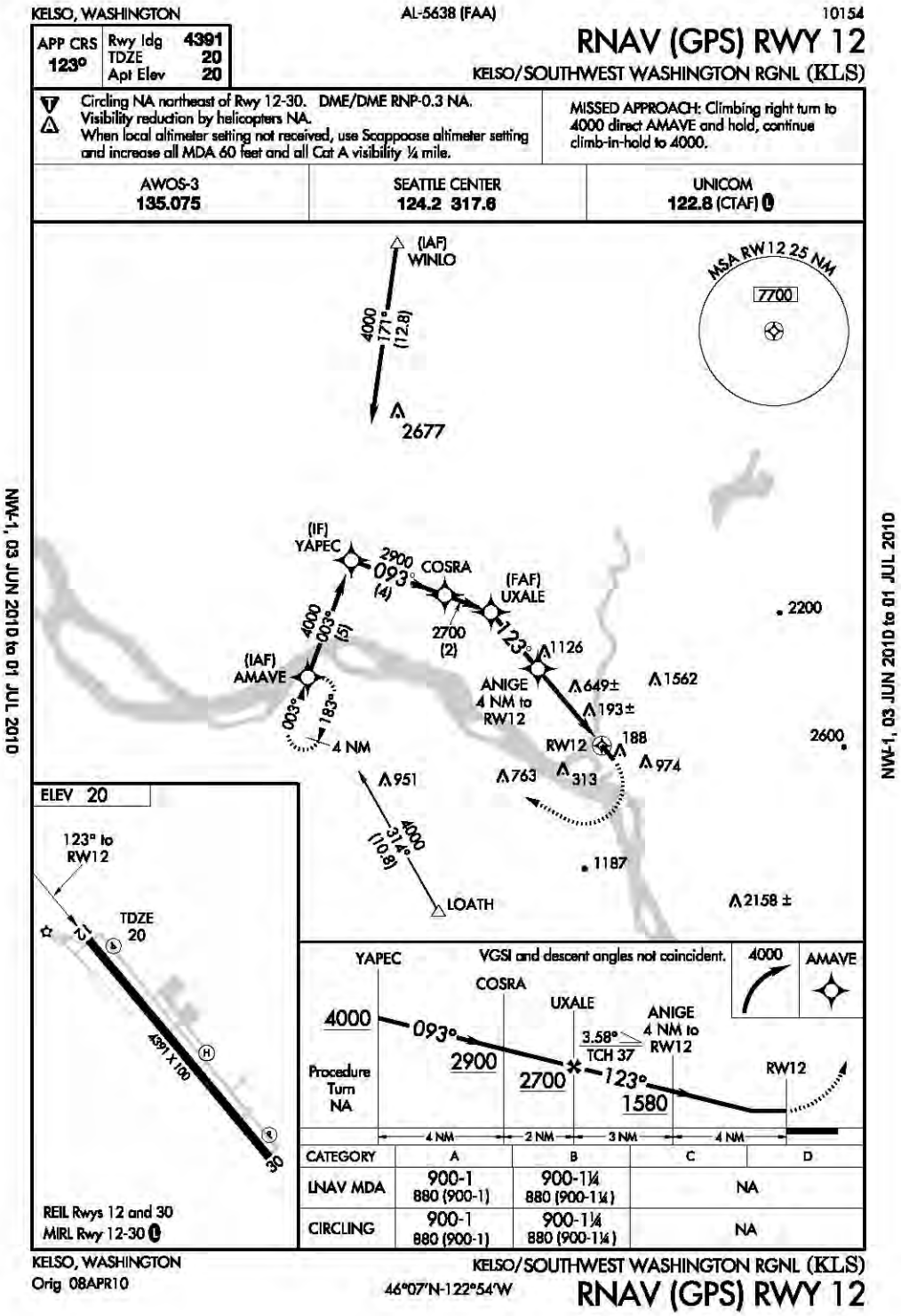
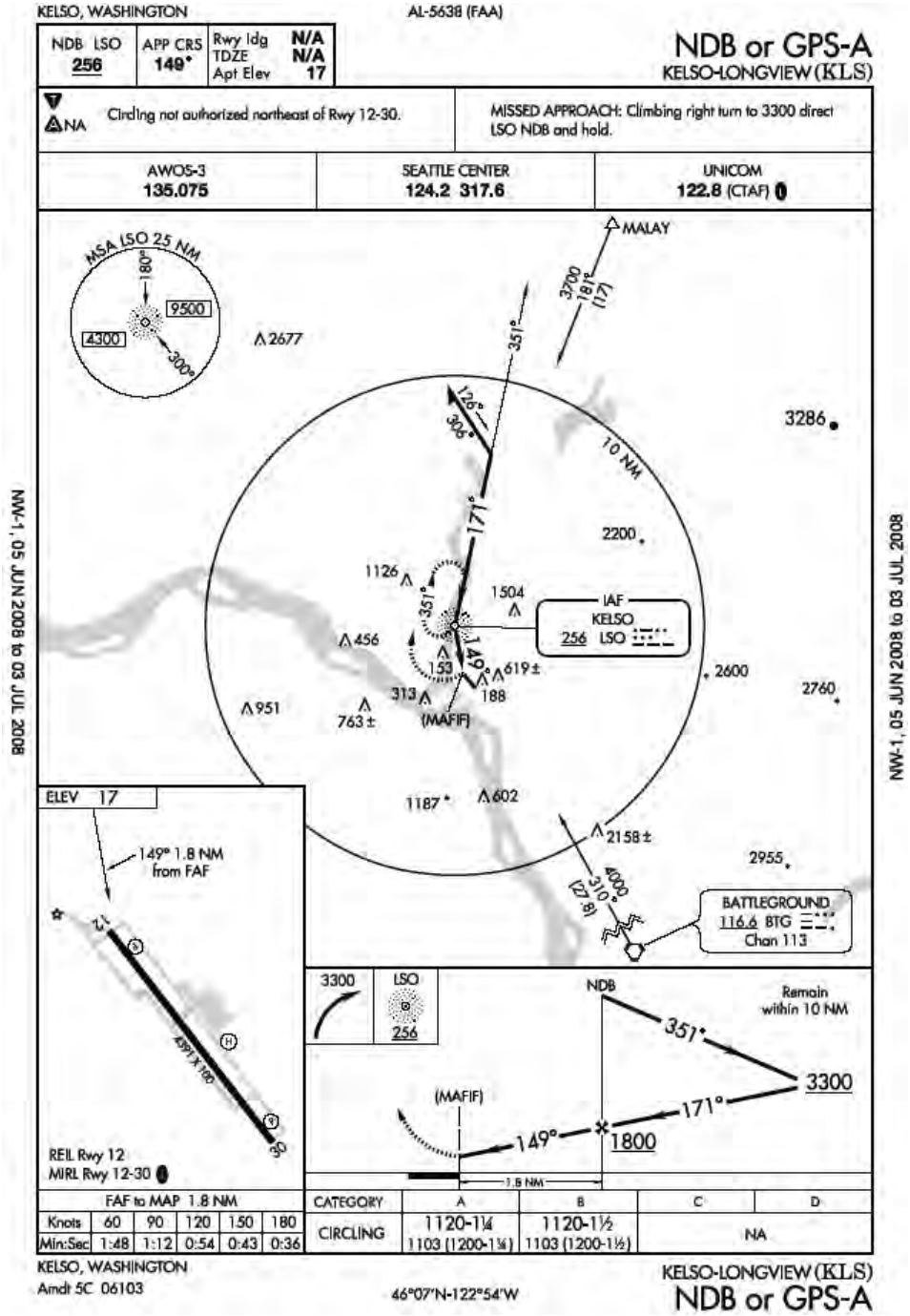


Exhibit 2-9: NDB/GPS-A Approach



Source:www.FltPlan.com

The MPU recommended acquiring an easement in this area from the railroad and re-grading in the OFA to meet FAA design standards. If Runway 12/30 is extended to the south, the OFA will need to be extended and additional land area added to the easement. As of June 2010 the city of Kelso is pursuing a long-term lease agreement with the railroad.

- **Runway Protection Zones (RPZs)** – The RPZ is the ground area under the approach surface which extends from the primary surface to a point where the approach surface is fifty feet above the ground. This was formerly known as the clear zone. The FAA recommends that the airport control land use activity within the RPZ, particularly through ownership of the land.

  The RPZ dimensions applicable to KLS (approach category A & B aircraft, visibility minimums not lower than 1 mile) are 500 feet wide at the inner end, 700 feet wide at the outer end and 1,000 feet long. The 2000 MPU indicated that outer portions of the Runway 12 RPZ, while not owned by the airport do have Avigation Easements in place, as do additional properties immediately beyond the end of the RPZ. The Plan Update indicates that those properties within the RPZ are proposed for acquisition in the future. In addition, portions of the Runway 30 RPZ are outside airport control, including a section of the RPZ falling within Burlington Northern Railroad right-of-way in the southwesterly corner, and that portion of the RPZ overlying the Talley Way right-of-way along its eastern boundary. The encroachment of the Talley Way right-of-way on the existing RPZ would be removed if the roadway is relocated as a result of a runway extension as contemplated in the MPU.

- **Runway Object Free Zone (OFZ)** - The airspace defined by the Runway OFZ is clear of object penetrations other than frangible NAVAIDS. The OFZ constitutes the airspace above a surface centered on the runway centerline, which extends 200 feet beyond the runway end and, based on current FAA design standards, has a total width of 250 feet for runways serving small planes with an approach speed of 50 knots or more. Runway 12/30 at KLS appears in compliance with FAA design standards.

FAR PART 77 SURFACES

The Part 77 Surfaces surrounding the airport are protected by an Airport Overlay Zone incorporated into local zoning regulations. As noted in the runway data table (Exhibit X), the approach surface to Runway 12 is 34:1 based on the non-precision instrument

approach available to the runway. Runway 30 is a Visual runway with a 20:1 approach slope.

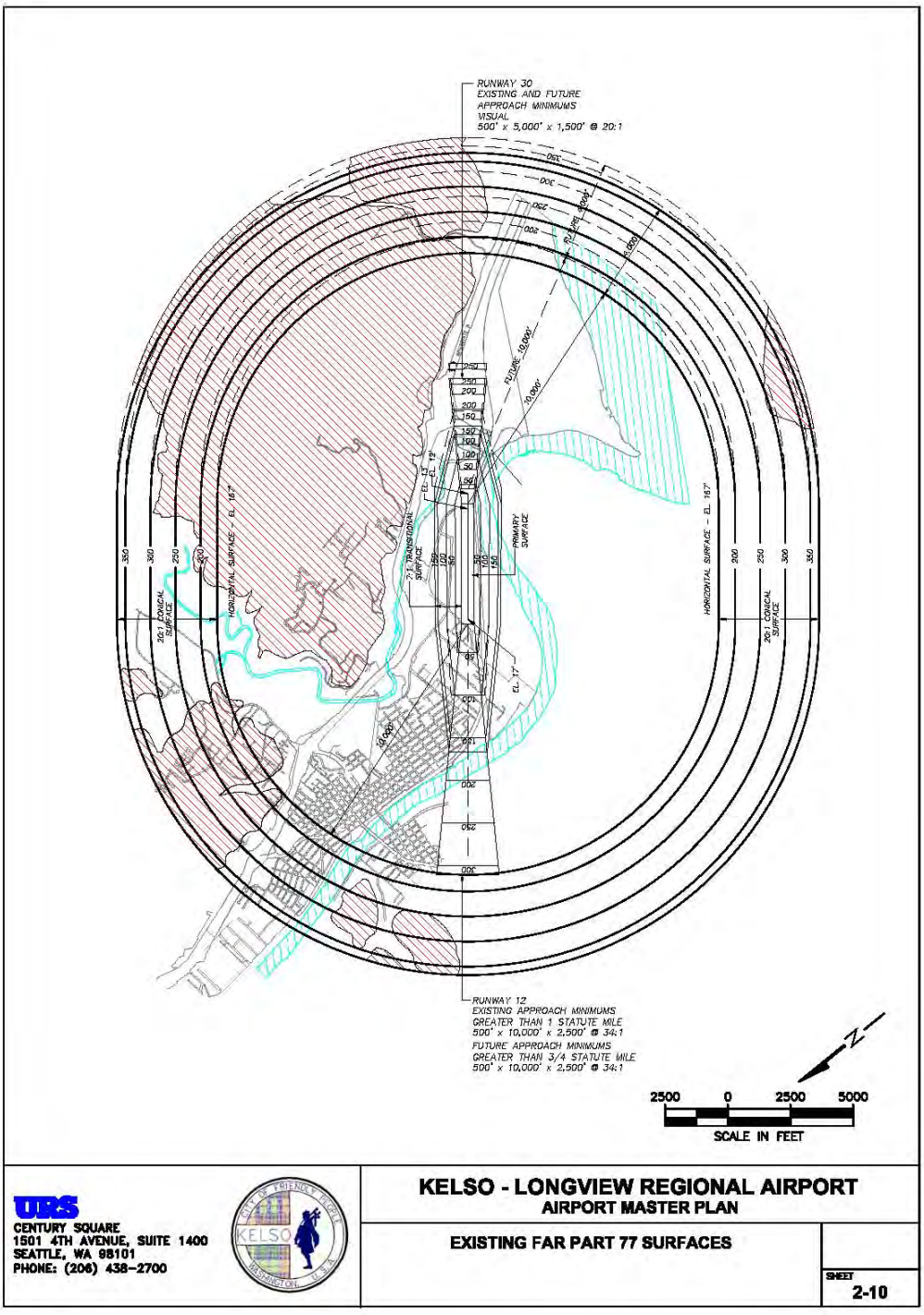
The 2000 MPU noted penetrations of the Part 77 horizontal and conical surfaces surrounding the airport, particularly due to terrain penetrations north, east, southeast and southwest of the airport. In addition, a large number of penetrations to both the east and west side transitional surfaces due primarily to trees and structures, aircraft hangars on the west side of Runway 12/30. The Plan Update indicates that the hangars that represent Part 77 obstructions will eventually be removed and or relocated.

The Part 77 Surfaces for KLS are presented in Exhibit 2-10, along with the most current available data on existing obstructions and penetrations of the surfaces.

DEVIATIONS FROM FAA DESIGN STANDARDS

The Airport Reference Code and level of precision for instrument approaches are key determinants in the FAA design standards applied to the airport. As noted under the runway data table (Exhibit 2-5), the Airport Reference Code (ARC) for the airport and Runway 12/30 is B-II based on the Beech King Air business aircraft. The visibility minimum for landing at KLS is 1¼ statute miles.

The 2000 MPU found certain deviations from FAA design standards at the airport. Some deviations were temporary and scheduled for correction over time. Other deviations were expected to remain as permanent conditions. In addition, some of the deviations occurred only at specific locations and did not necessarily represent a deficiency in all locations where the FAA standards applied.


RUNWAY 30
EXISTING AND FUTURE
APPROACH MINIMUMS
VISUAL
500' x 5,000' x 1,500' @ 20:1
FUTURE 16,000'
10,000'
PRIMARY SURFACE
7:1 TRANSITIONAL SURFACE
HORIZONTAL SURFACE - EL. 167'
20:1 CONICAL SURFACE
EL. 17'
EL. 13'
EL. 12'
RUNWAY 12
EXISTING APPROACH MINIMUMS
GREATER THAN 1 STATUTE MILE
500' x 10,000' x 2,500' @ 34:1
FUTURE APPROACH MINIMUMS
GREATER THAN 3/4 STATUTE MILE
500' x 10,000' x 2,500' @ 34:1
N
2500 0 2500 5000
SCALE IN FEET
URS
CENTURY SQUARE
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101
PHONE: (206) 438-2700
KELSO - LONGVIEW REGIONAL AIRPORT
AIRPORT MASTER PLAN
EXISTING FAR PART 77 SURFACES
SHEET
2-10

The following deviations from FAA design standards were noted during the existing conditions inventory at KLS:

Exhibit 2-11: 2000 MPU Deviations from Standards

Item	ARC B-II Standard	Existing Condition	MPU Recommended Corrective Action
Runway 30 OFA control and grading	300’	200’	Temporary condition. Acquire easement and re-grade.
Runway 12/30 OFZ Twys “A” & “D” encroachment	250’	Varies 180 to 250 feet	No action on Twy “A” , deviation to remain. Twy “D” to be removed after hangars relocated.
Runway to Taxiway “A” separation distance	240’	200’	No action. Taxiway “A” deviation to remain.
Runway to Taxiway “D” separation distance	240’	230’	Taxiway “D” to be removed after hangars relocated.
Taxiway “D” width	35’	14’	Taxiway “D” to be removed after hangars relocated.
Taxiway “A” CL to fixed object separation	65.5’	50’	No action. East side T-hangar to remain.
Taxiway “D” CL to fixed object separation	65.5’	+/- 40’	Taxiway “D” to be removed after hangars relocated.

Source: URS Corp.

2.3.2 LANDSIDE

FIXED BASE OPERATOR (FBO) AND SUPPORT SERVICES

The Fixed Base Operator (FBO) at KLS is Kelso Aviation. Support services provided by the FBO include full and self-service aviation fuel sales, pilot supplies, internet access, flight training and aircraft rental. Additional services available on airport include aircraft maintenance through NW Airtech, a provider of major airframe and power plant repairs who also works in association with Kelso Aviation.

Other support services available to aircraft operators include an aircraft washdown pad located northeast of the existing east side T-hangars. The washdown pad is provided with an oil/water separation system.

AIRCRAFT BASING CAPACITY

Aircraft basing capacity, as reported in the 2000 MPU, totaled 118 aircraft consisting of 70 hangar positions, 46 apron tiedowns and two rotorcraft parking positions. Thirty hangar positions, including a maintenance hangar, are located east of Runway 12/30, with the remaining 40 hangar positions located on the northwest side of the airport. As of

mid-2008, the City of Kelso entered into a land lease agreement with a developer intending to construct three large corporate hangars and thirty T-hangars immediately north of the east-side detention pond. The hangars will be constructed in phases and paved taxiways for the hangars are already in place. The additional hangars may or may not increase overall basing capacity at the airport depending on how many are allocated as replacement units for west side hangars planned for removal.

As previously noted, aircraft tiedown aprons are located immediately north and south of the FBO facilities east of Runway 12/30. The apron on the south side of the FBO facility has 16 designated tiedown positions. The north side apron has 29 designated tiedowns, including four tiedowns for large twin-engine aircraft.

Fuel Storage and Dispensing Facilities

Aircraft fuel service available at KLS includes 100LL and Jet A. There is a 24-hour, self-service, credit card pump facility available. The fueling station, airside of and adjacent to the FBO facility, consists of three underground storage tanks. Tank capacities accommodate fuel storage totals of 12,000 gallons of JetA and 24,000 gallons of 100LL. There are no provisions for fuel spill containment.

Utilities and Public Services

The airport has a full range of urban services available as follows:

- Water and sewer service to the airport are provided by the City of Kelso.
- Electric power is provided by the Cowlitz Public Utility District No. 1.
- Telephone service is provided by Qwest.
- Natural gas is provided by Cascade Natural Gas.
- Police protection for the airport is provided by the City of Kelso.
- Fire/Rescue services are contracted by the city through Cowlitz County Fire District No. 2.

Perimeter Fencing

Security fencing is in place around the majority of the airport property boundary, however a segment of the western airport property boundary adjacent to the Burlington Northern Santa Fe railroad right-of-way remains unfenced. In this area, the railroad property boundary extends into the runway Object Free Area and construction of a fence would constitute an obstruction in violation of FAA design standards. Otherwise, fencing is in place in those areas of the airport most frequented by the public and vehicle access points are gated.

AIRPORT BUILDINGS

Existing buildings at KLS east of the runway include the Kelso Aviation FBO facility along Parrot Way, three banks of T-hangars south of the FBO and a stand-alone corporate hangar further south beyond the storm water detention pond. All of these facilities access Runway 12/30 via Taxiway "A".

West of Runway 12/30 in the northwest corner of the airport along South Pacific Avenue are various T- and individual aircraft hangars, as well as the former FBO building which now houses the Civil Air Patrol. The buildings parallel the runway and airside access is provided via Taxiway "D". The northerly group of hangars have single-side access and are backed up tightly against the street right-of-way. The more southerly group of T-hangars have aircraft access to both their east and west sides. The 2000 MPU notes the age and condition of these structures, as well as their penetration of the Part 77 Transitional Surface. The MPU recommended eventual removal and/or reconstruction of these buildings.

Overall, there are 68 buildings on airport dedicated to aircraft storage. The City of Kelso owns 50 of theses hangars and 18 are owned by private individuals. The privately owned hangars are located on land leased from the city. On-airport structures, including their use and relative condition are noted in the following exhibit.

Exhibit 2-12: Airport Buildings

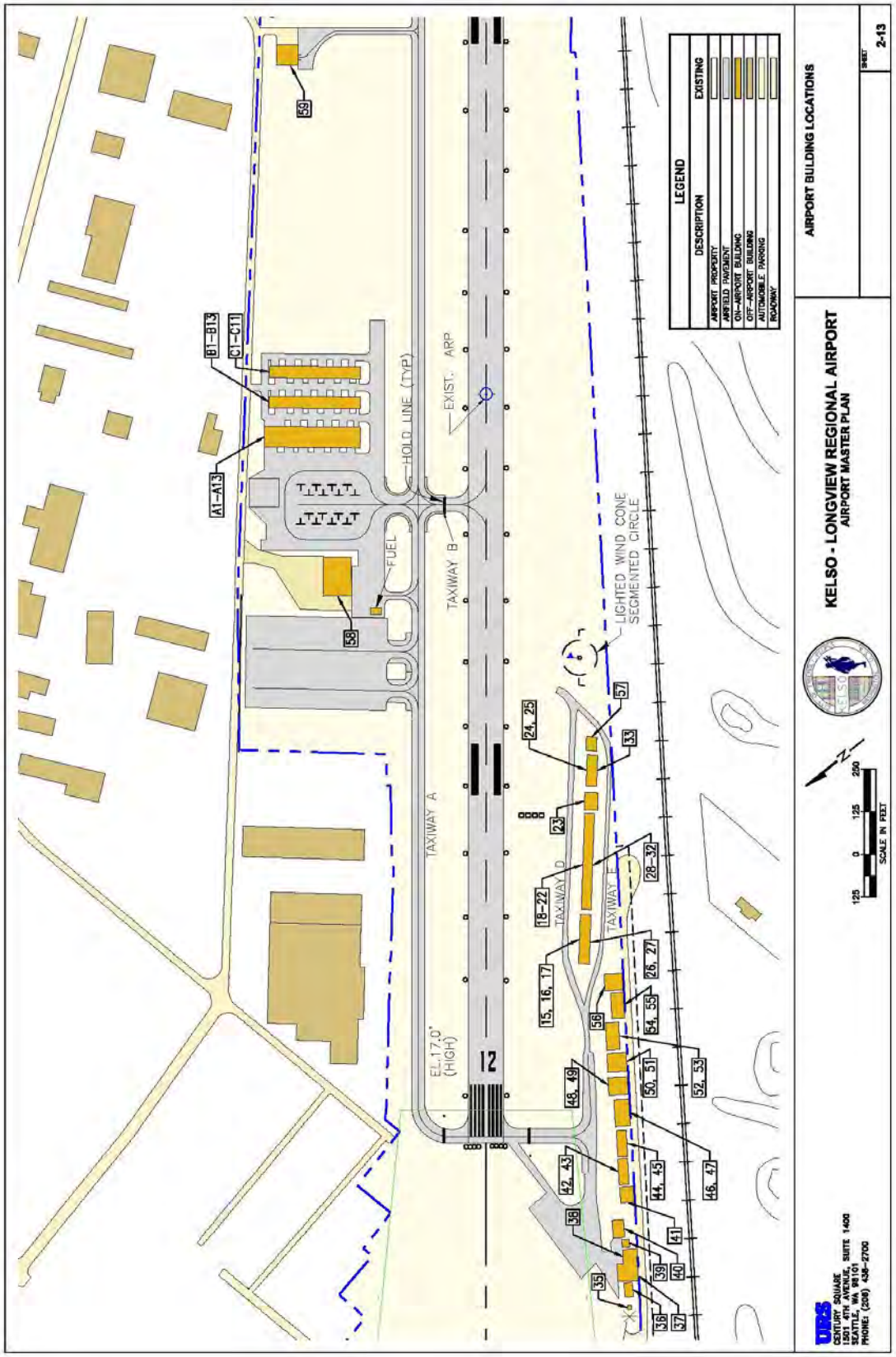
ID#	Use	Ownership	Condition[1]	Comments/Additional Information
NW Hangars				
15	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
16	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
17	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
18	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
19	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
20	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
21	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
22	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
23	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
24	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
25	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
26	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
27	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
28	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
29	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
30	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
31	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
32	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
33	Aircraft Storage	City	Poor	Violates FAR Part 77 Surface. Planned for removal or reconstruction.
34				
35	Airport Beacon	FAA		Planned for removal/replacement
36	Aircraft Storage	Private	Poor	Planned for removal/replacement
37	Aircraft Storage	Private	Poor	Planned for removal/replacement
38	Aircraft Storage	Private	Poor	Planned for removal/replacement
39	Vehicle Storage	City	Poor	Planned for removal/replacement
40	Offices	City	Fair	Planned for removal/replacement
41	Aircraft Storage	City	Poor	Planned for removal/replacement
42	Aircraft Storage	Private	Fair	Planned for removal/replacement
43	Aircraft Storage	Private	Fair	Planned for removal/replacement
44	Aircraft Storage	Private	Fair	Planned for removal/replacement
45	Aircraft Storage	Private	Fair	Planned for removal/replacement
46	Aircraft Storage	Private	Good	Planned for removal/replacement
47	Aircraft Storage	Private	Good	Planned for removal/replacement
48	Aircraft Storage	Private	Good	Planned for removal/replacement
49	Aircraft Storage	Private	Good	Planned for removal/replacement
50	Aircraft Storage	Private	Good	Planned for removal/replacement
51	Aircraft Storage	Private	Good	Planned for removal/replacement
52	Aircraft Storage	Private	Good	Planned for removal/replacement
53	Aircraft Storage	Private	Good	Planned for removal/replacement
54	Aircraft Storage	Private	Fair	Planned for removal/replacement
55	Aircraft Storage	Private	Fair	Planned for removal/replacement
56	Aircraft Storage	Private	Poor	Planned for removal/replacement
57	Airport Support	City	Poor	Planned for removal/replacement
58	Airport Support	?	Good	Kelso Aviation FBO Facility
59?	Aircraft Storage	Private	Good	Clary Aviation jet aircraft hangar

Exhibit 2-12: Airport Buildings (cont'd)

ID#	Use	Ownership	Condition[1]	Comments/Additional Information
Southeast Hangars				
A-1	Aircraft Storage	City	Good	No Issues
A-2	Aircraft Storage	City	Good	No Issues
A-3	Aircraft Storage	City	Good	No Issues
A-4	Aircraft Storage	City	Good	No Issues
A-5	Aircraft Storage	City	Good	No Issues
A-6	Aircraft Storage	City	Good	No Issues
A-7	EAA Storage	City	Good	No Issues
A-8	Aircraft Storage	City	Good	No Issues
A-9	Aircraft Storage	City	Good	No Issues
A-10	Aircraft Storage	City	Good	No Issues
A-11	Aircraft Storage	City	Good	No Issues
A-12	Aircraft Storage	City	Good	No Issues
A-13	Storage	City	Good	No Issues
B-1	Aircraft Storage	City	Good	No Issues
B-2	Aircraft Storage	City	Good	No Issues
B-3	Aircraft Storage	City	Good	No Issues
B-4	Aircraft Storage	City	Good	No Issues
B-5	Aircraft Storage	City	Good	No Issues
B-6	Storage	City	Good	No Issues
B-7	Aircraft Storage	City	Good	No Issues
B-8	Aircraft Storage	City	Good	No Issues
B-9	Aircraft Storage	City	Good	No Issues
B-10	Aircraft Storage	City	Good	No Issues
B-11	Storage	City	Good	No Issues
C-1	Storage	City	Good	No Issues
C-2	Aircraft Storage	City	Good	No Issues
C-3	Aircraft Storage	City	Good	No Issues
C-4	Aircraft Storage	City	Good	No Issues
C-5	Aircraft Storage	City	Good	No Issues
C-6	Storage	City	Good	No Issues
C-7	Aircraft Storage	City	Good	No Issues
C-8	Aircraft Storage	City	Good	No Issues
C-9	Aircraft Storage	City	Good	No Issues
C-10	Aircraft Storage	City	Good	No Issues
C-11	Aircraft Storage	City	Good	No Issues

Source: Kelso Longview Regional Airport Master Plan 2000. Since the Master Plan was completed several of the buildings listed have been surveyed and found to not be in violation of FAR Part 77.

Note: [1]Building condition as reported by City and/or exterior visual survey


KELSO - LONGVIEW REGIONAL AIRPORT
AIRPORT MASTER PLAN
AIRPORT BUILDING LOCATIONS
LEGEND
DESCRIPTION
EXISTING
AIRPORT PROPERTY
AIRFIELD PAVEMENT
ON-AIRPORT BUILDING
OFF-AIRPORT BUILDING
AUTOMOBILE PARKING
ROADWAY
SCALE IN FEET
125 0 125 250
SHEET 2-13
B1-B13
C1-C11
A1-A13
HOLD LINE (TYP)
EXIST. ARP
FUEL
TAXIWAY B
TAXIWAY A
TAXIWAY D
TAXIWAY E
LIGHTED WIND CONE
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SEATTLE, WA 98101
PHONE: (206) 438-2700

2.4 ENVIRONMENTAL DATA

2.4.1 SURFACE WATER MANAGEMENT

Surface run-off is captured via a series of open swales, subsurface drains and piping and transported to the east side of the airport, following the direction of natural drainage, where it discharges into an open drainage channel which ultimately ties into the municipal storm drain system located along Parrott Road and Talley Way. Using both piped and open drainage channels, the municipal system transports storm run-off to the northeast eventually discharging into a slough adjacent to the Coweeman River. A pumping station located on the slough pumps storm run-off over the levee into the river.

As part of the project to construct new aircraft hangars on the east side of the airport, a detention pond has been created to capture, temporarily store storm run-off and even the rate of discharge into the municipal system from the east side hangar development area. The detention pond discharges into an existing open drainage channel along Parrott Road immediately north of the airport's primary drainage channel.

2.4.2 SOILS AND GEOLOGY

Soils data for the airport was compiled from the U.S. Department of Agriculture Natural Resources Conservation Service. Three basic soil types dominate the airport. All three soils are very deep mixed alluvial deposits found in flood plains and include:

Newberg Fine Sandy Loam, 0 to 3 percent: This soil covers the northerly portion of the airfield runway and taxiway system from the vicinity of the segmented circle, extending north to the airport boundary – including the northwest hangars. This soil can be subject to brief periods of occasional flooding during the December to March rainy season. As a result, it is rated "severe" for construction of buildings and roads due to its flood potential. This soil type carries American Association of State Highway and Transportation Officials (AASHTO) ratings ranging from A-2 (excellent to good) to A-4 (fair to poor). This rating system, in use since 1929, serves as a guide to the suitability of soils for use as subgrade material for road and highway construction.

Clato Silt Loam, 0 to 3 Percent: Clato Silt Loam underlies the vast majority of the airfield operating area south of the segmented circle. Although runoff rates are slow, the soil is considered well drained and rarely floods. Clato soils have an AASHTO classification of A-4 – which constitutes a fair to poor rating as subgrade material.

Caples Silty Clay Loam, 0 to 3 Percent: This soil covers much of the airport east of Taxiway "A", including the FBO and east side hangars and development area. The soil has slow permeability and is slow to run off resulting in a high water table from November through April, although actual flooding is rare. Good drainage is needed around buildings and foundations and measures should be taken to protect against shrinking and swelling of the soil. Caples Silty clay Loam has an AASHTO classification of A-6, well into the "fair to poor" classification as subgrade material.

2.4.3 WETLANDS DELINEATION

Wetlands are defined as under the Washington State Wetland Identification and Delineation Manual (1997) or as amended, as those areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. Land areas meeting the wetland designation criteria, regardless of any formal identification or designation as wetlands, must be considered critical areas and are subject to provisions and restrictions as formally designated areas.

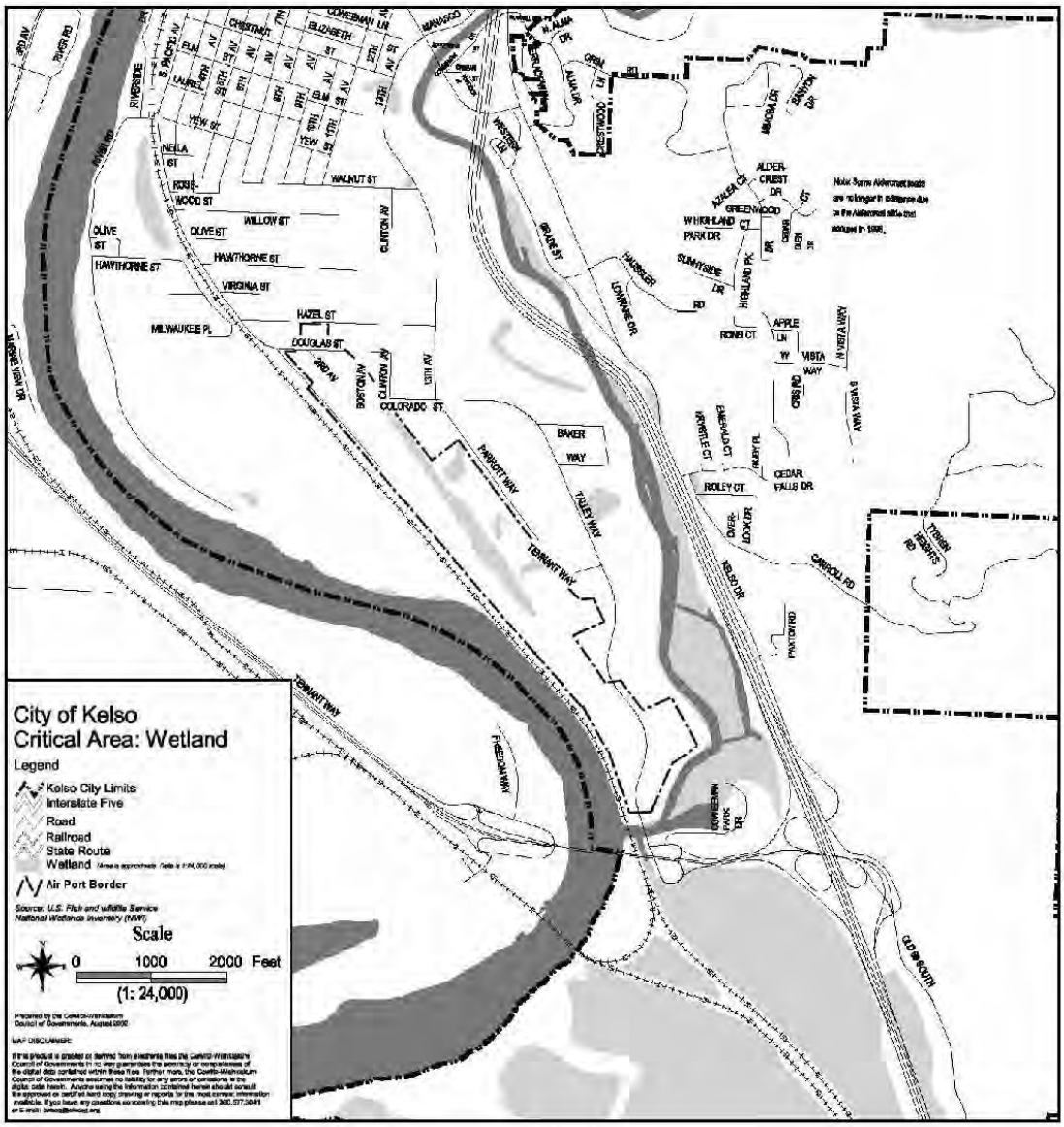
Wetlands are rated based on the Washington State Wetland Rating System developed by the Washington State Department of Ecology. Under the rating system, wetlands are categorized as follows:

- **Category I**. Those wetlands that meet one or more of the following criteria:
  - Natural Heritage Wetlands;
  - Bogs;
  - Mature or old growth forested wetlands;
  - High quality regional wetlands with irreplaceable ecological functions; or
  - Wetlands that perform many functions and score 70 points or more.
- **Category II.** Those wetlands possessing significant habitat value and functions based on a score of 51-69 points.
- **Category III.** Those wetlands with a moderate level of functions based on a score between 30-50 points.
- **Category IV.** Those wetlands that meet the following criterion:
  - a) Wetlands with a low level of functions based on a score of less than 30 points.

Periodic inundation or seasonal high water levels do not necessarily mean that an area meets the definition of a wetland as a variety factors must be present to meet the criteria. Restrictions on the use of wetlands vary by category level and the land use activities proposed.

The 2000 MPU stated that there was an area of approximately 2 acres south of runway 30, and an additional area of approximately 0.1 southeast of Runway 30 that that might meet the definition of jurisdictional wetlands – however no formal delineation of wetlands had been made. In 2002, the Cowlitz-Whakiakum Council of Governments prepared a Critical Area map delineating the approximate location of areas delineated as wetlands under the U.S. Fish and Wildlife Service Nation Wetlands Inventory, however the age and reliability of the data upon which it is based is unknown. The map, entitled *City of Kelso Critical Area: Wetland,* delineates the approximate location of four areas on airport identified as wetland. The largest wetland area appears to be adjacent and parallel to the airport runway/taxiway system and is assumed to be part of the airfield's surface drainage system. Three additional wetland pockets are identified in the vicinity and south of the airport's east side development area. One of these areas is currently committed to the existing runway/taxiway drainage system. An excerpt of the wetland area map is depicted along with approximate airport boundaries in Exhibit 2-14 below on the following page.

Due to the continuing uncertainty as to whether and where airport lands may meet wetlands criteria, onsite determinations should be performed prior to undertaking any significant projects. In fact, given that there are already wetland areas identified on the Kelso Critical Areas map, it is likely that KLS would need to obtain a Critical Areas Permit under KMC 18.20.050. Under the permit process a preliminary wetland report may be required. If the report states there are wetlands, a full delineation, including buffering recommendations, would be required.



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KELSO - LONGVIEW REGIONAL AIRPORT
AIRPORT MASTER PLAN

CITY OF KELSO CRITICAL AREA: WETLANDS

SHEET 2-14

2.4.4 WIND DATA/WIND ROSE

Wind coverage indicates the percentage of time that crosswind components are within acceptable velocity. For the purpose of runway wind analysis, a crosswind component can be defined as the wind that occurs at a right angle to the runway centerline. FAA guidelines recommend that an airport's runway system provide wind coverage of 95 percent. If wind coverage is less than 95 percent, it is recommended that additional runways be constructed.

The wind coverage percentages for Runway 12/30 were presented under Exhibit 2-5, along with additional runway data. Wind roses were prepared for both VFR and IFR conditions and cross-wind components of 12 miles per hour (10.4 knots) and 15 miles per hour (13 knots) based on observation data from 2000 through 2008 as provided by the National Climatic Data Center in Asheville, North Carolina. The wind rose indicates that the existing runway provides wind coverage of 99.91 percent for 15 mph crosswinds under Visual conditions and 99.99 percent during Instrument conditions, well beyond FAA threshold criteria for wind coverage.

Exhibit 2-15: Runway 12/30 Percent Wind Coverage

Crosswind Velocity	VFR	IFR
12 mph Crosswind	99.57%	99.94%
15 mph Crosswind	99.91%	99.99%

Source: National Climatic Data Center, Asheville, North Carolina – data from 2000 through 2008.

2.5 HISTORICAL AND CURRENT AVIATION ACTIVITY

2.5.1 AIRPORT SERVICE AREA

The Kelso-Longview Regional Airport is one of eight airports located within the Southwest Washington Region analyzed under the LATS study. This Region is considered generally representative of the airport's service area. The SW Region encompasses Cowlitz and Clark Counties and has a population base of approximately 500,000. Four of the eight airports in the SW region are small privately owned/public use facilities. These airports can accommodate a combined total of over 1.5 million aircraft operations and 706 based aircraft. Based on 2005 aircraft operations levels, KLS contributes 15 percent of the SW Region's operations capacity while experiencing 25 percent of the Region's operations demand. In 2005, KLS was operating at 14 percent of its overall operations capacity of 230,000 annual operations.

Exhibit 2-16: Airport Service Area Airport Operations

	Ownership	NPIAS	WSDOT LATS	Ops Capacity	2005 Ops	% Utilization
Kelso-Longview	Public	GA	Regional Service	230,000	32,110[1]	14%
Grove Field	Public	GA	Community Local > 10 Aircraft	230,000	7,775	3%
Pearson Field	Public	GA	Community Local > 10 Aircraft	180,000	63,050	35%
Cedars North Airpark	Private	NI	Recreation/Remote	172,500	1,500	1%
Evergreen Field[2]	Private	NI	Recreation/Remote	172,500	27,000	16%
Fly for Fun	Private	NI	Recreation/Remote	230,000	2,250	1%
Goheen Field	Private	NI	Recreation/Remote	172,500	18,900	11%
Woodland State	Public	NI	Recreation/Remote	172,500	5,600	3%
Total Ops				**1,560,000**	**126,019**	**6%**

Source: WSDOT LATS.

Note: [1]2005 Operations data reported in LATS differs from FAA TAF data.

[2]Evergreen Field was reported closed as of July, 2006.

NI = Not Included

Exhibit 2-17: Airport Service Area Based Aircraft

	Tiedown Capacity	Hangar Capacity	Total Capacity	2005 Based Aircraft	% Utilization
Kelso-Longview	90[1]	64[1]	154[1]	85	55%
Grove Field	13	80	93	67	72%
Pearson Field	22	154	176	175	99%
Cedars North Airpark	0	6	6	6	100%
Evergreen Field	105	54	159[2]	60	38%
Fly for Fun	7	4	11	9	82%
Goheen Field	20	72	92	50	57%
Woodland State	5	15	20	17	85%
Totals	**262**	**449**	**711**	**469**	**66%**[3]

Source: WSDOT LATS.

Note: [1]WSDOT LATS reported KLS basing capacity differs from the 116 cited in the 2000 MPU.

[2] Evergreen Field was closed during the course of the WSDOT LATS study.

[3] Evergreen Field closure reduces SW Region capacity to 552 based aircraft and increases the utilization rate to 85 percent.

Using LATS data, the based aircraft capacity of KLS represents 22 percent of the total aircraft basing capacity within the Southwest Washington Region and existing KLS based aircraft constitute 18 percent of total based aircraft within the area.

While Kelso-Longview Regional Airport primarily serves the Kelso-Longview metropolitan area of Cowlitz County, the airport's service area depends, in part, on aircraft type and the level of facilities and services required.. The two closest airports to

KLS are Woodland State, 17 miles to the south along Interstate 5, and Toledo-Winlock, 25 miles to the north and beyond the SW Region boundaries. While Toledo-Winlock offers facilities and services comparable to KLS, Woodland State is a significantly lower level facility with only a 1,953 foot runway. In fact, there no Washington airports along the I-5 corridor south of KLS offer the runway length available at KLS. Aircraft owners in the Clark County area needing more than the approximately 3,300 feet of runway Pearson Airpark in Vancouver would need to either use KLS, or travel to one of the Portland metropolitan area facilities in Oregon. In contrast, aircraft owners operating small general aviation aircraft requiring only basic facilities could use any of the airports in the Region. In addition, the recent closure of Evergreen Field and constraints on Pearson Field by the U.S. National Park Service at Fort Vancouver impact 235 based aircraft, one-third of all Southwest Region aircraft and nearly 50 percent of the Southwest Region's basing capacity.

HISTORICAL AVIATION ACTIVITY

A ten-year record of based aircraft at KLS, as reported by the FAA in the current Terminal Area Forecasts, is presented in Exhibit 2-18 below.

Exhibit 2-18: Historical Based Aircraft

Year	Based Aircraft
1998	99
1999	99
2000	99
2001	87
2002	87
2003	87
2004	84
2005	84
2006	85
2007[1]	74[1]
2008	71

Source: FAA TAF 2008
Note: [1]As reported by KLS on Form 1050. Includes 3 ultralight aircraft.

The FAA Terminal Area Forecasts (TAF) also provide a record of historical aircraft operations at KLS. Aircraft operations are typically recorded by Air Traffic Control Tower (ATCT) personnel. However, in the case of KLS, where a control tower is not present, operations are usually estimated by airport management. Provided below is a ten-year breakdown of estimated historical aircraft operations, by type, as reflected in the FAA Terminal Area Forecasts.

Exhibit 2-19: Historical Aircraft Operations

	Itinerant Operations				Local Operations			
Fiscal Year	Air Taxi/ Commuter	GA	Mil	Total	GA	Mil	Total	Total OPS
1998	1,675	17,745	685	20,105	19,110	-	19,110	39,215
1999	1,675	17,745	685	20,105	19,110	-	19,110	39,215
2000	1,675	17,745	685	20,105	19,110	-	19,110	39,215
2001	1,675	17,745	685	20,105	19,110	-	19,110	39,215
2002	1,675	17,745	685	20,105	19,110	-	19,110	39,215
2003	1,675	17,745	685	20,105	19,110	-	19,110	39,215
2004	1,675	17,745	685	20,105	19,110	-	19,110	39,215
2005	1,675	17,745	685	20,105	19,110	-	19,110	39,215
2006	1,675	18,800	685	21,160	19,700	-	19,700	40,860
2007[1]	1,675	18,800	685	21,160	19,700	-	19,700	40,860
2008	1,675	18,800	685	21,160	18,700	-	19,700	40,860

Note: [1]As reported by KLS on current Form 1050. These are estimated numbers as no formal method of recording operations exists.

CRITICAL AIRCRAFT

The identification of a "Critical Aircraft' is intended to represent the largest or "most demanding" aircraft expected to use the airport on a regular basis. The Critical Aircraft's operating requirements are used to determine many of the design characteristics of the airport and FAA development standards to be applied. To be classified as such, the Critical Aircraft must be expected to perform more than 500 annual itinerant operations at the airport. The FAA uses the combined attributes of aircraft approach speed and wingspan to define an Airport Reference Code (ARC). The ARC correlates aircraft wingspan and approach speed in landing configuration to establish design standards that are applied to the various facilities and physical separations on the airfield.

The 2000 Master Plan Update for KLS defined the current Critical Aircraft as the Beech King Air (B200), a 7 to 15 passenger business class twin-engine turboprop aircraft. The aviation demand forecasts prepared under the Master Plan note that by 2003, the Critical Aircraft was expected to change to the Cessna Citation II, a 6 to 10 passenger light corporate jet aircraft.

Both the Beech King Air and the Cessna Citation II fall within the FAA's B-II Airport Reference Code classification. The relevance of the Critical Aircraft ARC classification to existing and future facility development at KLS will be discussed in subsequent chapters of this report.

2.6 EXISTING AIRPORT/COMMUNITY LAND USE COMPATIBILITY PLANNING

Land use compatibility planning for airports serves two primary functions. First, compatibility planning can be used to ensure safe aircraft operations by prohibiting land use activities that could create hazards to air navigation. Secondly, compatibility planning can minimize land use conflicts by promoting uses in the airport vicinity that are compatible with or least affected by airport operations. The Washington State Department of Transportation (WSDOT) Aviation Division has prepared a guidebook entitled "Airports and Compatible Land Use." This guidebook is intended to provide decision makers with the best available data regarding airport land use compatibility planning. This land use compatibility guidebook focuses on height hazards, safety, and noise issues as well as land use compatibility and other factors referencing compliance with Federal standards provided in 14 CFR Part 77, Objects Affecting Navigable Airspace, and supports the FAA 7460-1 program.

Under Washington law, cities and counties having public use general aviation airports are encouraged to adopt comprehensive plan policies and development regulations that discourage development of incompatible land uses adjacent to the airport – stated as follows:

> **RCW 36.70.547 - General aviation airports — Siting of incompatible uses:** Every county, city, and town in which there is located a general aviation airport that is operated for the benefit of the general public, whether publicly owned or privately owned public use, shall, through its comprehensive plan and development regulations, discourage the siting of incompatible uses adjacent to such general aviation airport. Such plans and regulations may only be adopted or amended after formal consultation with: Airport owners and managers, private airport operators, general aviation pilots, ports, and the aviation division of the department of transportation. All proposed and adopted plans and regulations shall be filed with the aviation division of the department of transportation within a reasonable time after release for public consideration and comment. Each county, city, and town may obtain technical assistance from the aviation division of the department of transportation to develop plans and regulations consistent with this section.

The KLS airspace is consists of the Part 77 Surfaces surrounding the airport and the traffic patterns and approaches available. This influence area extends over portions of the

City of Kelso, City of Longview, Cowlitz County and a small portion of Columbia County, Oregon. The types of land use occurring within this area range from high density urban development to low density or unoccupied rural land. The various land use compatibility planning measures adopted by the Washington jurisdictions are summarized below.

In addition to the requirements of RCW 36.70.547, under RCW 47.68.070, municipalities are "authorized to cooperate with the department in the development of aeronautics and aeronautical facilities in this state." The WSDOT report "Airports and Compatible Land Use" provides municipalities with a series of guidelines and land use planning strategies for a defined set of "compatibility zones" surrounding an airport.In addition to the requirements of RCW 36.70.547, under RCW 47.68.070, municipalities are "authorized to cooperate with the department in the development of aeronautics and aeronautical facilities in this state." The WSDOT report "Airports and Compatible Land Use" provides municipalities with a series of guidelines and land use planning strategies for a defined set of "compatibility zones" surrounding an airport.

2.6.1 CITY OF KELSO

COMPREHENSIVE LAND USE PLAN

At present, the Kelso Comprehensive Plan is limited in its consideration of the airport. The Plan states the following with regard to KLS:

> **Goal**: To enhance the operations and facilities of Kelso Municipal Airport so as to better serve the industrial, commercial, and financial community of the region.
>
> **Policies**:
>
> 1. The Kelso Municipal Airport should be reasonably and safely improved and maintained as a level to meet necessary service demands while limiting infringement on the residential and employ-generating industrial and economic growth occurring in South Kelso.
> 2. The city, through appropriate ordinances, should insure that there will be minimal conflicts between adjacent and nearby land uses and the airport.
> 3. If the Kelso Municipal airport becomes capable of and desirable for supporting larger, perhaps noisier aircraft, i.e. small

commercial jets, then approach zone land use restrictions should be researched and established.

4. To assure public safety and the development of compatible land uses, activities in the approach zone should be of the type that does not attract large groups of people.

It is the City of Kelso's intent to upgrade Comprehensive Plan consideration of KLS as the city's Comprehensive Plan is revised. Several model plan treatments are under consideration including WSDOT's Airport Land Use Compatibility Program and measures enacted by the City of Yakima for Yakima Air Terminal.

ZONING REGULATIONS

The Kelso-Longview Regional Airport is located within a City of Kelso ILM (Light Manufacturing/Industrial) zone which extends from the Burlington Northern Railroad tracks along the western boundary of the airport to the west bank of the Coweeman River on the east. The ILM zone extends south from the airport to State Route 432 and north, generally following along 13th Avenue South until reaching the southeast corner of the Central Business District. While Light Manufacturing/Industrial zoning would generally be considered compatible with airport operations, certain uses and activities permitted within the zone are not. Permitted but incompatible uses would include those sensitive to noise impacts or that allow large congregations of people. Airports are not specifically listed as a permitted or conditional use in an ILM zone. The existing zoning for the airport and vicinity is depicted on Exhibit 2-20.

2.6.2 AIRPORT OVERLAY ZONE

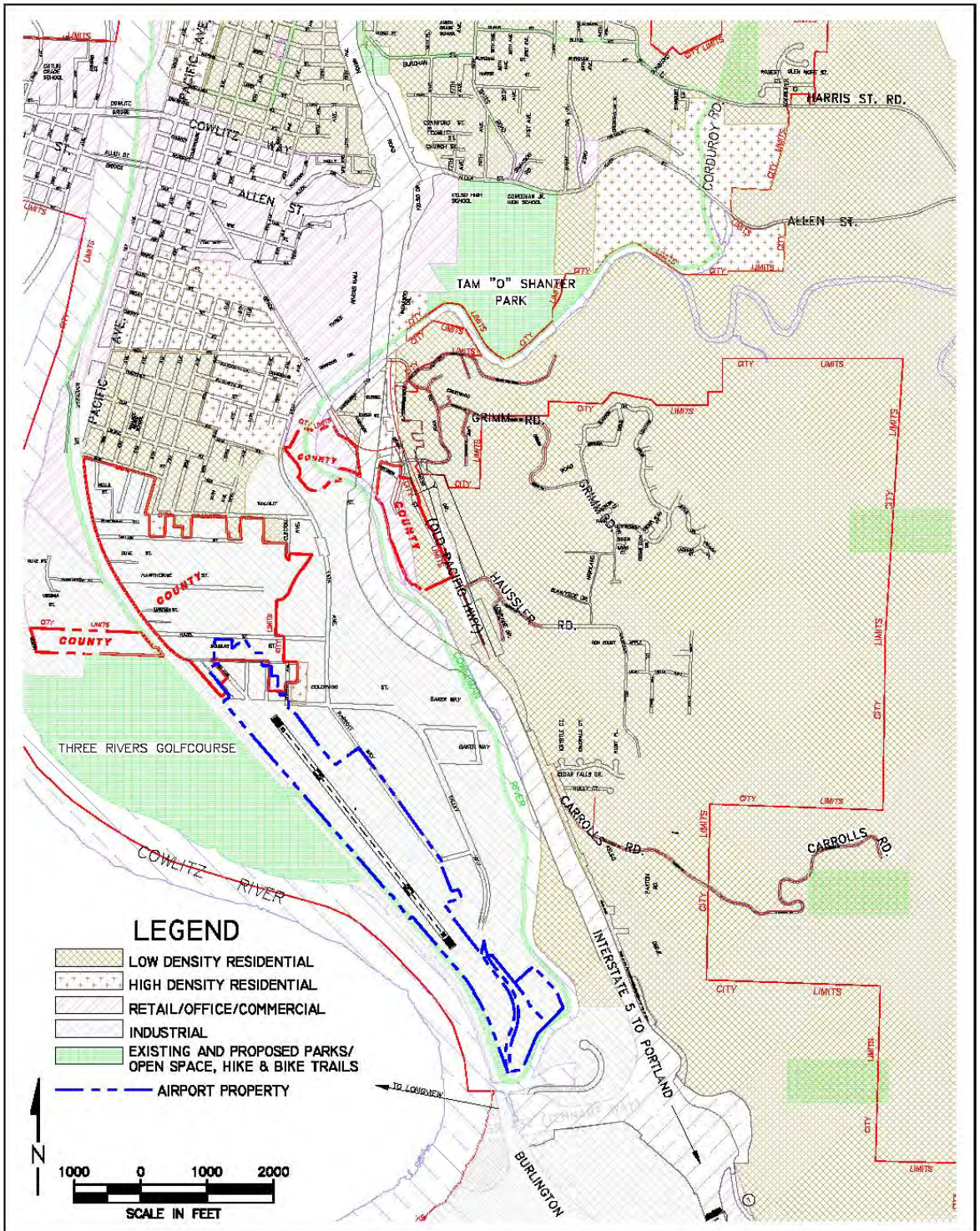
The City of Kelso has enacted measures to protect the airport and surrounding airspace through establishment of an Airport Hazard Overlay Zone. The Overlay Zone, authorized under Section 17.56.010 of the Kelso Municipal Code, regulates or controls the various types of airspace obstructions and other hazards that may interfere with the safety of aircraft operations near the Kelso-Longview Airport, including:

- The height of structures and objects of natural growth;
- Conditions or activities that may cause electronic interference with air navigation communication systems;
- Lights that may interfere with the airport lighting system;

- Conditions or activities that produce levels of smoke, dust or glare that would interfere with the safety of airport operations

- Conditions or activities that would create congregations of birds, which would create a hazard for operating aircraft. (Ord. 3533 § 5, 2004; Ord. 3075 § 14.1, 1987)

The protections and land use prohibitions established under the Overlay Zone are applied to all land located beneath the FAR Part 77 Surfaces surrounding the airport within city jurisdiction. The Airport Hazard Overlay Zone does not promote land use compatibility or limit land use activities other than to preclude the creation of hazards to air navigation. Consequently, the Airport Overlay Zone may not fully address the requirements set forth under RCW 36.70.547**.** A copy of KMC Section 17.56.010 may be found in Appendix A.



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AIRPORT MASTER PLAN

AIRPORT ZONING

SHEET 2-20

2.6.3 CITY OF LONGVIEW

COMPREHENSIVE LAND USE PLAN

The City of Longview Comprehensive Plan was completed in December, 2006. The Plan does not address Kelso-Longview Regional Airport, presumably because the airport is not specifically within Longview's jurisdiction. However, even the regional coordination element of *Chapter 8: Transportation* is limited to discussion of surface modes of transport and is silent relative to air transportation.

Land uses identified in the Plan within KLS airspace include the full range of land use classifications occurring within the city. Properties immediately west of the airport across the Cowlitz River include industrial and medium density residential development. Approximately one mile north of the airport along the extended runway centerline is a large area of high density residential designated property immediately east of the Longview Central Business District.

ZONING REGULATIONS

Title 19 of the City of Longview Municipal Code sets forth the land use zoning regulations for the city. The city's zoning regulations do not address KLS or airport/land use compatibility planning. Neither does Longview address air navigation safety through adoption of an airport overlay zone.

2.6.4 COWLITZ COUNTY

COMPREHENSIVE LAND USE PLAN

The Transportation Element of the Cowlitz County Comprehensive Plan contains the following goal statement and policies relative to airports:

> **GOAL:**
>
> F. TO ENCOURAGE AIRPORTS AND PRIVATE LANDING STRIPS TO DEVELOP IN A MANNER THAT AVOIDS CONFLICTS WITH ADJACENT LAND USES.
>
> **GOAL RATIONALE:**
> Among the common conflicts and hazards associated with all airports are the landing approach and airplane noise.

POLICIES:

1. Airports and private airstrips should be located where approach and noise nuisance are minimized to reduce hazard potential to adjacent land uses. In general, approach zones should be over water, open space land, or non-intensive uses such as agriculture, commercial forests, green belts and industrial areas. Flight tracts should not be located above residential areas.

2. Land uses which would attract large concentrations of people must be discouraged from locating within approach zones of existing airports and airstrips.

3. New airstrips should avoid locating adjacent to residential uses.

4. Operators of airports facilities should consider acquisition of development rights, air rights (aviation easements) and land within approach and noise impacted areas to minimize encroachment problems.

5. Private airstrips should be restricted to non-commercial passenger and agricultural uses.

While the County Comprehensive Plan recognizes that incompatibilities can exist between airports and certain land use activities it appears to place the primary responsibility for minimizing or mitigating conflicts on the airports.

ZONING REGULATIONS

Land within KLS airspace under county jurisdiction includes properties located immediately north of the airport along the extended runway centerline extending from Douglas Street north to Yew and Walnut Streets. Zoning for this "island" of county jurisdiction, surrounded by land within the City of Kelso, is a combination of heavy and light manufacturing (MH and ML zones). Although zoned for manufacturing, these properties are primarily in residential use at present. Additional land within the KLS airspace and under Cowlitz County jurisdiction is low-density rural properties east of Interstate 5.

2.6.5 AVIGATION EASEMENTS

The existing KLS Airport Layout Plan denotes a number of avigation easements already in place over single family residential properties on Hazel St. along the extended runway centerline immediately beyond the end of the Runway 12 RPZ, as well as an additional easement to be purchased on adjacent property in the same area. The ALP also cites land

acquisition within the Runway 12 RPZ to bring the entire RPZ within airport ownership. At present, airport ownership of the Runway 12 RPZ extends as far north as Douglas Street. However, the northeastern corner of the RPZ extends north of Douglas Street to Hazel Street. This property remains to be acquired if complete ownership of the RPZ is to occur.

2.6.6 EXISTING NOISE CONTOURS

During the 2000 MPU, a set of noise contours were been developed for the airport for the 55, 65, 70 and 75 DNL levels. The noise contours were prepared using the FAA's Integrated Noise Model (INM), Version 5.1. The contours reflected the current level and mix of aircraft activity at the airport and provided a baseline against which future noise contours will be compared under the land use element of the master plan.

It should be noted that the aircraft traffic pattern at KLS calls for left-hand traffic landing Runway 30 and right-hand traffic for Runway 12 for aircraft. The traffic patterns for ultralights are located on the east side of the runway. This arrangement of traffic patterns routes landing aircraft along the Cowlitz River thereby reducing noise impacts over populated areas and helps to separate ultralights from the larger aircraft. However, the City of Longview Comprehensive Plan identifies medium density residential condominium development on the west bank of the Cowlitz River opposite the airport which may become problematic in the future.

The 2000 MPU's existing noise contours for KLS are depicted in Exhibit 2-19 on the following page. These noise contours will be updated under the Land Use element of this Master Plan.

2.6.7 LAND USE COMPATIBILITY SUMMARY

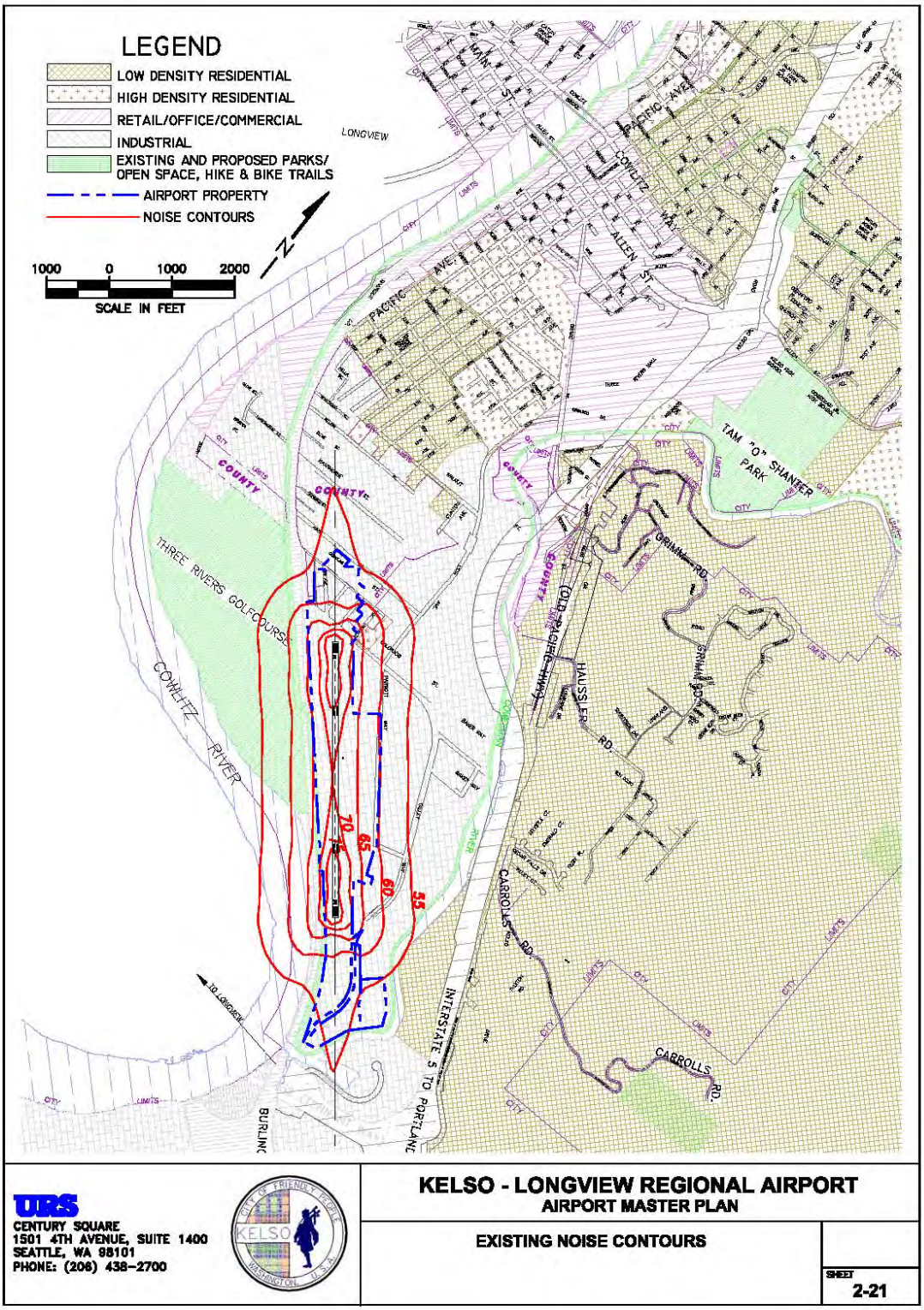
Land use zoning in the immediate airport environs was discussed under the City of Kelso above. In addition to the ILM zoning on and immediately surrounding the airport, other land uses adjacent to KLS include the Three Rivers Golf Course located to the northwest of the airport and zoned for open space, and a large General Manufacturing/Industrial area south of State Route 432, both being land use classifications compatible with airport operations.

Immediately north of the airport is a small pocket of Multiple Family/Residential (RMF) zoned property located along Colorado Street. This site is occupied by an existing mobile home park. There are also several small undeveloped parcels zoned for Specialty Retail (CSR) immediately north of the RMF property. In this area there is also a large "island" of land under Cowlitz County jurisdiction, bounded generally by the Burlington

Northern railroad tracks on the west, Douglas Street on the south, Yew and Walnut Streets on the north, and the Kelso city boundary on the east. While the Cowlitz County land is zoned for manufacturing it is primarily in residential use at present. The land is not heavily developed for residential use along the extended runway centerline south of Hawthorne Street.

While the City of Kelso has enacted provisions to protect both air navigation, in the form of the Airport Overlay Zone, and applied compatible zoning to the airport and most adjacent properties, much of the airspace surrounding the airport outside City of Kelso jurisdiction appears to remain unprotected. While land use incompatibilities from noise impacts within the City of Longview and Cowlitz County boundaries resulting may be limited due to the small noise footprint surrounding the airport, protections to air navigation mandated under Washington statutes remain to be implemented. The compatibility of the airport with surrounding land uses will be discussed in more detail later in the master plan report.

During the inventory process for the Master Plan, it was reported that condominiums currently planned to the west of the airport may be impacted by the current traffic pattern. Future land use compatibility will be further evaluated under the land use compatibility element of the Implementation Plan chapter.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OLD PACIFIC HWY.
HAUSSLER RD.
CARROLLS RD.
INTERSTATE 5 TO PORTLAND
TO LONGVIEW
BURLING
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EXISTING NOISE CONTOURS
SHEET
2-21

2.7 AIRPORT GOVERNANCE AND FINANCE

2.7.1 AIRPORT OWNERSHIP, MANAGEMENT AND ADMINISTRATION

The City of Kelso owns and operates the Kelso-Longview Regional Airport with the City Council responsible for ultimate authority over the facility. The rules and regulations governing the operation, management and activities at the airport are set forth in detail in the Kelso Municipal Code title 13, Chapter 13.12. The day-to-day management of the airport is the responsibility of the city Public Works director and the airport manager working under the authority of the city manager. The city has also established an Airport Board to advise and make recommendations to the City Council on matters concerning the airport. The Airport Board is established under Section 2.72 of the Kelso Municipal Code which defines the role and function of the Airport board as follows:

A. It shall be the responsibility of the airport board to advise the Kelso city manager and the city council relative to the acquisition, utilization, care, maintenance and disposition of all airport facilities and all property or equipment pertaining to or associated with the Southwest Washington Regional Airport.

B. The airport board shall review, advise and make recommendations to the Kelso city manager and city council relative to the promulgation and enforcement of rules and regulations governing the operation of the airport. The airport board shall make recommendations to the city council regarding the granting or revocation of FBO leases or other grants of operational authority at the airport.

C. The airport board shall have such further duties as may from time to time be assigned to it by the city council and city manager. (Ord. 3729 § 5, 2010)

The Kelso Municipal Code Title 13, Chapter 13.12 sets forth in detail the rules and regulations for operation of the airport. Chapter 13.12 is composed of five Articles, each dealing with a separate aspect of management and operation of the airport as follows:

Article I. General Provisions
13.12.010 Definitions.
13.12.020 Authority of airport manager.
13.12.030 Obstruction of airport use.
13.12.040 Restricted areas.
13.12.050 Commercial activity.
13.12.060 Solicitation of contributions.
13.12.070 Notice of nonbusiness or noncommercial activity.
13.12.080 Limitations on nonbusiness activity.
13.12.090 Accident reports.

13.12.100 Sanitation.
13.12.110 Abandonment of property.
13.12.120 Animals.
13.12.130 Firearms or destructive devices.
13.12.140 Fire regulations.

Article II. Aeronautical Regulations
13.12.150 Airport operation.
13.12.160 Operation of aircraft—General.
13.12.170 Use of airports.
13.12.180 Fueling and defueling of aircraft.
13.12.190 Engine start and runup.
13.12.200 Taxiing of aircraft.
13.12.210 Landing, takeoffs and traffic patterns.
13.12.220 Aircraft aprons.
13.12.230 Student pilot training.
13.12.240 Maintenance, repair and service of aircraft.
13.12.250 Hazards to aviation.
13.12.260 Damaged or disabled aircraft.
13.12.270 Glider operation procedures.
13.12.280 Ultralights.
13.12.290 Handling and storage of hazardous material.

Article III. Motor Vehicles
13.12.300 Driving on roads, streets and parking areas.
13.12.310 Use of roads and streets.
13.12.320 Restricted areas.
13.12.330 Basic speed limits.
13.12.340 Designated speed limits.
13.12.350 Traffic signs and signals.
13.12.360 Abandoned or unreasonably parked vehicles.
13.12.370 Vehicles in restricted areas.
13.12.380 Parking and storage of vehicles.
13.12.390 Repairs to vehicles.
13.12.400 Driving recklessly or while intoxicated.
13.12.410 Pedestrian crosswalks.

Article IV. Minimum Standards for Fixed Base Operators and Airport Tenants
13.12.420 Generally.
13.12.430 Fixed base operator—Defined— General compliance requirement.
13.12.440 Airport tenant—Defined—General compliance requirement.
13.12.450 Insurance requirements.
13.12.460 Financial solvency and business ability—Facilities and hours of operation.
13.12.470 Eligibility requirements—Restriction to designated categories.
13.12.480 Lounge and restroom requirements.

13.12.490 Design and construction standards—Bond requirements.
13.12.500 Approval of rates and charges.
13.12.510 Payment of taxes and assessments.
13.12.520 Compliance with laws required.
13.12.530 Authority investment guarantee.
13.12.540 Payment of utility charges.
13.12.550 Leases subordinate to federal agreements.
13.12.560 Subleasing—Approval required.
13.12.570 Subleasing—Assumption of obligations.
13.12.580 Subleasing—Compliance default—Lease termination.
13.12.590 Use of common areas and facilities.
13.12.600 Leases—Term—Reevaluation of rents.
13.12.610 Maintenance of service—Rate levels.
13.12.620 Lease nonexclusive.
13.12.630 Obstructions and hazards.
13.12.640 War or national emergency.
13.12.650 Existing leases protected.
13.12.660 Maintenance of premises.
13.12.670 Further development.
13.12.680 Enforcement—Right of entry for inspection.
13.12.690 Fixed base operator category A—Flight instruction and aircraft rental.
13.12.700 Fixed base operator category B— Aircraft charter, taxi, air watch and related activities.
13.12.710 Fixed base operator category C—Crop dusting, fire fighting and related activity.
13.12.720 Fixed base operator category D—Aircraft sales.
13.12.730 Fixed base operator category E—Aircraft, engine, propeller and accessory maintenance.
13.12.740 Fixed base operator category F—Radio and instrument.
13.12.750 Fixed base operator category G—Sale of aviation petroleum products and ramp service.
13.12.760 Fixed base operator category H—Airport tenant.
13.12.770 Fixed base operator category I—Flying clubs.

Article V. Penalties
13.12.780 Violation—Penalty.
13.12.790 Additional penalties.

The full content and provisions of the Kelso Municipal Code Title 13, Chapter 13.12 may be found in Appendix B of this Master Plan report.

2.7.2 KELSO-LONGVIEW REGIONAL AIRPORT AUTHORITY

Although no longer in existence, a Kelso-Longview Regional Airport Authority was established in 1993 by intergovernmental agreement between the City of Kelso, City of

Longview, Cowlitz County and Port of Longview. Each participant in the agreement appointed two representatives to the authority and staff support was provided by the City of Kelso. The Airport Authority was disbanded in 2000 as it was unable to fulfill necessary FAA legal requirements within the powers available to it.

2.7.3 AIRPORT FINANCIAL MANAGEMENT

The City of Kelso carries the primary financial responsibility for the maintenance, operation and capital improvements at the airport. Annual contributions to airport operating expenses are also made by Cowlitz County, the City of Longview and the Port of Longview. For 2008, these additional operating contributions totaled $57,000.

Airport finances are managed through the Airport Fund. Under Kelso Municipal Code Section 3.60.340, Airport Fund #420 was established to capture all revenues, grants and other funds received by the airport since August 31, 1997. The fund "shall be used to defray the cost of operation, maintenance and capital improvements of the airport and for no other purpose." The financial management of the airport is discussed in more detail below.

LEASE TERMS AND PROVISIONS

Business and tenant leases at the airport vary depending on whether they are for city-owned facilities or for land on which private facilities have been constructed. Lease rates also vary from agreement to agreement as well depending on the type, location and condition of facility being leased. In early 2008, the Airport Board recommended revising the lease structure at the airport for city-owned hangars to better reflect market conditions and increase revenue to cover needed improvements. For the city-owned (A, B, and C) hangars on the southeast side of the airport, the lease rate was recommended to increase to $.21/square foot/month over a three-year period, with any additional adjustment tied to the Consumer Price Index. The lease rate for the older city-owned hangars on the northwest side of the airport will only be adjusted according to the CPI.

In mid-2008, the City entered into a land lease agreement with a private party for the purposes of constructing new hangars south of the east side A, B, C hangar complex. The land lease initial land lease rate is $.30/square foot/year of the building foot print and increases over a four-year period to $.38/per square foot/year, with adjustments every five years there after based on the CPI.

The terms of the leases can vary, however under KMC Chapter 13.12.600 "…leases to fixed base operators and airport tenants shall be limited to a maximum of thirty years. In addition, leases shall, at the discretion of the authority, be subject to review and

reevaluation at the end of each five-year period thereof, in relation to the Consumer Price Index. In this regard, when at the end of each of the five-year periods the cost of living index is determined by the authority to be five or more percent higher than at the date the lease became effective, the rental terms thereof may be increased to such percentage of increase or of the cost of living index. If at the end of such five-year period the cost of living index has changed less than five percent, the authority shall take no action to review or reevaluate the lease."

At the end of the initial 30-year term, renewals are generally allowed for set additional time periods. The recent land lease allows for two additional 10-year options may be granted if the lease is in good standing.

The majority of existing airport land leases on which private hangars are constructed expire during the 2010 to 2015 time frame.

2.7.4 AIRPORT REVENUE

Airport revenues are derived from a number of sources. Operating revenues are those directly attributable to operation of the airport as a business enterprise and can vary over time with changes in the level of activity at the airport and the general aviation industry as a whole.

The last major source of revenue to KLS comes from grants, primarily from the FAA and WSDOT, to be applied toward eligible projects and capital improvements at the airport. The amount of grant funds received in any given year can vary significantly based on airport project needs and available appropriations and allocations at the federal and state levels.

Other sources of revenue reflected in the Airport Fund budget include leasehold excise taxes, interest income, loans, and special allocations for specific purposes such as support of the annual fly-in.

While individual revenue line items can vary from year to year, the following categories have been identified to distinguish the various revenue sources from one another.

DIRECT OPERATING REVENUE

As noted above, Direct Operating Revenue is derived directly from business activity at the airport and is dependent, in part, on the level of aviation activity at the airport. The degree of sensitivity to changing market conditions varies from line item to line item. Revenue from aircraft fuel sales will quickly reflect increases or decreases in flying

activity, whereas items such as land or hangar leases will be much slower to react due to their extended lease terms. The specific sources of operating revenue for the airport include the following:

- **Fuel tax**: Collected on the sale of aviation fuels.
- **Aircraft parking**: Fees collected for parking of transient and based aircraft on the tiedown aprons. The fee for parking based aircraft is $40 per month. The daily parking rate for transient aircraft is $15.
- **Hangar leases**: Aircraft hangar lease rates are based on a calculation of hangar square footage. The rates can vary depending on the age, condition and location of the hangar and range from $180 to $350 per square foot per year.
- **Land leases**: Certain parcels on airport are leased for privately developed facilities. The land is leased on a per square foot basis with built in escalation provisions and rate adjustments based on the performance of the Consumer Price Index.
- **FBO Agreement**: Kelso Aviation, the Fixed Base Operator, pays an annual fee to operate on airport.
- **Building/Apartment Rentals**: Revenue from building rentals includes structures other than aircraft hangars, such as the old FBO facility in the northwest corner of the airfield.

TAX REVENUE:

Tax Revenue is derived from the Washington state leasehold excise taxes collected on airport.

INTERGOVERNMENTAL CONTRIBUTIONS AND TRANSFERS

Another significant, consistent source of revenue is the annual intergovernmental contribution provided by Cowlitz County, the City of Longview, The Port of Longview, as well as the City of Kelso. Each governmental body currently contributes $20,000 to the city's Airport fund to support operation of the facility.

In addition to the annual contribution to the airport operating budget there are occasional contributions, transfers and loans from the various government bodies that may occur for specific purposes. Examples of such contributions are the financial support for the annual fly-in from Cowlitz County and the Stadium Fund in 2008.

This revenue includes annual operating contributions from the cities, county and port, as well as additional transfers, loans and special purpose allocations.

GRANTS

This category includes grants from FAA under the Airport Improvement Program (AIP), through the Aviation Division of WSDOT, as well as other grants such as the Rural County Development Grant (2008), that may from time-to-time be available. The FAA grants are for specific projects that must be eligible for funding under AIP guidelines, part of an approved Airport Layout Plan and reflected in the airport's Capital Improvement Program as submitted to FAA. In recent years, changes made in the AIP Program now allow certain pavement maintenance work to be eligible for AIP funding in addition to capital construction projects.

Grant funds are highly variable from year to year depending on the airport's capital project programming and the allocation of funds at the federal level. Two types of FAA AIP grant funds are available. Entitlement funds are automatically available to airports listed in the NPIAS when federal appropriations for the overall AIP program reach certain levels. As a NPIAS airport, KLS is eligible for "Non-Primary" airport entitlement funds. For 2008, KLS received an allocation of $111,240 for AIP eligible projects. Entitlement grants can be "carried over" up to three years to fund larger projects. Discretionary grants are available for specific projects if monies remain in the AIP program after airport entitlement grants have been allocated. The dollar amount of Discretionary grants depends on the monies available and cost of the project. Typically, for AIP funded projects, FAA will award a grant covering 95 percent of the project cost, with KLS contributing 5 percent as the local share.

OTHER REVENUE

This revenue category includes miscellaneous revenue from interest income and other sources. Revenues in this category are generally minor amounts, highly variable from year to year, and are not directly related to or affected by the level of aviation activity at the airport.

RESERVE FUND BALANCE

This revenue category is a placeholder for those years in which a positive balance remaining at the end of the preceding fiscal year may be carried over into the new year's budget.

REVENUE SUMMARY

A summary of five-year revenue at KLS is presented in Exhibit 2-22 below.

Exhibit 2-22: Airport Revenue 2005 to 2009

	2005	2006	2007	2008	2009
Direct Operating Revenue	100,463	102,912	102,749	110,379	118,853
Tax Revenue	5,184	4,502	6,323	5,489	4,572
Intergovt'l Contributions & Transfers	73,000	73,000	76,000	76,000	80,000
Grants	0	57,567	851,238	142,806	162,050
Other Revenue	2,700	4,638	4,716	3,070	769
Total Revenue Available	181,347	242,619	1,041,026	337,744	366,244
Total Revenue Without Grants	181,347	185,052	189,788	194,938	204,194

Source: City of Kelso

Federal and state grants to KLS can fluctuate from year to year and cause a significant variation in the airport revenues. However, other revenues have shown little to moderate changes over the years. Direct operating revenues from land and hangar leases, as well as aircraft parking, fuel and excise taxes have remained relatively stable.

2.7.5 AIRPORT EXPENSES

The expenses attributable to Kelso-Longview Regional Airport may generally be categorized as those directly related to the day-to-day operation and maintenance of the facility, capital projects needed to maintain and/or expand airport facilities, indirect costs associated with allocation of City overhead, debt service on long-term loans and governmental fess and assessments. Each expense category is discussed in more detail below.

OPERATING EXPENSES

Unlike operating revenues which can vary based on the level of aviation activity at the airport, operating expenses are more consistent. For example, airport grass needs to be mowed and buildings maintained regardless of how many aircraft operations may occur at the airport in any given year. A breakdown of KLS' operating expenses includes, but is not necessarily limited to the following:

- Operating Supplies
- Repairs and Maintenance to Buildings and Airfield
- Repair/Maintenance Equipment and Replacement Reserves
- Vehicle Maintenance

- Employee Wages and Benefits
- Airport Management
- Accounting/Secretarial Services
- Professional Services
- Utilities/Garbage/Sanitation/Storm Water Management
- Environmental Fees
- Promotion and Advertising

ADMINISTRATIVE AND OVERHEAD EXPENSES

Expenses assigned to this category include shared City of Kelso costs including a percentage of the Public Works director's salary and benefits, shared costs for the City Finance Department software, and airport property insurance.

CAPITAL PROJECTS

This expense category includes major expenditures for capital equipment and improvements to the airport. Projects funded by FAA or WSDOT/Aviation Department grants are included in this category. Capital project expenses reflected in the budget will vary from year to year based, in part, on the airport's Capital Improvement Program and funding availability.

DEBT SERVICE

Debt Service reflects the principal and interest payments required to retire notes, loans and bond funding obtained by the airport. The payment amounts may vary from year-to-year depending on the terms of the loan and outstanding principal balance. During the five-year reporting period, long-term debt service by the airport included repayment of an interfund loan from the Stadium Fund, repayment of a City of Longview General Obligation bond, and principal and interest payments on a note held by the City of Longview.

EXPENSE SUMMARY

A summary of estimated expenses is presented in Exhibit 2-23 below.

Exhibit 2-23: Airport Expenses 2003 to 2008

	2005	2006	2007	2008	2009
Direct Operating Expense	57,614	71,251	66,819	92,770	105,966
Capital Projects	11,847	63,591	903,483	130,306	183,688
Admin & Overhead	55,437	48,272	44,598	47,417	58,952
Debt Service	18,927	19,505	16,244	18,081	16,362
TOTAL EXPENSES	143,825	202,619	1,031,144	288,574	364,968

Source: City of Kelso

As with airport revenues, capital projects associated with federal and state grants to the airport shown significant variation year-to-year. In addition, debt service on long-term loans and General Obligation Bond payments also cause dramatic increases in airport expenses in some years. Even so, direct operating and administrative overhead costs show a continual increase.

2.7.6 Revenue and Expense Comparison

The following exhibits provide a five-year comparison of airport revenue and expenses excluding federal and state grants and capital projects. The intent of this comparison is to evaluate how KLS operating revenues compare to operating expenses.

Exhibit 2-24: Revenues and Expenses Excluding Grants and Capital Projects

	2005	2006	2007	2008	2009
Revenue					
Direct Operating Revenue	100,463	102,912	102,749	110,379	118,853
Tax Revenue	5,184	4,502	6,323	5,489	4,572
Intergovt'l Contributions & Transfers	73,000	73,000	76,000	76,000	80,000
Grants	0	57,567	851,238	142,806	162,050
Other Revenue	2,700	4,638	4,716	3,070	769
Total Revenue Available	181,347	242,619	1,041,026	337,744	366,244
Expenses					
Direct Operating Expenses	57,614	71,251	66,819	92,770	105,966
Admin & Overhead	55,437	48,272	44,598	47,417	58,952
Debt Service	18,927	19,505	16,244	18,081	16,362
Capital Projects	11,847	63,591	903,483	130,306	183,688
Total Expenses	143,825	202,619	1,031,144	288,574	364,968
Net Revenue	**37,522**	**40,000**	**9,882**	**49,170**	**1,276**

Source: City of Kelso

**City reports use accrual accounting method which also shows the depreciation of fixed assets but have been omitted in this report*

***The ending Fund Reserve balance for 2009 is approximately $142,000.00. Revenue Received but not spent each year adds to this balance.*

As can be seen from Exhibit 2-22, excluding the affects of grants and capital projects, in four out of the past six years overall revenues before grants exceeded overall operating expenses. In 2004 and 2005, large debt service obligations caused the airport to either break even or run a deficit. As a further point of comparison, Exhibit 2-23 was prepared to evaluate the impact of long term debt obligations on the annual KLS budget. In the exhibit, annual airport expenses are plotted both with and without long term debt payments.

2.7.7 Long-Term Debt Obligations

The City of Kelso has debt obligations related to airport development through the year 2015. This debt is approximately $20,000 per year.

2.7.8 Capital Improvement Program

The current City of Kelso Capital Improvement Program (CIP) for Kelso-Longview Regional Airport reflects $6.5 million in projects between 2010 and 2015. Private sector investment in new aircraft hangars constitutes $675,000, nearly 10 percent of the overall capital budget. The budget also reflects $4.1 million in Federal funding for projects

eligible under the FAA's Airport Improvement Program. The local matching share of proposed capital projects is estimated at approximately $102,500. The current Capital Improvement Program is presented in Chapter 7 of this master plan.

Contents

CHAPTER 3 – **AVIATION DEMAND FORECASTS**

3.1 PURPOSE OF DEMAND FORECASTING

Forecasting future aviation demand is a key step in the airport master planning process. The demand forecasts provide a basis for determining the type, size, and timing of future aviation facility development at the airport. Consequently, the demand forecasts influence nearly all subsequent phases in the development of the master plan update.

Aviation demand forecasts ultimately serve four purposes in development of the master plan; specifically, they provide the basis for:

- Determining the necessary capacity of the airfield, apron areas, and airside/landside access circulation and parking facilities;
- Determining the airport's role and resulting size and type of expansion needed for existing facilities to accommodate future demand;
- Estimating the potential environmental effects of the airport's operation on the surrounding community, such as noise and air quality impacts; and
- Evaluating the financial feasibility of alternative airport development proposals.

The demand forecasts contained herein are "unconstrained" forecasts, i.e. it is assumed that all aircraft allocated to the airport can be accommodated without regard to the current basing capacity of the airport.

3.2 SUMMARY OF FINDINGS

Master Plan forecasts for Kelso-Longview Regional Airport must be approved by the FAA. Part of the FAA review and approval process requires the Master Plan forecasts to be examined against existing FAA Terminal Area Forecasts (TAF) for the airport. When Master Plan forecasts deviate 10 percent or more from TAF forecasts, explanation must be provided to account for any differences. To facilitate FAA review, key elements of the aviation demand forecasts from this report are summarized in Exhibit 3-1. The exhibit presents the new, updated demand forecasts compared with the existing FAA Terminal Area forecasts for KLS.

Exhibit 3-1: Master Plan Forecast/FAA TAF Comparison

Forecast Element	Year	Master Plan Forecast	FAA TAF	MP/TAF △ (%)	15-Year Average Annual Growth	
					FAA TAF	MPU
Commercial Operations - Air Taxi/Charter						
Forecast Base Yr.	2007	1,745	1,675	4.2%		
Base yr. + 1 yr.	2008	1,773	1,675	5.9%		
Base yr. + 5 yrs.	2012	1,889	1,675	12.8%		
Base yr. + 10 yrs.	2017	2,045	1,675	22.1%		
Base yr. + 15 yrs.	2022	2,214	1,675	32.2%	0%	1.6%
GA Itinerant Operations						
Forecast Base Yr.	2007	18,489	18,800	-1.7%		
Base yr. + 1 yr.	2008	18,785	18,800	-0.1%		
Base yr. + 5 yrs.	2012	20,017	18,800	6.5%		
Base yr. + 10 yrs.	2017	21,670	18,800	15.3%		
Base yr. + 15 yrs.	2022	23,460	18,800	24.8%	0%	1.6%
GA Local Operations						
Forecast Base Yr.	2007	19,912	19,700	1.1%		
Base yr. + 1 yr.	2008	20,230	19,700	2.7%		
Base yr. + 5 yrs.	2012	21,556	19,700	9.4%		
Base yr. + 10 yrs.	2017	23,337	19,700	18.5%		
Base yr. + 15 yrs.	2022	25,265	19,700	28.2%	0%	1.6%
GA TOTAL Itinerant and Local Operations						
Forecast Base Yr.	2007	38,401	38,500	-0.3%		
Base yr. + 1 yr.	2008	39,015	38,500	1.3%		
Base yr. + 5 yrs.	2012	41,573	38,500	8.0%		
Base yr. + 10 yrs.	2017	45,007	38,500	16.9%		
Base yr. + 15 yrs.	2022	48,725	38,500	26.6%	0%	1.6%
OVERALL TOTAL Commercial / GA / Military Operations						
Forecast Base Yr.	2007	40,860	40,860	0.0%		
Base yr. + 1 yr.	2008	41,514	40,860	1.6%		
Base yr. + 5 yrs.	2012	44,235	40,860	8.3%		
Base yr. + 10 yrs.	2017	47,889	40,860	17.2%		
Base yr. + 15 yrs.	2022	51,845	40,860	26.9%	0%	1.6%
Instrument Operations						
Forecast Base Yr.	2007	NR	NR	--		
Base yr. + 1 yr.	2008	NR	NR	--		
Base yr. + 5 yrs.	2012	NR	NR	--		
Base yr. + 10 yrs.	2017	NR	NR	--		
Base yr. + 15 yrs.	2022	NR	NR	--	--	--

Forecast Element	Year	Master Plan Forecast	FAA TAF	MP/TAF △ (%)	15-Year Average Annual Growth	
					FAA TAF	MPU
Based Aircraft						
Forecast Base Yr.	2007	74[1]	85	-12.9%		
Base yr. + 1 yr.	2008	79	85	1.2%		
Base yr. + 5 yrs.	2012	86	85	10.6%		
Base yr. + 10 yrs.	2017	94	85	18.8%		
Base yr. + 15 yrs.	2022	101	85	18.8%	0%	2.1%

Source: FAA TAF Database – 2008

Notes: [1]Actual Based aircraft as reported in current FAA 5010 Form.

NR = Not Reported

The Master Plan based aircraft and operations growth rates for Kelso-Longview Regional Airport reflected in Exhibit 3-1 are derived from a review of various projection methodologies, including the Phase II forecasts developed for the on-going Washington State Dept. of Transportation/Aviation's Long Term Air Transportation Study (WSDOT LATS). This study represents the most recent, comprehensive analysis of aviation demand in Washington State. The study found that, between 1987 and 2005, aviation demand in Washington outpaced FAA national growth models – by significant margins at times. Between 1997 and 2005, based aircraft in Washington increased at 166 percent the national growth rate. The study also found the Southwest Washington area to be one of the strongest regions of the state for growth in aviation demand. This Master Plan's forecast allocated activity to KLS based on its share of aircraft and operations for Cowlitz and Clark counties under LATS. In contrast, the FAA Terminal Area Forecasts project no change in based aircraft or activity at KLS over the entire forecast period. The 2007 base year based aircraft figure for KLS is derived from the most recent Airport Master Record (FAA Form 5010).

3.3 AIRPORT SERVICE AREA

The Airport Service Area is defined as the geographic area that generates demand for aviation services at an airport. As stated in Chapter 2 – Existing Conditions Inventory, KLS is identified under the current WSDOT LATS study as a Regional Service airport serving southwest Washington. Under the LATS study definition, Regional Service airports are assumed draw from an area within 60 minutes drive-time, (up to 90 minutes in rural areas.) The closest Regional Service airports to KLS are Olympia Airport, 60 miles to the north, and the Portland-Hillsboro and Portland-Troutdale Airports 60 to 70

miles to the south in Oregon. However, the Oregon airports were located outside of the LATS study area and were not included in the analyses.

As noted in the 2000 Master Plan Update and described in Chapter 2 – Existing Conditions Inventory, the KLS Airport Service Area is defined as both Cowlitz and Clark Counties in southwest Washington. This service area definition corresponds to the Southwest Washington Special Emphasis Area identified in the WSDOT LATS and therefore LATS regional data has been used in the preparation of the demand forecasts. The level of based aircraft and operations for key airports within the KLS Service Area were presented in Section 2.5.1 of Chapter 2 – Existing Conditions Inventory.

3.4 AIRCRAFT ACTIVITY MEASURES

While the nature and scope of aviation demand can vary from airport to airport, depending on the facility's role and level of activity, the activity indicators reviewed during the demand forecasting process are generally the same. For the Kelso-Longview Regional Airport Master Plan, the aviation demand forecasting effort addresses the following elements:

- **Based aircraft**
  - Total based aircraft
  - Aircraft fleet mix by type (single engine piston, multi-engine, turbojet, rotor and other)

- **Aircraft Operations**
  - Total annual operations
  - Peak-period activity
  - Itinerant operations
  - Local operations (touch-and-go)
  - Operations by aircraft type
  - Air Taxi/Charter operations
  - Instrument approaches

- **Military Activity**
  - Total annual operations
  - Local operations
  - Itinerant operations

- **Critical Aircraft**
  - Aircraft type (aircraft or composite group of aircraft, if appropriate)

- FAA Airport Reference Code

Aviation demand forecasts have been prepared for periods ending 5, 10, and 20 years from the base year of the forecast (2007). Peak period forecasts were developed for the peak month, design day, and design hour of each period.

3.5 REVIEW OF PREVIOUS DEMAND FORECASTS

Existing aviation demand forecasts for KLS include those contained in the 2000 Master Plan Update, FAA Terminal Area Forecasts (TAF) and the WSDOT LATS. The WSDOT LATS study did not formally publish based aircraft forecasts for individual airports, although some analyses were conducted as underlying work to the official operations forecasts. Previous forecasts for KLS are summarized in Exhibits 3-2 and 3-3 below.

Exhibit 3-2: Existing Based Aircraft Forecasts

	2000 MPU	FAA TAF	WSDOT LATS
1999	*76*	*99*	
2000		*99*	
2001		*87*	
2002		*87*	
2003	85	*87*	
2004		*84*	
2005		*84*	*85*
2006		85	
2007		85	
2008	95	85	
2009		85	
2010		85	
2011		85	
2012		85	
2013		85	
2014		85	
2015		85	93
2016		85	
2017		85	
2018	113	85	
2019		85	
2020		85	
2021		85	
2022		85	
2023		85	
2024		85	
2025		85	
2030			102

Source: 2000 Master Plan Update, FAA Terminal Area Forecasts, 2008.
Note: Numbers in Italics reported as Actuals.

Exhibit 3-3: Existing Aircraft Operations Forecasts

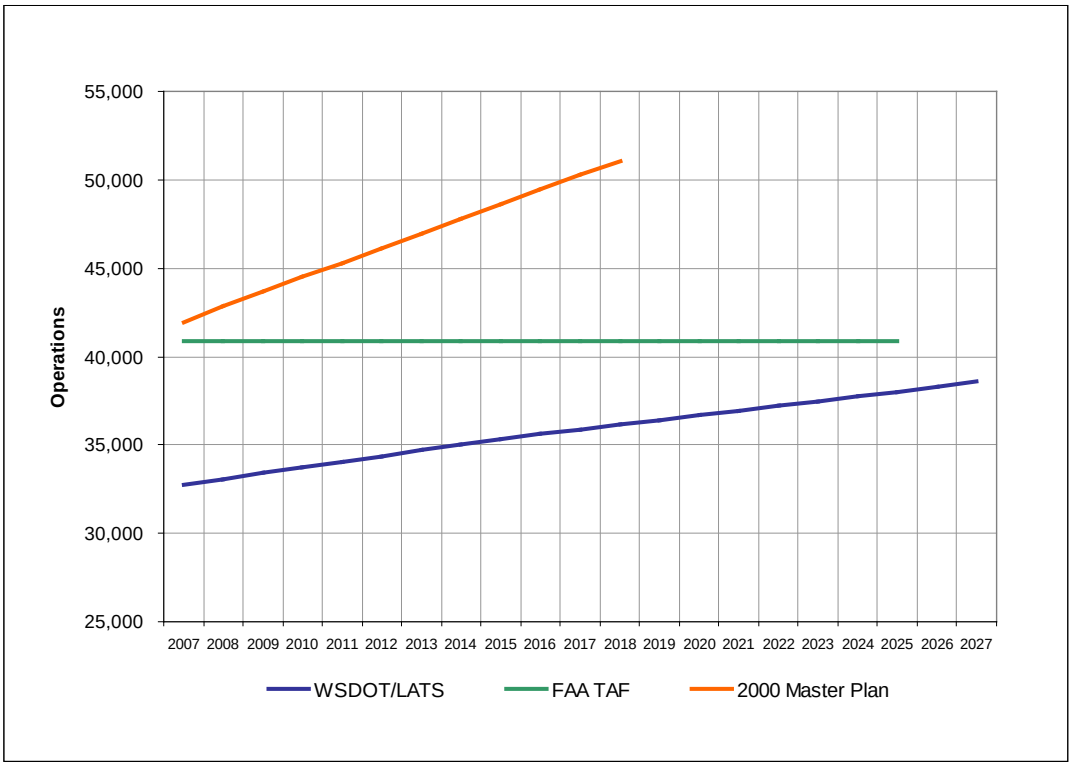
	2000 Master Plan Update Forecast	FAA Terminal Area Forecast	WSDOT LATS Forecast
1999	*34,276*	*39,215*	
2000		*39,215*	
2001		*39,215*	
2002		*39,215*	
1999		*39,215*	
2000		*39,215*	
2001		*39,215*	
2003	38,335	*39,215*	
2004		*39,215*	
2005		*39,215*	*32,110*
2006		40,860	
2007		40,860	
2008	42,845	40,860	
2009		40,860	
2010		40,860	33,720
2011		40,860	
2012		40,860	
2013		40,860	
2014		40,860	
2015		40,860	35,355
2016		40,860	
2017		40,860	
2018	50,963	40,860	
2019		40,860	
2020		40,860	36,671
2021		40,860	
2022		40,860	
2023		40,860	
2024		40,860	
2025		40,860	38,019
2030			39,405

Sources: 2000 MPU, FAA TAF, WSDOT LATS Forecast Database
Note: Numbers in *Italics* reported as Actuals.

The 2000 Master Plan Update projected based aircraft to increase at an average annual rate of 2 percent per year over the forecast period while the FAA Terminal Area Forecast indicates no growth in based aircraft from 2006 through 2025. The WSDOT LATS based aircraft forecast projects a 0.8 percent average annual growth rate over the forecast period. The 2000 MPU, FAA TAF and WSDOT LATS operations forecasts are based on similar growth rates. The existing operations forecasts are graphically depicted in

Exhibit 3-4 below. In the exhibit, operations values for those years where data points were not available have been estimated using a straight-line interpolation between known data points.

Exhibit 3-4: Comparison of Existing Operations Forecasts



Source: URS Corp.

3.5.1 IMPLICATIONS OF WSDOT LATS FORECASTS

The WSDOT LATS represents the most recent comprehensive forecasts and analysis of aviation demand for the state of Washington. To better understand the future aviation demand at KLS, some interpretation and analysis of the regional data for the Southwest Washington Special Emphasis Area is required.

As discussed under Chapter 2, Section 2.5.1, KLS is one of eight airports in the WSDOT LATS Southwest Washington Special Emphasis Area. The Southwest Washington Area based aircraft data is presented below, along with the estimated reserve basing capacity of each airport in the region.

Exhibit 3-5: Southwest Washington Area Based Aircraft

	Total Capacity	2005 Based Aircraft	% Utilization	Reserve Basing Capacity
Kelso-Longview	154[1]	85	55%	69
Grove Field	93	67	72%	26
Pearson Field	176	175	99%	1
Cedars North Airpark	6	6	100%	0
Evergreen Field	159[2]	60	38%	99
Fly for Fun	11	9	82%	2
Goheen Field	92	50	57%	42
Woodland State	20	17	85%	3
Totals	**711**	**469**	**66%**[3]	**242**

Source: WSDOT LATS.

Note: [1]WSDOT LATS reported KLS basing capacity greater than the 116 cited in the 2000 MPU. LATS assumed undeveloped airport land could be committed to aircraft storage as needed.

[2] Evergreen Field was closed during the course of the WSDOT LATS study.

[3] Evergreen Field closure reduces SW Region capacity to 552 based aircraft and increases the utilization rate to 85 percent.

As is apparent from Exhibit 3-5, the reserve basing capacity of 99 aircraft at Evergreen Field constituted 40 percent of the unused available basing capacity in the Southwest Washington Area. The closure of Evergreen Field in 2006 not only caused a loss of this reserve capacity, but also displaced those aircraft currently based at the airport. Evergreen Field's closure reduced the reserve capacity in the Southwest Washington Region from 242 aircraft to 143.

Under LATS, Evergreen Field was classified as a Recreation/Remote facility. Consequently, aircraft displaced from Evergreen Field would most likely seek out similar types of airports. Other Southwest Washington Region airports in this service class include Cedars North Airpark, Fly for Fun, Goheen Field and Woodland State. Based on Exhibit 3-5 above, the combined reserve capacity of these four airports is 47 aircraft compared to the 60 displaced from Evergreen Field. As a result, based aircraft demand at these facilities would be expected to increase due to Evergreen's closure.

The LATS based aircraft forecast for the Southwest Washington Region is presented in Exhibit 3-6 below. The "capacity utilization" column in the table reflects the drop in regional basing capacity attributable to the closure of Evergreen Field. The forecasts project an additional 147 aircraft based in the region by 2030 compared to an existing reserve capacity of 143 aircraft. Assuming based aircraft grow as anticipated in the forecast, all regional airports will reach 100 percent basing capacity between 2020 and 2025.

Exhibit 3-6: Southwest Region Based Aircraft Forecasts

	Based Aircraft Forecast	SW Region Basing Capacity	Capacity Utilization
2005	400[1]	711	56%
2010	447	552[2]	81%
2015	490	552	89%
2020	529	552	96%
2025	571	552	103%
2030	616	552	112%

Source: WSDOT LATS Phase I and Phase II reports.

Note: [1]Phase I Report cites 2005 based aircraft at 469, Phase II Report cites 400.

[2]Region capacity reduced to reflect closure of Evergreen Field.

From Exhibit 3-5 it is apparent that the reserve basing capacity at KLS was second only to Evergreen Field. With Evergreen's closure, KLS has the greatest reserve for based aircraft capacity of any of the Southwest Region airports. Furthermore, no other airport in the Southwest Washington Area offers the service level available at KLS. The implication of this fact is that, as the demand for aircraft basing grows in the region, those aircraft requiring a longer runway or higher service level will likely gravitate to KLS.

3.6 CURRENT TRENDS IN GENERAL AVIATION

In order to set the context for updated aviation demand forecasts for KLS, this section provides a general discussion of current national trends in general aviation, with a focus on the types of aircraft and aircraft production, as well as the potential implications of recent fuel price increases on operations activity. Trends discussed include the following:

- Very Light Jets (VLJs)
- Fractional Aircraft Ownership
- Increased Production of Business Jets
- Implications of recent fuel price increases on general aviation.

The following paragraphs describe these trends and provide an overview of their primary features.

3.6.1 VERY LIGHT JETS

Very Light Jets (VLJs) are defined as a new type of small jet aircraft that generally weigh less than 10,000 pounds and cost between $1 and $4 million. Several aircraft

manufacturers have announced plans to build the VLJs. Exhibit 3-7 presents a list of some of these manufacturers and describes their proposed aircraft.

Exhibit 3-7: Proposed Very Light Jet Aircraft

Manufacturer	Model	Seating	Maximum Takeoff Weight (pounds)	Projected Price (millions)
Adam Air	A700	6	9,350	$2.45
Cessna	Mustang	6	8,645	$2.54
Diamond	D-Jet	5	5,000 (est.)	$1.38
Eclipse	500	6	5,995	$1.6
Embraer	Phenom	6 to 8	9,700	$2.98
Epic	Elite Jet	6 to 8	7,700	$2.35
HondaJet	Honda Jet	7 to 8	9,960 (est.)	$3.65
Piper	Piper Jet	6	NA	$2.2

Source: Manufacturers' Data compiled by URS

These aircraft are currently in various stages of development. Some are at the conceptual level, while others are in production with finished aircraft being delivered to customers. As of January 1, 2008, the only VLJs certified by the FAA and delivered to customers were the Eclipse 500 (98 aircraft delivered) and the Cessna Mustang (45 aircraft delivered). The Embraer Phenom 100 is expected to achieve FAA certification sometime in 2008. The remaining aircraft are expected to achieve certification within the next few years although some, ultimately, may not make it into production.

A study conducted by the United States General Accounting Office (GAO) in 2007 compiled forecasts of VLJs by a variety of sources including aircraft manufacturers, aircraft component manufacturers, consultants and the FAA. The report found that the forecasts predict that between 3,000 and 7,500 VLJs will be delivered to customers in the period between 2016 and 2025.

The individual forecasts vary by a factor of 2.5 reflecting the high degree of uncertainty over the success of this category of aircraft and the fact that a significant number of these aircraft are being marketed to the air taxi market. The air taxi market provides on-demand hiring of aircraft and crew for point-to-point transportation. The market is not new and currently consists of numerous companies filling a niche for air transportation that is not provided by schedule commercial air service. However, what is new is the anticipated change in the economies of air taxi service to be provided by VLJs, due to their lower acquisition and operating costs compared to traditional business jets. It is anticipated that the VLJ could bring the cost of air taxi services to a broader market, thereby stimulating demand for air taxi services.

The number of VLJ aircraft that will enter the industry in the next few years depends on how many manufacturers actually bring their aircraft to market. However, it should be noted that Eclipse and Cessna delivered nearly 150 VLJs to customers in less than six months of production during the latter part of 2007. This suggests that since thousands of these aircraft are on order, several hundred could be delivered to customers annually during the next few years.

3.6.2 VLJ AND AIR TAXI SERVICES

New companies, such as DayJet, have been started based on the idea of using VLJs specifically for air taxi services offering "per seat, on demand" service. This means that the customer pays only for the "seat cost" of the trip not the entire "aircraft cost". Consequently, the cost to the customer varies depending on the level of flexibility the customer has regarding schedule. Nonetheless, the seat cost is still expected to be more than the cost of a passenger ticket using traditional scheduled airline service.

Dayjet intends to use existing Fixed Base Operator (FBO) facilities at community and regional airports not served by commercial carriers and to provide a "branded" service that stimulates customers demand beyond the traditional users of air taxi services. They believe that their focus on smaller markets that are currently underserved by direct point-to-point air carriers will enable their cost premium to be justified by the elimination of overnight stays and their associated costs for business travelers. The ultimate success of this business model is yet to be proven in the air taxi market.

Other companies have proposed similar service. For example, the former Chairman and Chief Executive Officer of American Airlines, Robert Crandall, is proposing a company called "Pogo" that will provide air taxi service using VLJs. Pogo is targeting short-haul trips of less than 500 miles and intends to begin in the Northeast United States where they believe the highest concentration of potential customers live and work. Pogo intends to launch operations in 2008 using a fleet of VLJs and to expand geographically as they acquire additional aircraft.

As of August 2008, Dayjet was providing air taxi services using the Eclipse 500 VLJ to provide per seat, on-demand service to certain airports in Florida, Georgia, Alabama and South Carolina.

There are certain characteristics of these on-demand air taxi services using VLJs that make them more suitable for Eastern US markets than for those in the west. The first characteristic is the limited range of VLJ aircraft. Most aircraft have ranges of 1,000 to 1,300 miles. Furthermore, many of these ranges are maximum values that are attained with minimum payload. Ranges with more realistic payloads are shorter. Consequently,

these aircraft are better suited to short-haul trips than larger, traditional business jets. This makes them less appealing to many Western US markets where the typical trip lengths are longer.

Second, certain studies have examined the issue of "connectivity' (i.e., the ability to fly directly from one commercial service airport to another). These studies examined the number of commercial service airports within 300 to 600 miles of other commercial service airports in the 48 contiguous states that did not have direct air service.

The study found that the highest concentration of passenger markets with poor connectivity were concentrated in the Southeast United States with Georgia being the highest. Other areas with poor connectivity were Texas and the upper Midwest to Northeast states extending from Michigan to New York. Western US markets generally had better connectivity due to the fewer number of markets and the greater average distances between them.

Finally, the concentration of potential markets in the Western US as compared to the eastern US markets makes them less suitable for the types of air taxi services being proposed by the VLJ air taxi operators. The implication of these factors is that the Western US will probably be the last part of the country to receive service by VLJ air taxi service.

It should be noted however that the demand for VLJs is not tied exclusively to air taxi operators. VLJs have been ordered by all segments of the general aviation market including corporations and individuals. Thousands of orders have been placed for these aircraft. The actual market for the VLJ will ultimately depend on the success of their economics (i.e., their ability to maintain low acquisition and operational costs).

3.6.3 FRACTIONAL AIRCRAFT OWNERSHIP

Another trend cited as a potential growth factor in general aviation is the fractional aircraft ownership program. These programs allow individuals or businesses to purchase partial ownership of an aircraft; usually business jets. The purchaser receives access to the aircraft for an established number of flight hours, in direct proportion to the percentage of the aircraft that they purchase. Companies offer a wide range of ownership percentages thereby allowing the purchase of small or larger number of flight hours.

The benefit of these programs is that they allow companies that could not previously take advantage of the convenience of private aircraft ownership to get into the market at a lower cost than buying an aircraft outright. The primary disadvantage of the programs is that the owner is responsible for a proportional share of all costs associated with the

aircraft including insurance, maintenance, etc. and they cannot use the aircraft beyond their allotted flight hours. Numerous companies such as Netjets, Flight Options, Flexjets and Citation Shares provide fractional aircraft ownership.

In addition to fractional ownership, there are companies that sell cards providing access to a pre-defined number of flight hours on an aircraft without requiring that the purchaser become part owner of an aircraft. This enables customers to avoid certain costs that are incurred when becoming a fractional owner and usually enables access to aircraft at a lower total cost than purchasing a fractional share. Access cards are typically suited to individuals who need fewer total hours of flight time.

The growth of fractional jet ownership and access cards has stimulated the market for business jets in recent years. Exhibit 3-8 below presents the number of aircraft and fractional aircraft owners in recent years as compiled by the General Aviation Manufacturers Association (GAMA).

Exhibit 3-8: Fractional Aircraft and Ownership

Year	Fractional Aircraft Fleet	Percent Growth	Fractional Share Owners	Percent Growth
2001	689	-	3,601	-
2002	780	13.2%	4,244	17.9%
2003	826	5.9%	4,516	6.4%
2004	870	5.3%	4,765	5.5%
2005	945	8.6%	4,828	1.3%
2006	984	4.1%	4,863	0.7%
2007	1,030	4.7%	5,168	6.3%

Source: General Aviation Manufacturers Association, 2008.

As the table indicates, the fractional aircraft market has experienced positive growth during recent years and now accounts for over a thousand aircraft with more than five thousand owners. These aircraft tend to have high utilization rates and tend to be concentrated in the business jet category.

3.6.4 GENERAL AVIATION - AIRCRAFT PRODUCTION

Exhibit 3-9 presents the total number of general aviation aircraft manufactured worldwide from 2005 through 2007. As the table indicates, total shipments have been increasing, but the fastest growth is occurring in the business jet category. This reflects the continued growth of corporate aviation, as well as business jets used in fractional aircraft ownership programs.

Exhibit 3-9: General Aviation Aircraft Manufactured Worldwide

	2005	2006	2007	05-06 Change	06-07 Change
Pistons	2,465	2,755	2,675	11.8%	-2.90%
Turboprops	365	412	459	12.9%	11.40%
Business Jets	750	886	1,138	18.1%	28.40%
Total Shipments	3,580	4,053	4,272	13.2%	5.40%

Source: General Aviation Manufacturers Association, 2008.

This data suggests that turboprop and jet aircraft will comprise a greater proportion of the overall general aviation fleet in the future.

Another factor to consider is the average age of general aviation aircraft. According to data from GAMA, the average age of piston aircraft is approaching 40 years, while the average age of a multi-engine turboprop is over 27 years and the average age of a multi-engine jet aircraft is 16 years. This suggests that the number of piston aircraft being retired will accelerate in future years as they reach the end of their useful lives, and that turboprop and jet aircraft will continue to increase as a proportion of the total general aviation fleet.

3.6.5 IMPLICATIONS OF FUEL PRICE INCREASES ON GENERAL AVIATION ACTIVITY

In recent years, general aviation has experienced a significant increase in the cost of fuel, consistent with increases seen in other sectors of the transportation industry. Between mid-2006 and mid-2008, the average price of a barrel of oil increased from approximately $73 to $146. During the same time period, the national average cost of aviation fuels increased as shown in Exhibit 3-10.

Exhibit 3-10: Average Aviation Fuel Price Comparison - 2006 v. 2008

	Jul-06	Jul-08	% Change
100LL	$4.30	$5.62	31%
JetA	$4.09	$6.01	47%
MoGas	$3.23	$4.44	37%
Oil Price/Barrel	$73.20	$145.50	99%

Source: AirNav.com

The “at the pump” cost of aviation fuel is a complex issue and not driven solely by the price of oil. The size of the general aviation fuel market is but a fraction of that for surface vehicles. The refining capacity devoted to the aviation fuel market is small, and reported to be on the decline. In addition, it is becoming increasingly difficult for FBOs to buy fuel in quantities related to their needs. Suppliers continue to increase the required

size of fuel deliveries, which increases FBO costs due to the larger storage capacity required, fuel inventory carrying costs and slower fuel turnover.

As of late-August 2008, aviation fuel prices in the Pacific Northwest are comparable to prices nationally. An overview of avgas prices by region is presented in Exhibit 3-11.

Exhibit 3-11: Average Aviation Fuel Price by Region (August 2008)

	100LL	JetA	MoGas
Nationwide Average	**$5.58**	**$5.82**	**$4.53**
Alaska	$6.03	$6.36	$5.58
Central	$5.41	$5.62	$4.49
Eastern	$5.69	$6.02	$4.36
Great Lakes	$5.53	$5.82	$4.44
New England	$5.81	$6.13	$4.61
Northwest Mountain	**$5.63**	**$5.81**	**$4.52**
Southern	$5.66	$5.86	$4.44
Southwest	$5.41	$5.62	$4.47
Western-Pacific	$5.61	$5.86	Not Available

Source: AirNav.com

At present, fuel prices continue to fluctuate, however it is generally accepted that the cost of avgas is unlikely to return to historic levels. How the general aviation industry may respond to this new paradigm is the subject of this discussion.

The Aircraft Owners and Pilots Association (AOPA) recently published a set of aviation activity statistics comparing the first quarter of 2008 with the same period in 2007. This comparison is particularly telling as it covers the same time period during which the most rapid increase in fuel prices occurred. The AOPA activity comparison is presented in Exhibit 3-12 below.

Exhibit 3-12: Comparison of Aviation Activity Indicators – Q1 2007 v. Q1 2008

	Q1 2007	Q1 2008	% Change	Change
FLIGHT ACTIVITY				
Air Traffic Control Centers	1,984,928	1,885,596	-5%	-99,332
Control Towers	7,509,856	7,190,757	-4%	-319,099
Gallons Avgas Sold (in 000s)	47,397	38,746	-18%	-8,651
PILOT CERTIFICATION				
Total Student Issuances	15,809	13,569	-14%	-2,240
Private Issuances	5,346	4,732	-11%	-614
Commercial Issuances	2,538	3,003	18%	465
ATP Issuances	1,561	1,808	16%	247
CFI Issuances	1,218	1,192	-2%	-26

	Q1 2007	Q1 2008	% Change	Change
Instrument Ratings Issued	6,028	6,551	9%	523
AIRCRAFT SHIPMENT & REGISTRATION				
GA Shipments	628	558	-11%	-70
Total A/C Reg. Apps.	11,015	9,661	-12%	-1,354
AVIATION SAFETY				
GA Accidents	284	252	-11%	-32
SPORT PILOT CERTIFICATES HELD				
Sport Pilot Certificates Held	3,935	6,345	61%	2,410

Source: Aircraft Owners and Pilot's Association

The AOPA data indicates that flight activity is down by four to five percent over the 12 month period, resulting in an expected decrease in fuel consumption. While student, private and Certified Flight Instructor (CFI) license issuances were down, Commercial, Air Transport Pilot (ATP) and Instrument Ratings were all up significantly. It is these ratings that support the airline and corporate/business segments of the aviation industry. In addition, Sport Pilot Certificates increased 61 percent over the same period. Sport Pilot certificate holders are licensed to fly Light Sport Aircraft (LSA) – a recently established category of small one and two-passenger aircraft geared to the recreational market.

Discussions within the general aviation community cite the lack of innovation within the aviation industry as contributing to the general aviation's decline. The majority of general aviation aircraft flying today represent aircraft technologies developed in the 1950s and 1960s. Aircraft manufacturers need to apply updated designs and materials to the manufacture of their aircraft. For example, whereas an older 2-seat Cessna 152 can cruise 350 nautical miles at 107 knots while burning 7 gallons of fuel per hour, a newer similar-sized composite Diamond Katana (DA20-C1) can cruise 547 nautical miles at 138 knots while burning 5.5 gallons per hour. The late-1990's design aircraft flies farther, faster and more economically than the older design Cessna. For the same trip, the Katana could arrive sooner at 60 percent of the fuel cost of the Cessna 152. However, total ownership costs still needs to be considered as a new Katana will cost over four times the cost of a used Cessna 152.

General aviation's response to increased fuel costs is expected to range from pilots employing fuel saving practices in aircraft operation, such as leaning fuel mixtures and reducing operating speeds, to the production of lighter, more fuel efficient aircraft by manufacturers. However, the fuel consumption rate will not be the sole determining factor in the future of general aviation as it is just one element in the total overall cost of aircraft operation and ownership. Alternative fuels, fractional ownership and the relative

cost relationship between air and surface transport will be some of the additional factors that will help shape the future of general aviation.

Business/corporate aviation will continue to play a valuable role to the business community. Many areas of the country do not have scheduled air service, and those that do are seeing airlines reduce capacity and schedules. The relative cost effectiveness of business aviation is likely to retain its advantages when comparing additional costs associated with surface transport including travel time and expenses. Using aircraft, a company may send a team of executives into a community, conduct business and return home in the same day, in comparison to the cost of an overnight business trip for multiple individuals relying on surface transportation.

At present, it is too soon to determine what the industry's long-term reaction will be to higher fuel prices and operating costs. No doubt the higher prices will have an effect on the overall level of activity. However, the AOPA statistics may offer a glimpse into the potential direction the general aviation industry may be moving. For the purposes of this Master Plan, the scenario assumed for general aviation in light of rising fuel prices is as follows:

- Business aviation will continue to grow and remain an important component of general aviation. The efficiencies provided by air transport and the benefits of business aircraft ownership will help offset higher operating costs. The introduction of VLJs, described above, will further support continued growth of business aviation.

- The number of older technology two- to four-seat aircraft that comprise the bulk of the general aviation fleet will decline somewhat over time. Some of these aircraft will be replaced by newer technology aircraft as well as new, cheaper to operate Light Sport Aircraft. Those older aircraft that remain will likely fly fewer hours. However, considering the total cost of ownership and operation, fuel cost alone may not be the total determinant in whether or not the aircraft remain part of the active general aviation fleet.

- Over time, there will be a divergence in the general aviation industry, with business/corporate flying representing one end of the spectrum, and the Sport Pilot flying a Light Sport Aircraft (LSA) representing a large portion of the private recreational flying at the other end. Over time there will be fewer and fewer of those aircraft that have historically represented the main-stay of the general aviation fleet.

The impact of the above scenario will not necessarily impact the aviation demand forecasts presented below. Whether an aircraft is an older Cessna 172 or a new LSA it will generate operations and require its own parking/storage space. Business/corporate aviation will likely continue to place the greatest demand on the airport facilities. It is assumed that, over time, the general aviation fleet will make the necessary adjustments to the new operating environment.

3.7 AVIATION DEMAND FORECASTS

Aviation demand forecasts for KLS address those activity indicators cited under Section 3.1.2. The number and type of aircraft anticipated to locate at the Kelso-Longview Regional Airport over the forecast period provide the foundation for determining future facility needs. The forecasts are prepared on an unconstrained basis and assume that all aircraft desiring to locate at KLS are able to do so, regardless of whether the airport currently has facilities in place to meet the operating requirements of the aircraft. Any anticipated shortfall in facilities will be addressed in the Facility Requirements analysis of the Master Plan.

In the forecasts, a based aircraft is defined as a general aviation aircraft permanently stationed at the airport either housed in a hangar or tied down on an apron. A transient aircraft is one located at the airport temporarily, such as one flying in for the day to conduct business. Each individual aircraft take-off or landing is counted as an operation.

3.7.1 BASED AIRCRAFT FORECAST METHODOLOGY

Aviation demand forecasting generally starts with a projection of future based aircraft. A wide variety of based aircraft forecasting methodologies are available, some more complex than others. In addition, not all models are applicable to all airports.

During the WSDOT LATS top-down forecasts were prepared for based aircraft and aircraft operations in Washington state and then allocated to specific regions and ultimately, to individual airports. The forecasts were based on a variety of factors including FAA national forecast models and state and regional socio-economic data. Under the WSDOT LATS forecasts, the ratio of aircraft ownership to population in the Southwest Washington area is expected to remain relatively unchanged over through 2030.

The LATS study projected based aircraft growth in Washington to outpace national growth rates throughout the forecast period. For the Southwest Washington Special Emphasis Area, which includes KLS, based aircraft are projected to increase from 400 in 2005 to 616 in 2030 for an average annual growth rate of 1.7 percent. The LATS

forecasts also project aircraft operations within the Southwest Washington Special Emphasis Area to increase from 127,025 in 2005 to 188,744 in 2030 for an average annual growth rate of 1.6 percent. However, the LATS forecast allocations of based aircraft and aircraft operations to KLS reflect average annual growth rates of 0.7 and 0.8 percent respectively.

Under this Master Plan, various demand forecast modeling techniques were considered. Regression analysis was discounted as a viable approach for KLS as any model heavily reliant on historical relationships cannot adequately anticipate future changes in conditions and circumstances. Trend analysis depends on accurate historical data and a consistent pattern of change over time. According to FAA records as reflected in the TAF, based aircraft levels experienced a sudden drop between 2000 and 2001, followed by little change since then. This data creates a skewed trend line which is not supported by actual events at the airport and in the region. Consequently, trend analysis is not a suitable modeling approach for KLS based on the available data. The following forecast models were evaluated as the basis for this Master Plan's forecasts.

- **FAA Terminal Area Forecast:** FAA based aircraft forecasts for 2007 through 2025 contained in the Terminal Area Forecasts for KLS were evaluated. Under the FAA TAF model, based aircraft are expected to remain static through 2025 with a zero percent growth rate. Extrapolating this model to 2027 results in the based aircraft level remaining at 85 over the entire forecast period.

- **Adjusted WSDOT LATS Market Share:** Forecasts for the Southwest Washington Special Emphasis Area prepared under the WSDOT LATS provide the most comprehensive, up-to-date analysis of regional aviation demand in the airport service area based on a wide variety of aviation, social and economic factors. WSDOT LATS based aircraft and operations forecasts for the Southwest Washington Region provided the foundation for market share allocations of activity to KLS. The LATS forecast methodology states that allocation of future based aircraft to airports within a region are made based on the airport's 2005 market share. Based on 2005 data presented in WSDOT LATS, KLS accommodated 21 percent of the based aircraft in the Southwest Washington Special Emphasis Area. However, LATS attributed 85 based aircraft to KLS in 2005 compared to 74 based aircraft listed in the current Airport Master Record. Given that there are no reports of such a significant recent decline in based aircraft at KLS between 2005 and 2007 it is believed the LATS figure may be too high. As a result, under this model an adjusted market share of 19 percent was calculated based on current based aircraft levels at the airport. The revised KLS

market share percentage was then applied to LATS forecasts of future based aircraft in the region.

- **WSDOT LATS Growth Rate:** As previously stated, in its top-down forecasts for the Southwest Washington Special Emphasis Area the WSDOT LATS projected based aircraft in the area to increase at a 1.7 percent average annual growth rate through 2030. However, the LATS allocation of future based aircraft to KLS results in a calculated average annual growth rate less than one-half the regional rate. The growth rate forecast model applies the 1.7 percent average annual growth rate attributed to the overall Southwest Washington Special Emphasis Area to the current reported based aircraft at KLS to yield a based aircraft forecast for the airport.

3.7.2 RECOMMENDED BASED AIRCRAFT FORECAST

The FAA TAF forecasts for based aircraft at KLS anticipate no growth in activity between 2007 and 2025. A zero growth scenario seems unlikely, particularly given the WSDOT LATS study projections for aviation growth in the region.

Applying the adjusted 2005 KLS "market share" to the WSDOT LATS forecast of based aircraft in the Southwest Washington region resulted in a forecast of 109 based aircraft at KLS by 2027. Applying the LATS average annual growth rate for based aircraft in the Southwest Washington Special Emphasis Area to existing based aircraft at KLS resulted in a projection of 104 based aircraft by 2027. The results of these two methodologies are presented in Exhibits 3-13 and 3-14, along with the current FAA TAF, previous 2000 Master Plan Update and WSDOT LATS forecasts for the airport.

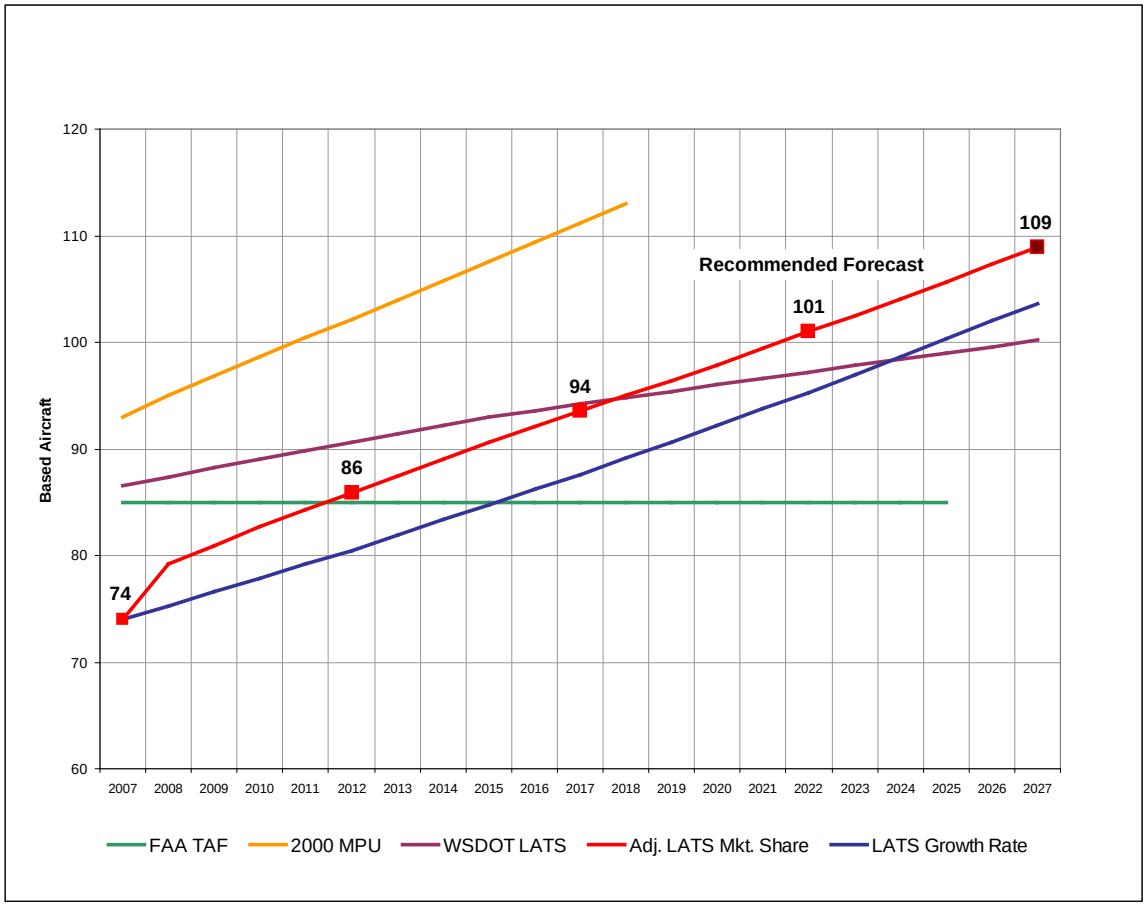
Exhibit 3-13: Based Aircraft Forecasts

	(Recommended) Adjusted WSDOT LATS Market Share	WSDOT LATS Growth Rate	FAA TAF	WSDOT LATS	2000 MPU
2007	74[1]	74[1]	85	*87*	*93*
2008	79	75	85	*87*	95
2009	81	77	85	*88*	*97*
2010	83	78	85	*89*	*99*
2011	84	79	85	*90*	*100*
2012	86	81	85	*91*	*102*
2013	87	82	85	*91*	*104*
2014	89	83	85	*92*	*106*
2015	91	85	85	93	*108*
2016	92	86	85	*94*	*109*
2017	94	88	85	*94*	*111*
2018	95	89	85	*95*	113
2019	96	91	85	*95*	
2020	98	92	85	*96*	
2021	99	94	85	*97*	
2022	101	95	85	*97*	
2023	103	97	85	*98*	
2024	104	99	85	*98*	
2025	106	100	85	*99*	
2026	107	102		*100*	
2027	109	104		*100*	

Source: URS Corp.

Notes: [1]Based aircraft as reported in current KLS FAA 5010 Form, Items in *Italics* are interpolated values

Exhibit 3-14: Based Aircraft Forecast Models



Source: URS Corp.

The Adjusted WSDOT LATS Market Share Model is recommended for use as the KLS based aircraft forecast for this Master Plan. The underlying assumption of the model is that the airport will maintain the same relative relationship to the Southwest Washington market that it has historically exhibited. The forecast model projects 35 new based aircraft will locate at the airport between 2007 and 2027.

In mid-2008, the KLS Airport Board approved a lease agreement for the construction of 33 new hangar units on airfield, with initial construction to consist of three corporate-sized hangars. The airport currently has a waiting list of 35 individuals interested in hangar space at the airport. In addition, there are 20 hangars in the city-owned Sullivan hangar complex on the northwest side of the airport that may need to be removed due to their penetration of the FAR Part 77 Transitional Surface. Consequently, the new hangar complex could accommodate relocation of all 20 tenants of the Sullivan hangars, as well as 13 additional tenants from the existing waiting list. In addition, as of this writing there are serious discussions underway to locate an emergency medical helicopter operation at

the airport. These actions account for 16 additional aircraft located at the airport in the near future if basing facilities are made available. Consequently, nearly half of the forecast long-term demand is potentially accounted for by existing conditions and circumstances at the airport.

3.7.3 BASED AIRCRAFT FLEET MIX

Previous allocations of based aircraft by type are available for KLS from both the 2000 MPU and the WSDOT LATS study. While the previous fleet mix projections take into account projected changes in the national general aviation aircraft fleet, the actual method of computation used in the 2000 MPU is not described. In the WSDOT LATS study, the fleet mix projections do not distinguish between multi-engine piston and turboprop aircraft as do the 2000 MPU and FAA TAF forecasts. Consistent with national trends in general aviation, it is assumed that the multi-engine category will over time be dominated by twin-engine turboprop aircraft as the multi-engine piston aircraft leave the general aviation fleet.

For the purposes of this Master Plan, the based aircraft fleet is categorized as follows:

- **Single-Engine/Piston (SEP)**: This category is assumed to include both traditional single-engine piston aircraft as well as the newer Light Sport Aircraft (LSA). It is assumed that an increasing percentage of future SEP aircraft based at the airport will fall into the LSA category.

- **Multi-Engine (ME)**: The Multi-Engine category is composed of both twin-engine piston and turboprop aircraft. However, the *FAA Aerospace Forecasts 2008 to 2025* project multi-engine fixed wing piston powered aircraft to decline at an annual rate of 0.9 percent.

- **Turbojet:** This category includes both traditional business/corporate jet aircraft, as well as the new Very Light Jets (VLJ). By 2025, the FAA expects VLJs to annually accumulate approximately 2.5 times the number of flight hours as non-VLJ turbojet aircraft.

- **Rotor:** The Rotor category includes both piston and turbine-powered rotorcraft. However, piston-powered rotorcraft constitute only a small percentage of the general aviation fleet and the FAA does expect the number of these aircraft to grow over time.

- **Other:** The Other category is reserved for gliders, ultralights and other non-traditional aircraft. There are presently a small number of these aircraft based at KLS.

The FAA Aerospace Forecasts note that the Light Sport Aircraft and VLJs are expected to make significant in-roads into the low and high ends of the general aviation fleet through 2025. Although these aircraft do not have their own specific categories in the fleet mix forecasts, it is assumed that they will represent an increasing percentage of the aircraft in the SEP and Turbojet categories.

The based aircraft fleet mix forecast used herein for KLS is adapted from the findings and conclusions of the WSDOT LATS. The fleet mix percentages for KLS presented in the WSDOT LATS were applied to the based aircraft forecast for the airport as developed in the preceding section. For the intervening years between 2007 and 2027, a straight line interpolation was performed assuming that there would be a gradual progression to the long-term fleet allocation. The recommended KLS fleet mix forecast for benchmark years is presented below.

Exhibit 3-15: Fleet Mix Forecast[bc1]

	Single-Engine Piston	Multi-Engine	Turbojet	Rotor	Other	Total
2007	66	4	1	-	3	74
2012	74	7	2	-	3	86
2017	78	10	4	-	2	94
2022	81	14	5	-	1	101
2027	84	17	7	-	1	109

Source: URS Corp

3.7.4 AIRCRAFT OPERATIONS

As with other activity indicators at KLS, the historical records for general aviation operations do not exhibit any long term, definable pattern of either growth or reduction. In fact, as with most airports without an Airport Traffic Control Tower (ATCT) the historical records are incomplete Therefore our forecast was developed based on techniques that consider the historical record, but do not under estimate the growth rate based on this same record.

The WSDOT LATS prepared, aviation activity forecasts through 2030 were prepared for the region, as well as for each airport within the State. Operations within the Southwest Washington Special Emphasis Area are forecast to increase from 127,025 in 2005 to 188,744 in 2030 for an average annual growth rate of 1.6 percent. Under LATS, aircraft

operations within the region allocated to KLS are anticipated to grow from 32,110 in 2005 to 39,405 by 2030. This represents an average annual growth rate over the forecast period of 0.8 percent per year.

The FAA TAF operations forecasts for KLS suggest no growth in operations activity through 2025 for a zero percent annual growth rate.

Three forecast models were tested for aircraft operations at KLS. Two of these models were variations of the WSDOT LATS operations forecast for airport, and the other based growth on the overall growth of population within the service area.

- **WSDOT LATS Regional Growth Rate**: As noted above, while the LATS forecast operations within the Southwest Washington Special Emphasis Area to grow at an average annual rate of 1.6 percent, the allocation of operations to KLS constituted only 0.8 percent growth per year. As with based aircraft, there is no known reason why KLS operations would grow at one-half the rate of the Southwest region as a whole. Under this model, the operations forecast applies a 1.6 percent average annual growth rate beginning with reported 2007 operations.

- **Adjusted LATS KLS Growth Rate**: The WSDOT LATS operations forecast for KLS cited 2005 operations at 32,110. This operations level provided the starting point for the LATS projections of future activity. However, aircraft operations as reported in the current Airport Master Record FAA TAF were 40,860 – which constitutes more than a 27 percent increase in operations over a two year period. It is believed that the LATS operations levels were too low. This forecast model adjusts the original LATS forecast by applying the projected 0.8 percent average annual growth rate beginning with 2007 activity levels.

- **Population Based Growth**: The State of Washington develops population forecast for each county within Washington. By applying the growth rate for Cowlitz and Clark Counties the changes in the regional population and economy can be reflected in the forecast.

The alternative operations forecasts for KLS are presented in comparison to the FAA TAF and WSDOT LATS forecasts in Exhibit 3-16 and 3-17 on the following pages.

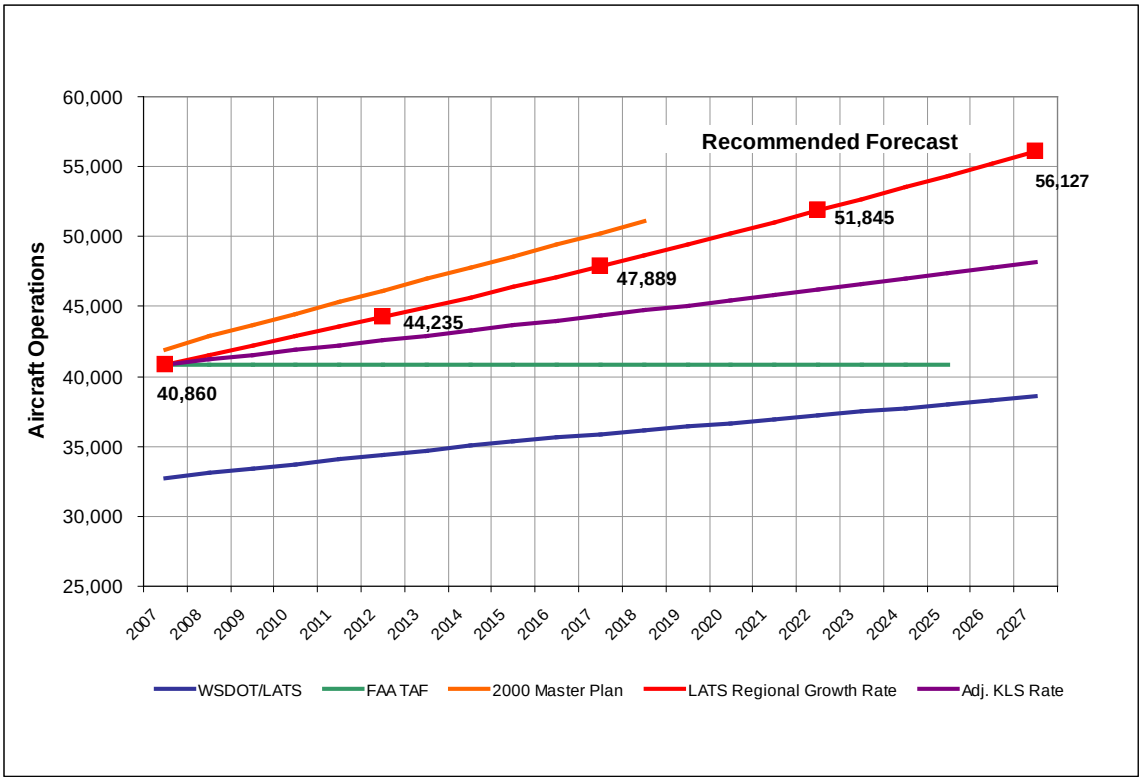
Exhibit 3-16: Aircraft Operations Forecast

	Population Based	FAA TAF	WSDOT LATS	Adjusted LATS KLS Rate	(Recommended) LATS Regional Growth Rate
2007 (Actual)	40,860	40,860	40,860	40,860	40,860
2008	41,555	40,860	*33,076*	41,196	41,514
2009	42,261	40,860	*33,398*	41,535	42,178
2010	42,979	40,860	*33,720*	41,876	42,853
2011	43,710	40,860	*34,047*	42,221	43,538
2012	44,453	40,860	*34,374*	42,568	44,235
2013	45,209	40,860	*34,701*	42,918	44,943
2014	45,977	40,860	*35,028*	43,271	45,662
2015	46,759	40,860	35,355	43,626	46,393
2016	47,554	40,860	*35,618*	43,985	47,135
2017	48,362	40,860	*35,881*	44,347	47,889
2018	49,185	40,860	*36,145*	44,711	48,655
2019	50,021	40,860	*36,408*	45,079	49,434
2020	50,871	40,860	*36,671*	45,450	50,225
2021	51,736	40,860	*36,941*	45,824	51,028
2022	52,615	40,860	*37,210*	46,200	51,845
2023	53,510	40,860	*37,480*	46,580	52,674
2024	54,420	40,860	*37,749*	46,963	53,517
2025	55,345	40,860	38,019	47,349	54,373
2026	56,285	-	*38,296*	47,739	55,243
2027	57,242	-	*38,573*	48,131	56,127

Source: URS Corp

Note: Items in *Italics* are interpolated values

Exhibit 3-17: Aircraft Operations Forecast Comparison



Source: URS Corp

The WSDOT LATS forecast was rejected as the basis for this plan due to the low number of reported 2005 operations in comparison to actual 2007 activity levels. This low starting point for the forecast skews the results in the subsequent years of the forecast period. The FAA TAF forecast is also rejected given the zero growth rate, which significantly conflicts with the findings of the more recent and comprehensive WSDOT LATS. The Adjusted LATS Growth Rate forecast, while better reflecting current activity in the early years, appears to under-forecast long-term activity due to the extremely low growth rate over the forecast period. The operations forecast based on population growth was also rejected because no correlation was established between past population levels and aircraft operations, as recorded.

The LATS Regional Growth Rate Model is recommended as the operations forecast for KLS in this Master Plan. As with the based aircraft forecast, there is no reason to conclude that aircraft operations activity at KLS will occur at a significantly lower rate than the region as a whole. In addition, given that the recommended based aircraft forecast results in a greater number of aircraft at the airport than originally projected under LATS, a commensurate increase in the level of operations would be expected.

3.7.5 OPERATIONS BY AIRCRAFT TYPE

The based aircraft fleet mix and operations forecasts provide a basis for projecting future operations by aircraft type. A projection of operations by type was generated by allocating future operations to aircraft based on each aircraft type's percentage of the overall based aircraft fleet. Future operations by type are presented in Exhibit 3-18.

Exhibit 3-18: Future Operations by Aircraft Type[bc2]

	Single-Engine Piston	Multi-Engine	Turbojet	Rotor	Other	Total
2007	36,443	2,209	552	-	1,656	40,860
2012	38,136	3,568	1,128	-	1,403	44,235
2017	39,859	5,137	1,795	-	1,097	47,889
2022	41,608	6,942	2,564	-	731	51,845
2027	43,373	9,009	3,448	-	297	56,127

Source: URS Corp

3.7.6 PEAKING ACTIVITY

Peaking forecasts are prepared to determine the maximum hourly operations demand the runway system is expected to experience. Operations peaking is generally not a problem at general aviation airports where activity is not likely to be concentrated around specific periods of the day. At airports without an Air Traffic Control Tower (ATCT) actual operations statistics are not available from which to develop peaking forecasts. In these instances, average values based on observations at a wide variety of airports are used. The 2000 MPU relied upon such standards and generated forecasts for the following activity periods.

Peak Month: The Peak Month represents the month of the year when the greatest number of operations (either a take-off or landing) occurred. For small airports a Peak Month value of 10 percent of total annual operations is used.

Average Day/Peak Month: The Average Day calculation divides the Peak Month operations, cited above, by 31 days to yield an average daily operations figure.

Peak Hour: The Peak Hour calculation is used to determine the maximum number of operations the runway is expected to accommodate during the busiest one hour period of the Average Day of the Peak Month. The Peak Hour forecast applied the same ratio as used in the 2000 MPU, 11 percent of Average Day/Peak Month operations.

Based on the above methodology, Exhibit 3-19 presents the peak demand forecast for each benchmark year of the forecast period.

Exhibit 3-19: Peaking Characteristics

	Annual Operations	Peak Month	Ave. Day/ Peak Month	Peak Hour
2007	40,860	4,086	132	14
2012	44,235	4,424	143	16
2017	47,889	4,789	154	17
2022	51,845	5,184	167	18
2027	56,127	5,613	181	20

Source: URS Corp

The updated peaking forecasts indicate little change in overall peak hour operations levels compared to those generated under the 2000 MPU.

3.7.7 LOCAL/ITINERANT OPERATIONS

A forecast of local and itinerant operations by type can be derived from the overall operations forecast for KLS. Based on a review of historical FAA operations data for the airport dating back to 1990, operations activity at the airport has shown consistent patterns of activity from which a set of ratios may be calculated. Itinerant operations constituted 51.3 percent and local operations were 48.7 percent of total operations. Those ratios, when applied to future operations forecasts, result in the following breakdown of future operations activity.

In addition, using the same FAA records of historical activity at KLS, Local and Iitnerant operations can be further allocated between Air Taxi, Military and General Aviation operations. Exhibit 3-20 below allocates aircraft operations based on these historical ratios.

Exhibit 3-20: Local/Itinerant Operations by Type[bc3]

	Itinerant				Local			
	Air Taxi	GA	Military	Total	GA	Military	Total	Total
2007	1,745	18,489	714	20,948	19,912	-	19,912	40,860
2012	1,889	20,017	773	22,679	21,556	-	21,556	44,235
2017	2,045	21,670	837	24,552	23,337	-	23,337	47,889
2022	2,214	23,460	906	26,580	25,265	-	25,265	51,845
2027	2,397	25,398	980	28,776	27,351	-	27,351	56,127

Source: URS Corp

3.7.8 INSTRUMENT OPERATIONS

An instrument operation at an airport is defined as any arrival or departure from an airport by aircraft operating in accordance with an Instrument Flight Rule (IFR) flight

plan or with the provision of IFR separation from other aircraft by a terminal control facility; or any contact with the ATCT by aircraft operating under an IFR Flight plan. Instrument operations can be conducted at any time, regardless of meteorological conditions. Actual instrument approaches, however, are defined as instrument operations conducted during instrument meteorological conditions. Instrument meteorological conditions exist when the cloud ceiling is less than 1,000 feet above ground level (AGL) and/or visibility is less than three miles. Instrument approach statistics are normally compiled by an Airport Traffic Control Tower (ATCT).

Kelso Longview Regional Airport does not have an ATCT and therefore no statistics are available on instrument approaches into the airport. In addition, the visibility minimums of the non-precision approaches into KLS are above those required to meet the definition of an instrument approach. Consequently, no instrument operations forecast have been generated under the Master Plan.

3.7.9 CRITICAL AIRCRAFT

The Critical Aircraft selected for the airport reflects the operating requirements of the most demanding aircraft (or family of aircraft) expected to generate 500 or more itinerant operations per year. The Critical Aircraft is used as the basis for comparing airport facilities against the operating requirements of aircraft regularly using the facility. It also determines which FAA planning and design criteria, as defined by the FAA's Airport Reference Code (ARC), should apply to the airport.

The FAA's Airport Reference Code is a classification system developed to relate airport design criteria to the operational and physical characteristics of the airplanes expected to operate at the airport. The ARC is based on two key characteristics of the designated Critical Aircraft. The first characteristic, denoted in the ARC by a letter code, is the Aircraft Approach Category as determined by the aircraft's approach speed in the landing configuration. Generally, aircraft approach speed affects runway length, exit taxiway locations, and runway-related facilities. The ARC approach speed categories are as follows:

- Category A: Speed less than 91 knots;
- Category B: Speed 91 knots or more, but less than 121 knots;
- Category C: Speed 121 knots or more, but less than 141 knots;
- Category D: Speed 141 knots or more, but less than 166 knots; and
- Category E: Speed 166 knots or more.

The second ARC component, depicted by a Roman Numeral, is the Airplane Design Group. The Airplane Design Group is defined by the aircraft's wingspan and determines dimensional standards for the layout of airport facilities, such as separation criteria between runways and taxiways, taxilanes, buildings, or objects potentially hazardous to aircraft movement on the ground. The Airplane Design Group categories include:

- Design Group I: Wingspan up to but not including 49 feet;
- Design Group II: Wingspan 49 feet up to but not including 79 feet;
- Design Group III: Wingspan 79 feet up to but not including 118 feet;
- Design Group IV: Wingspan 118 feet up to but not including 171 feet;
- Design Group V: Wingspan 171 feet up to but not including 214 feet;
- Design Group VI: Wingspan 214 feet up to but not including 262 feet.

The 2000 Master Plan Update recommended an ARC for KLS based on the operating characteristics of a Beech King Air (ARC B-II) near term and a Cessna Citation II (ARC B-II) long-term. The ARC designation applied to the airport may be that of a single aircraft, or may represent a composite of several aircraft. For KLS, the Critical Aircraft will be identified under the Facility Requirements element of the Master Plan. The ARC selected for the airport may be based on the characteristics of one or more of the aircraft currently using or anticipated to use the airport over the forecast period.

Contents

CHAPTER 4 – FACILITY REQUIREMENTS

4.1 INTRODUCTION

The purpose of this chapter is to determine the ability of the existing airside and landside facilities to accommodate the future activity levels presented in the Aviation Demand Forecast chapter. Any deficiencies found in the capability of existing facilities to meet forecasted demand are identified. In addition, airport facilities are also reviewed for compliance with FAA Design Standards as presented in Advisory Circular 150/5300-13, Airport Design. Airside facilities examined include the runways, taxiways, Runway Protection Zones (RPZs) and approach slopes, and navigational aids. Landside facilities reviewed include the Fixed Base Operator (FBO) facilities, aircraft apron and hangar areas, support facilities, access and vehicle parking, and utilities.

Improvements are identified for facilities that do not adequately accommodate the anticipated activity levels and the resulting requirements are identified as being needed in the short-range (present to five years), intermediate-range (six years to ten years), and long-range (eleven years to twenty years) time frames. In addition, areas where existing facilities do not meet FAA design criteria are identified and measures required to achieve compliance are recommended. In most instances the need for the improvement(s) should be tied to actual demand or need and not necessarily to the time frame indicated in this analysis.

4.2 REQUIREMENTS ASSESSMENT

Identification of airside and landside capacity and requirements for the airport will be determined using quantitative techniques developed by the FAA and other industry-accepted methodologies and include the following:

- **Critical Aircraft and Airport Reference Code:** The forecast of airport activity for the next 20 years was determined in the previous chapter of this plan. Determination of the Critical Aircraft and its associated Airport Reference Code (ARC) is one of the first steps in the Facility Requirements analysis.

- **Runway Length Requirements:** The existing runway at KLS will be analyzed relative to FAA guidance for computing runway length along with the operating requirements of the Critical Aircraft. The existing and anticipated future role of KLS will be considered in developing a recommended runway length for the airport.

- **Design Compliance Issues:** A compliance assessment will be conducted by comparing existing KLS facilities against FAA airport design recommendations and standards. Recommendations will be provided for resolving any deviations from standards and/or deficiencies noted in the analysis.

- **Airfield Facility Requirements:** An assessment of existing airfield facilities will be made relative to anticipated future demand on the airport. The facilities to be examined include:

    - Taxiways
    - Navigation and approach aids
    - Lighting, marking and signage
    - Weather and Instrumentation

- **Approach Slopes and Runway Protection Zones:** The existing surfaces and zones will be evaluated against future changes at the airport to determine the nature and extent of any changes that may be needed to meet future requirements. Elements to be reviewed under this analysis include:

    - Runway Protection Zones (RPZs)
    - Inner approach surfaces
    - FAR Part 77 Imaginary Surfaces

- **Aircraft Parking and Storage Facilities:** The number and location of the existing aircraft parking (tiedowns) and storage positions (hangars) are compared with current and future demand to determine future need for these facilities. Any shortfalls in capacity will be noted and recommendations provided for consideration under the Alternatives analysis.

- **Automobile Parking and Access:** Automobile parking locations and capacity are evaluated. Vehicle circulation around and on the airport is examined for the safe separation of aircraft, personnel and vehicle. Planned hangar removal and/or additions impact the outcome of this assessment, which will primarily take place in the Alternative evaluation chapter of this plan.

- **Support Facilities/Services:** The capacity and source of these systems and services is determined. Items included in the assessment are fueling facilities and equipment, as well as equipment storage required for the maintenance of the airport and facilities for aircraft service.

- **Utilities and Drainage:** The adequacy of existing systems to meet current and future demand will be noted. Recommendations will be provided for those systems requiring improvements or increased capacity. Systems to be considered include:

    - Electricity
    - Water
    - Wastewater
    - Drainage/Storm Run-off
    - Natural gas
    - Data and telecommunications

- **Airport Land:** The amount and configuration of airport land will be reviewed relative to future demand expected at KLS. Recommendations will be made as to any need to increase airport land, modify the configuration of the site, and the reason for or purpose behind any such change.

4.3 CRITICAL AIRCRAFT AND AIRPORT REFERENCE CODE

Projections of future operations demand and based aircraft at Kelso-Longview Regional Airport were provided in the preceding chapter. Forecasts of future demand must also include identification of the Critical or Design Aircraft. The Critical Aircraft reflects the operating requirements of the most demanding aircraft (or family of aircraft) expected to generate 500 or more itinerant operations per year. The Critical Aircraft is used as the basis for comparing airport facilities against the operating requirements of aircraft regularly using the facility. It also determines which FAA planning and design criteria, as defined by the FAA's Airport Reference Code (ARC), should apply to the airport.

The FAA's Airport Reference Code is a classification system developed to relate airport design criteria to the operational and physical characteristics of the airplanes expected to operate at the airport. The ARC is based on two key characteristics of the designated Critical Aircraft. The first characteristic, denoted in the ARC by a letter code, is the Aircraft Approach Category as determined by the aircraft's approach speed in the landing configuration. Generally, aircraft approach speed affects runway length, exit taxiway locations, and runway-related facilities. The ARC approach speed categories are as follows:

- Category A: Speed less than 91 knots;
- Category B: Speed 91 knots or more, but less than 121 knots;
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- Category E: Speed 166 knots or more.

The second ARC component, depicted by a Roman Numeral, is the Airplane Design Group. The Airplane Design Group is defined by the aircraft's wingspan and determines dimensional standards for the layout of airport facilities, such as separation criteria between runways and taxiways, taxilanes, buildings, or objects potentially hazardous to aircraft movement on the ground. The Airplane Design Group categories include:

- Design Group I: Wingspan up to but not including 49 feet;
- Design Group II: Wingspan 49 feet up to but not including 79 feet;
- Design Group III: Wingspan 79 feet up to but not including 118 feet;
- Design Group IV: Wingspan 118 feet up to but not including 171 feet;
- Design Group V: Wingspan 171 feet up to but not including 214 feet;
- Design Group VI: Wingspan 214 feet up to but not including 262 feet.

The 2000 Master Plan Update recommended an ARC for KLS based on the operating characteristics of a Beech King Air (ARC B-II) near term and a Cessna Citation II (ARC B-II) long-term.

During preparation of this Master Plan, a special effort was made to analyze current activity at the airport to best anticipate future demand on the facility. Airports with Airport Traffic Control Towers (ATCT) typically have available operations data compiled by ATCT staff. At KLS, no ATCT exists and therefore alternative means of data collection were employed. A three-year record of flight tracking data was obtained reflecting all aircraft flight plans filed into or out of KLS between September, 2005 and September, 2008. An electronic copy of the flight data will be provided along with the completed airport Master Plan. The data provided in the electronic file includes the following information on each flight.

- Aircraft Registration Number
- Aircraft Type
- Aircraft Owner
- Owner Location
- Origin Airport Identifier Code
- Origin Airport Name
- Origin City
- Destination Airport Identifier Code
- Destination Airport Name

- Destination City
- Departure Time
- Arrival Time

It should be emphasized that the flight tracking data was not a complete record of all flight operations into or out of KLS during the three-year period. Aircraft operations not conducted in association with a flight plan are not reflected in the data. Also, a data entry was made at the time the flight plan is filed. If the flight plan was canceled or the aircraft diverted to another airport, the change was not captured or reflected in the data. Even so, in the absence of ATCT records, the data reflects the best available information on actual flight activity at the airport.

The flight plan data recorded 1,875 aircraft arrivals and/or departures at KLS. A variety of conclusions may be drawn from the data:

- 431 business jet operations were recorded at KLS over the three year period.
- 63 percent of the business jet operations were generated by the Cessna Citation already based at KLS.
- 90 percent of the business jet operations were West Coast/Regional flights with Pacific Northwest and California origins or destinations. Modesto and Oakland, California were the top out-of-state origin/destination cities – representing a 600 mile stage length.

From the KLS flight plan data, a list of 17 corporate jet owner/operators were identified and surveyed as to whether they experienced any limitations on their operations at KLS due to the existing airport runway. All of the companies responding indicated having experienced some limitation on their operation due to runway length – either as a result of a wet runway or high temperature requiring increased take-off distance. Operators reported the need to reduce fuel and/or payload to compensate for the limitation. When queried as to the "ideal" length of the runway at KLS, aircraft owner responses varied based on the type of aircraft they operate, with the most frequent response being 5,000 feet, and the overall average of responses 5,000 feet as well.

Of the business jet operators, 94 percent operate aircraft classified B-II under the Airport Reference Code classification system. The remaining six percent of business jet owners operate ARC C-I or C-II aircraft. Assuming that this is a representative cross-section of business jets using the airport, the percentage breakdown between Aircraft Approach Category B and C aircraft was applied to turbojet operations forecasts at KLS. Based on the turbojet operations forecast, by 2030 Aircraft Approach Category C aircraft would

only contribute 200 operations per year (6 percent of 3,448 operations) – not enough to meet the Critical Aircraft threshold of 500 operations. Conversely, under the same turbojet activity forecast, Aircraft Approach Category B turbojet operations are expected to increase from 520 in 2007 to 3,248 in 2027.

The 2000 Master Plan Update recommended an ARC of B-II for KLS based on the Beech King Air initially, and the Cessna Citation II long-term. Under the current Master Plan, it is recommended that the ARC B-II classification be retained for KLS for both the existing and future conditions. However, the aircraft used to define the ARC B-II Critical Aircraft is recommended as the Cessna 550/Citation II.

A summary of the updated forecasts of future based aircraft and operations by type are presented in Exhibit 4-1 below.

Exhibit 4-1: Summary of Based Aircraft and Operations by Type – 2007 to 2027

Aircraft By Type	Typical Aircraft	2007 *(Base Yr.)*	2012	2017	2022	2027	ARC	MTOW (in lbs)	Rwy. Take-Off Length
Single Engine Piston[1]	Cessna 172	69	76	80	82	84	A-I	2,250	1,685'
Multi-Engine Piston	Cessna 421	3	3	3	4	4	B-I	6,840	2,516'
Turboprop	Beech King Air 300	1	4	6	8	12	B-II	15,000	3,300'
Business Jet	Cessna Citation 550	1	2	4	5	7	B-II	15,100	3,600'
Rotorcraft	Bell 430/Robinson R22	0	1	1	2	2	N/A	9,000/1,300	N/A
Other	Glider/Lighter Than Air	0	0	0	0	0	N/A	N/A	N/A
Military	N/A	0	0	0	0	0	N/A	N/A	N/A
	Total Based Aircraft	**74**	**86**	**94**	**101**	**109**			
Operations By Type									
Single Engine Piston	Cessna 172	38,099	39,008	40,972	42,098	43,375	A-I	2,250	1,685'
Multi-Engine Piston	Cessna 421	1,656	1,539	1,537	2,053	2,065	B-I	6840	2,516'
Turboprop	Beech King Air 300	552	2,052	3,073	4,105	6,196	B-II	15,000	3,300'
Business Jet	Cessna Citation 550	552	1,123	1,795	2,563	3,457	B-II	15,100	3,600'
Rotorcraft	Bell 430/Robinson R22	0	513	512	1,026	1,033	N/A	9,000/1,300	N/A
Other	Glider/Lighter Than Air	0	0	0	0	0	N/A	N/A	N/A
Military	N/A	0	0	0	0	0	N/A	N/A	N/A
	Total Operations	**40,860**	**44,235**	**47,889**	**51,845**	**56,127**			

Note: [1]Category includes Experimental and Ultralight aircraft.
Legend:
ARC = Airport Reference Code
MTOW = Maximum Take-Off Weight (in lbs.)

4.4 RUNWAY REQUIREMENTS

This section of the Facility Requirements analysis specifically addresses the airport runway and its capability to accommodate the level and type of activity anticipated over the planning period. The runway analysis focuses on the following factors:

- Runway Operations Capacity
- Runway Length
- Runway Strength
- Runway Orientation and Wind Coverage

4.4.1 RUNWAY OPERATIONS CAPACITY

The capacity of the airfield is a measure of the theoretical maximum number of aircraft operations that can be accommodated by the runway/taxiway system over specified periods of time. The most widely accepted methodology for determining operations capacity is set forth in FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*. The "Airport Capacity and Delay for Long-Range Planning" module of the FAA's *Airport Design* computer program (Version 4.2D) provides an automated alternative to the manual process defined in the Advisory Circular. While airports may experience operations levels beyond the hourly and annual capacities identified under the FAA methodology, increasing levels of congestion and delay may be anticipated as activity grows beyond the capacity thresholds. The analyses employed herein are based on the FAA Advisory Circular and its associated modeling techniques.

The FAA methodology presented in the Advisory Circular 150/5060-5 evaluates airfield capacity in two ways:

- **Hourly Capacity of Runways:** The theoretical number of operations that can take place on the runway system in one hour. Hourly VFR and IFR capacities for a runway are based on calculations of runway-use configuration, percent arrivals, percent touch-and-go, taxiways, airspace limitations, and runway instrumentation.

- **Annual Service Volume (ASV):** A reasonable estimate of the airport's annual capacity in terms of aircraft operations. The ASV accounts for differences in runway use, aircraft mix, weather conditions, and other factors that can occur over a year's time.

The 2000 Master Plan Update calculated the hourly and annual capacities of the runway using the then current FAA computer model (Version 4.1) cited above. The resulting

hourly operations capacities were determined to be 98 VFR operations and 59 IFR operations per hour. The overall ASV of the airport was calculated at 230,000 operations per year.

Under this Master Plan, updated demand forecast data was entered into the "Airport Capacity and Delay for Long-Range Planning" module of the current FAA *Airport Design* (Version 4.2D) computer program. The resulting hourly and annual operations capacities remained unchanged from those identified in the 2000 Master Plan Update.

The results of the capacity analysis are summarized in Exhibit 4-2 below. Given that KLS does not have an Airport Traffic Control Tower (ATCT) to record instrument operations, no historical data is available from which to forecast future instrument operations. As a result, the hourly capacity is reported solely for visual operations.

Exhibit 4-2: Operations Capacity

	2005	2012	2017	2022	2027
Annual Operations					
Annual Service Volume	230,000	230,000	230,000	230,000	230,000
Operations Demand	40,860	44,235	47,889	51,845	56,127
Percent Capacity	18%	19%	21%	23%	24%
VFR Hourly Operation					
VFR Hourly Capacity	98	98	98	98	98
Hourly Operations Demand	14	16	17	18	20
Percent Capacity	14%	16%	17%	18%	20%

ASV – Annual Service Volume
VFR – Visual Flight Rules

The operations demand on the existing runway constitutes only a small percentage of the airport's overall operations capacity through the end of the planning period. Consequently, based on forecast activity levels through 2027, no expansion of operations capacity is required.

4.4.2 RUNWAY LENGTH

The airport is served by Runway 12/30. Key characteristics for the runway system were presented in Chapter 2 and are reprinted below.

Exhibit 4-3: Existing and Proposed Runway Data

Designation	Existing Runway 12/30	
Length	4,395’	
Width	100’	
Pavement Type	Asphalt	
Pavement Strength (in lbs.)		
Single Wheel	38,000	
Dual Wheel	46,000	
Dual Tandem Wheel	74,000	
Lighting	Medium Intensity Runway Lighting (MIRL)	
Effective Gradient	0.09%	
Maximum Grade within Rwy.	0.213%	
Line of Sight	4,395’	
Percent Wind Coverage	VFR	IFR
12 mph Crosswind	96.2%	97.4%
15 mph Crosswind	97.5%	99.4%
Airport Reference Code	B-II	
Existing Critical Aircraft	Beech King Air	
Wingspan	54.5’	
Weight	12,500 lbs.	
Approach Speed	103 knots	
Runway Safety Area	4,995’ x 150’	
Object Free Area	4,995’ x 500’	
Obstacle Free Zone	No Penetrations	
Runway End Designation	12	30
Approach Visibility Minimums	> 1 mile	Visual
FAR Part 77 Approach Slope	34:1	20:1
Runway Markings	Non-Precision Instrument	Non-Precision Instrument
Visual Aids	PAPI-4 REIL	PAPI-4 REIL
Approach Aids	GPS/NDB-A	NDB-A

Source: 2000 Master Plan Update Airport Layout Plan

The FAA’s Airport Design computer program (Version 4.2D) was used to obtain a recommended runway length for KLS based on FAA guidelines. This program automates the manual calculation process presented in FAA Advisory Circular 150/5325-4B, *Runway Length Requirements for Airport Design*. The following table reflects the output of the computer program when input data for Kelso-Longview Regional Airport is applied.

Exhibit 4-4: FAA Runway Design Program Output

Airport and Runway Data	
Airport elevation	20’
Mean daily maximum temperature of the hottest month	77.8° F
Maximum difference in runway centerline elevation	4’
Length of haul for airplanes of more than 60,000 pounds	1,000 miles
Wet and slippery runways	
Runway Length Recommended for Airport Design	
Small airplanes with approach speeds of less than 30 knots	300’
Small airplanes with approach speeds of less than 50 knots	800’
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	2,380’
95 percent of these small airplanes	2,940’
100 percent of these small airplanes	3,470’
Small airplanes with 10 or more passenger seats	4,050’
Large airplanes of 60,000 pounds or less	
75 percent of these large airplanes at 60 percent useful load	5,260’
75 percent of these large airplanes at 90 percent useful load	6,780’
100 percent of these large airplanes at 60 percent useful load	5,500’
100 percent of these large airplanes at 90 percent useful load	7,340’
Airplanes of more than 60,000 pounds	5,960’

Source: FAA Airport Design Computer Program (Version 4.2D)

Inputs to the FAA Airport Design program included a 1,000 mile haul length reflecting the fact that the airport is already experiencing direct flights from California markets, and wet runway conditions due to western Washington weather conditions. In addition, the 1,000 mile haul length opens the airport to direct flights ranging from Juneau, Alaska on the north to San Diego, California on the south, and stretching southeast as far as Denver, Colorado. While the output of the Airport Design program suggests that the existing runway length at KLS is adequate for smaller aircraft using the airport, larger aircraft (those weighing more than 12,500 pounds) may experience some limitations to their useful load capacity. Most aircraft in the business jet fleet exceed 12,500 pounds at maximum take-off weight and therefore fall into the “large aircraft” category.

The 2000 Master Plan Update noted that, although the existing runway length at KLS was generally adequate to meet the needs of the (B-II) Critical Aircraft through the end of the planning period, many of the larger and heavier B-II business jets could only operate

at reduced payload capacity. This finding is borne out by the FAA computer model as noted above. Many of these business jets require 5,000 feet or more of runway to operate at maximum take-off weight. The following exhibit presents a breakdown by maximum take-off weight of business jet operations captured by the flight tracking data. As reflected in the exhibit, essentially all business jet operations at KLS are conducted by aircraft falling under FAA's "Large airplanes of 60,000 pounds or less" classification.

Exhibit 4-5: Business Jet Operations Flight Tracking Data – 2005 to 2008

	Operations	% of Operations
Total Business Jet Operations Recorded	431	100%
Operations by Business Jets < 12,500 lbs.	4	1%
Operations by Business Jets > 12,500 lbs.	427	99%

Source: URS Corp based on FlightAware data.

Of a total of 559 operations by B-II or larger turboprop and turbojet aircraft captured in the flight tracking data, 76 percent were conducted by aircraft over 12,500 pounds. In addition, the tracking data documented that operations by C-II aircraft are already occurring at KLS, such as the 36,000 pound Citation X – which requires a takeoff runway length of 5,140 feet to operate to its full capabilities. The data and tracking records are not able to identify those aircraft bypassing KLS for other airports in the region due to insufficient runway length at the airport. Consequently, it is unknown is how many business-class aircraft might currently use KLS if a longer runway were available.

Under the WSDOT/Aviation Long-Term Air Transportation Study (LATS), service classifications were established for Washington airports and performance criteria assigned to each classification. In the LATS, Kelso-Longview Regional Airport is designated as the sole Regional Service facility for the Southwest Washington region. Based on National Business Aircraft Association (NBAA) recommendations for medium (40,000 pound) business jets, the WSDOT LATS performance criteria for Regional Service airports recommend provision of a 5,000' runway.

RUNWAY LENGTH RECOMMENDATION

The 2000 Master Plan Update anticipated that, over time, activity by larger more sophisticated aircraft would likely increase at KLS. The flight tracking data collected during the current Master Plan suggests that this trend is, in fact, taking place. Clearly, KLS is experiencing operations activity from larger ARC B-II as well as C-II business jets that could benefit from a runway longer than the existing 4,395 feet. The expected continuation of this trend is represented by the recommended change in Critical Aircraft from the Beech King Air turboprop to the Cessna Citation business jet. While the change in Critical Aircraft to the Cessna Citation does not change the basic ARC B-II

classification of the airport, it does represent a change in the aircraft weight and operating requirements that must be considered in planning airport facilities.

The 2000 Master Plan Update recommended that, long-term, KLS extend Runway 12/30 to 5,000' in anticipation of the growth in business-class aircraft activity at the airport. This recommendation is consistent with WSDOT LATS performance objectives for Washington Regional Service airports which specify a 5,000' runway, as well as the findings and conclusions of this analysis. Consequently it is recommended that, for long-range planning purposes, the option for a 5,000' runway be preserved and reflected in the current Master Plan.

The proposed timing for the runway extension is a function of need and funding. As noted above, there are already a small but potentially important number of aircraft operations at KLS that would benefit from an extended runway. However, before the FAA can fund any runway extension, an aircraft requiring the longer runway and meeting the Critical Aircraft definition (at least 500 itinerant operations per year) would need to be designated. Based on the demand forecasts, even by 2030 these larger aircraft are not expected to contribute a sufficient number of operations to meet the FAA Critical Aircraft threshold. As a result, the airport runway extension would either need to be completed without the use of federal funding, or be deferred until the demand meets FAA funding criteria. For the purposes of this Master Plan, an extended runway will be reflected in the future plans of the airport to protect and preserve the opportunity in the future, although formal extension of the runway is not expected to occur within the current planning period. However, it is also recognized that a runway extension could potentially occur earlier than reflected in this plan in the event that alternative (non-FAA) funding of becomes available. Furthermore, interim measures will be explored under Alternatives – such as constructing either a runway displaced threshold or "over-run" area to meet the operating requirements of the larger aircraft without the need for a complete runway extension.

The alternatives for extending Runway 12/30 to 5000 feet will be explored in Chapter 5 of this Master Plan.

4.4.4 RUNWAY STRENGTH

The existing pavement strength ratings for Runway 12/30 are presented below by aircraft wheel configuration. The proposed change in Critical Aircraft will increase the maximum take-off weight from 12,500 pounds for the Beech King Air to 13,300 pounds for the Cessna 550/Citation II. The maximum takeoff weight of the Cessna 550/Citation

II is well within the runway's existing pavement strength ratings and no changes are required or recommended.

- Single Wheel Rating: 38,000 pounds
- Dual Wheel Rating**:** 46,000 pounds
- Dual Tandem Wheel Rating **:** 74,000 pounds

4.4.5 RUNWAY ORIENTATION AND WIND COVERAGE

Runways are aligned so that they allow landings and takeoffs into prevailing wind conditions. They are oriented to minimize adverse operating conditions (crosswind conditions) during the take-off and landing phases of flight. The purpose of this section is to assess the capacity of the existing runway to provide coverage under the weather (wind) parameters noted.

FAA Advisory Circular 150/5300-13, *Airport Design*, presents guidelines for runway wind coverage. The circular states that when a runway orientation provides less than 95 percent wind coverage for the class of aircraft anticipated to use that runway on a regular basis, a crosswind runway is recommended. The analysis of runway orientation and wind/weather coverage for Kelso-Longview Regional Airport is documented below.

METEOROLOGICAL CONDITIONS

Weather conditions can impact airport runway capacity and utilization due to the effects of wind direction and velocity, combined with the level of visibility. The prevailing wind and visibility conditions serve to determine the direction in which takeoffs and landings may be conducted, and the frequency of use for each available runway-operating configuration. Since different airport configurations have different operational capacities, it is necessary to identify each potential configuration for the airport, calculate its capacity, and determine the percentage of time it is likely to be in use.

The terms visual meteorological conditions (VMC) and instrument meteorological conditions (IMC) are used as measures of ceiling and visibility. VMC conditions occur when the ceiling is at least 1,000 feet and visibility is three miles or greater. During these conditions, pilots can elect to fly under Visual Flight Rules (VFR) on a see-and-be-seen basis, and visual approaches can be conducted independently on parallel runways spaced at least 700 feet apart. IMC conditions occur when the ceiling is less than 1,000 feet or visibility drops below three miles. In IMC weather, pilots must fly under Instrument Flight Rules (IFR) and the Air Traffic Control (ATC) system assumes primary responsibility for the safe separation between aircraft.

Exhibit 4-6 summarizes the average monthly distribution of IMC and VMC conditions for KLS. Since the weather information reflects data collected over long periods of time and is used to produce an indicator of average conditions, it is assumed that this information is a reliable indicator of average annual weather patterns at the Airport.

Exhibit 4-6: Monthly Distribution of IMC/VMC Weather Conditions; Kelso, Washington

Month	IMC Conditions	VMC Conditions
January	21%	77%
February	13%	86%
March	11%	88%
April	6%	90%
May	5%	95%
June	3%	97%
July	3%	97%
August	6%	94%
September	10%	90%
October	15%	85%
November	24%	76%
December	23%	76%
Ave. Annual Distribution	12%	88%

Source: National Climatic Center data

WIND COVERAGE

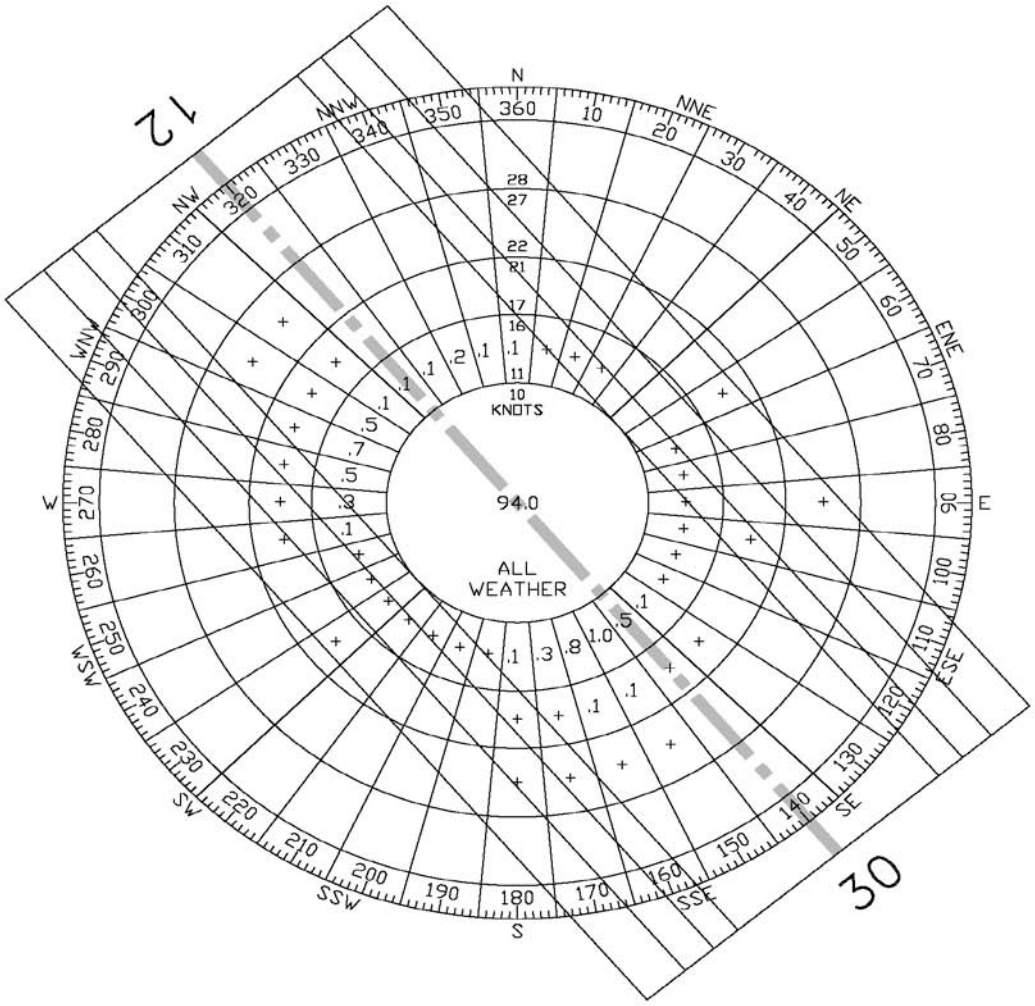
Wind coverage plays an important role in determining the orientation of a runway. By calculating prevailing winds in relation to the airport, it is possible to determine the optimum orientation of a runway for takeoff and landing purposes with the least occurrence of excessive crosswind conditions that would curtail operations. The percent wind coverage is calculated based on crosswind parameters established by the FAA and is related to the Airport Reference Code (ARC) for the type of aircraft using the runway. Crosswind conditions for various ARCs are shown below:

- 10.5 knots for ARC A-I and B-I
- 13.0 knots for ARC A-II and B-II
- 16.0 knots for ARC A-III, B-III, and C-I through D-III
- 20.0 knots for ARC A-IV through D-IV

Historical weather data for Kelso was obtained from the National Climatic Center for the years 2000 through 2008. The data indicates that, based on all-weather wind coverage with a 13-knot (14.9 mph) crosswind limitation, Runway 12/30 is usable an average 99.92 percent of the time. Winds in Kelso are calm (0 to 10 knots) an average of 94.0 percent of the time. This information is presented in 4-6 as an All-Weather Wind Rose and includes calculations for 10.5, 13, 16, and 20-knot crosswind coverage. Under IFR conditions with a 13-knot crosswind limitation, Runway 12/30 is usable and average 99.9 percent of the time. Winds are calm an average of 97.5 percent of the time. Exhibit 4-7 reflects this information as well as lists percentages for 10.5, 13, 16, and 20-knot crosswind coverage.

Requirement Recommendation. The FAA requires that at least 95 percent wind coverage be obtained through runway orientation. Since KLS's runway has all-weather wind coverage of 99.9 percent, no changes to the existing runway orientation or additional runways are needed.

Exhibit 4-7: All-Weather Wind Rose

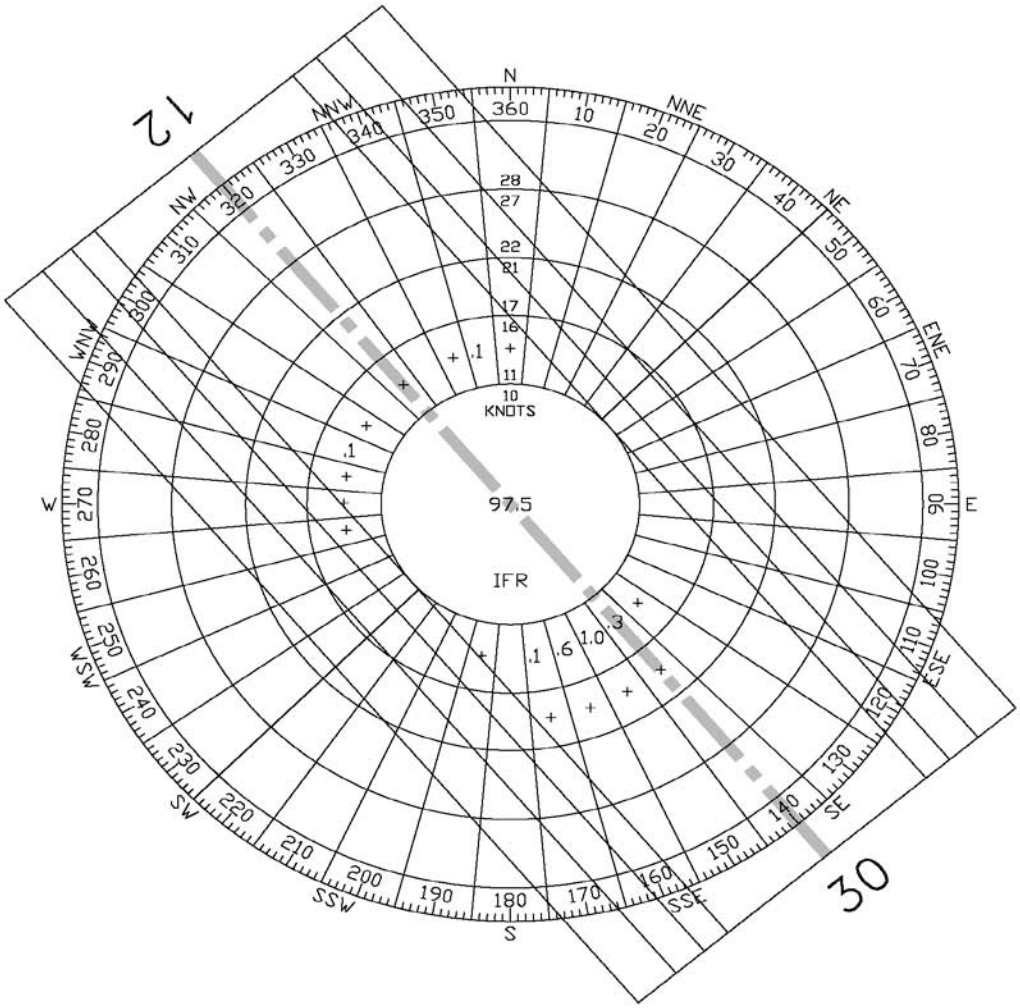


ALL–WEATHER

CROSSWIND	RWY 12–30
10.5 KNOTS	99.60 %
13 KNOTS	99.92 %
16 KNOTS	99.99 %
20 KNOTS	100.00 %

Source: National Oceanic and Atmospheric Administration, National Climatic Data Center. Kelso, Washington. Period of record: 2000-2008.

Exhibit 4-8: IFR Wind Rose



INSTRUMENT FLIGHT RULES	
CROSSWIND	RWY 12–30
10.5 KNOTS	99.94 %
13 KNOTS	99.99 %
16 KNOTS	100.00 %
20 KNOTS	100.00 %

Source: National Oceanic and Atmospheric Administration, National Climatic Data Center. Kelso, Washington. Period of record: 2000 - 2008.

4.4.6 SUMMARY OF RUNWAY REQUIREMENTS

Exhibit 4-9 below summarizes the changes to Runway 12/30 based on the findings, conclusions and recommendations presented above.

Exhibit 4-9: Existing and Proposed Runway Data

Designation	Existing Rwy 12/30		Future Rwy 12/30	
Length	4,395'		5,000'	
Width	100'		Same	
Pavement Type	Asphalt		Same	
Pavement Strength (in lbs.)				
Single Wheel	38,000		Same	
Dual Wheel	46,000		Same	
Dual Tandem Wheel	74,000		Same	
Lighting	Medium Intensity Runway Lighting (MIRL)		Same	
Effective Gradient	0.09%		Same	
Max. Grade within Rwy.	0.213%		Same	
Line of Sight	4,395'		5,000'	
Percent Wind Coverage	VFR	IFR	VFR	IFR
12 mph Crosswind	96.2%	97.4%	Same	Same
15 mph Crosswind	97.5%	99.4%	Same	Same
Airport Reference Code	B-II		Same	
Critical Aircraft	Beech King Air		Cessna 550/Citation II	
Wingspan	54.5'		51.7'	
Weight	12,500 lbs.		13,300 lbs.	
Approach Speed	103 knots		108 knots	
Runway Safety Area	4,995' x 150'		5,600' x 150'	
Object Free Area	4,995' x 500'		5,600' x 500'	
Obstacle Free Zone	No Penetrations		No Penetrations	
Runway End Designation	12	30	Same	Same
Approach Visibility Minimums	> 1 mile	Visual	Same	> 1 mile
FAR Part 77 Approach Slope	34:1	20:1	Same	34:1
Runway Markings	Non-Precision Instrument	Non-Precision Instrument	Same	Same
Visual Aids	PAPI-4 REIL	PAPI-4 REIL	Same	Same
Approach Aids	GPS/NDB-A	NDB-A	Same	Same

Source: 2000 Master Plan Update Airport Layout Plan and URS Corp.

4.5 FAA DESIGN STANDARDS

The FAA recommends standard widths, minimum clearances, and other dimensional criteria for runways, taxiways, taxilanes, safety areas, aprons, and other physical airport

facilities. For KLS, the design dimensions are recommended with respect to the runway ARC classification and level of instrument approach capability. The runway ARC classification is based on the results of the aviation demand forecasts and current conditions at the airport as discussed above. Accordingly, evaluation of the airfield system is based on the following characteristics:

- Runway 12 (ARC B-II): Non-precision approach. Approach visibility minimums are not lower than 1 mile.
- Runway 30 (ARC B-II): Visual approach.

All runway and taxiway improvements must incorporate the FAA's design criteria to the extent possible, as indicated in the following exhibits. In certain instances, conditions may exist at an airport that do not comply with FAA criteria. The FAA may waive these if it is determined that no negative impact will result; however, under other circumstances some form of mitigation may be required. As noted in Chapter 1, The 2000 Master Plan Update noted existing deviations from FAA standards at KLS such as the existing runway-taxiway separation distance. Some of these deficiencies have been addressed since completion of the previous plan while others have not. This analysis will identify those deficiencies that remain and identify possible solutions.

The applicable FAA design recommendations and dimensional standards for the KLS runway/taxiway system are presented in Exhibit 4-10 and on the following pages.

Exhibit 4-10: FAA Design Standards

AIRPORT DESIGN AIRPLANE AND AIRPORT DATA	
Aircraft Approach Category	B
Airplane Design Group	II
Airplane wingspan	51.8 feet
Primary runway end approach visibility minimums are not lower than 1 mile	
Other runway end approach visibility minimums are not lower than 1 mile	
Airplane undercarriage width (1.15 x main gear track)	15.00 feet
Airport elevation	20 feet

RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS	
	Group/ARC: B-II
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is not treated as a factor:	
VFR operations with no intervening taxiway	700 feet
VFR operations with one intervening taxiway	700 feet
VFR operations with two intervening taxiways	700 feet
IFR approach and departure with approach to near threshold 2500 feet less100 ft for each 500 ft of threshold stagger to a minimum of 1000 feet.	
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is treated	

RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS	
as a factor:	
VFR operations	2500 feet
IFR departures	2500 feet
IFR approach and departure with approach to near threshold	2500 feet
IFR approach and departure with approach to far threshold 2500 feet plus 100 feet for each 500 feet of threshold stagger	
IFR approaches	3400 feet
Runway centerline to parallel taxiway/taxilane centerline . 239.5	240 feet
Runway centerline to edge of aircraft parking 250.0	250 feet
Runway width	75 feet
Runway shoulder width	10 feet
Runway blast pad width	95 feet
Runway blast pad length	150 feet
Runway safety area width	150 feet
Runway safety area length beyond each runway end or stopway end, whichever is greater	300 feet
Runway object free area width	500 feet
Runway object free area length beyond each runway end or stopway end, whichever is greater	300 feet
Clearway width	500 feet
Stopway width	75 feet
Obstacle free zone (OFZ):	
Runway OFZ width	400 feet
Runway OFZ length beyond each runway end	200 feet
Inner-approach OFZ width	400 feet
Inner-approach OFZ length beyond approach light system	200 feet
Inner-approach OFZ slope from 200 feet beyond threshold	50:1
Inner-transitional OFZ slope	0:1
Runway protection zone at the primary runway end:	
Width 200 feet from runway end	500 feet
Width 1200 feet from runway end	700 feet
Length	1000 feet
Runway protection zone at other runway end:	
Width 200 feet from runway end	500 feet
Width 1200 feet from runway end	700 feet
Length	1000 feet
Departure runway protection zone:	
Width 200 feet from the far end of TORA	500 feet
Width 1200 feet from the far end of TORA	700 feet
Length	1000 feet
Threshold surface at primary runway end:	
Distance out from threshold to start of surface	0 feet
Width of surface at start of trapezoidal section	400 feet
Width of surface at end of trapezoidal section	1000 feet
Length of trapezoidal section	1500 feet
Length of rectangular section	8500 feet
Slope of surface	20:1
Threshold surface at other runway end:	

RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS	
Distance out from threshold to start of surface	0 feet
Width of surface at start of trapezoidal section	400 feet
Width of surface at end of trapezoidal section	1000 feet
Length of trapezoidal section	1500 feet
Length of rectangular section	8500 feet
Slope of surface	20:1
Taxiway centerline to parallel taxiway/taxilane centerline 104.8	105 feet
Taxiway centerline to fixed or movable object 65.3	65.5 feet
Taxilane centerline to parallel taxilane centerline 96.9	97 feet
Taxilane centerline to fixed or movable object 57.4	57.5 feet
Taxiway width 30.0	35 feet
Taxiway shoulder width	10 feet
Taxiway safety area width 79.0	79 feet
Taxiway object free area width 130.6	131 feet
Taxilane object free area width 114.8	115 feet
Taxiway edge safety margin	7.5 feet
Taxiway wingtip clearance 25.8	26 feet
Taxilane wingtip clearance 17.9	18 feet

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

Based on the FAA design standards ARC B-II aircraft presented in Exhibit 4-10, the following deficiencies or deviations from standards are noted as determined from the existing Airport Layout Plan drawing.

Exhibit 4-11: Deficiencies and Deviations from Standards

FAA Design Criterion	ARC B-II Standard	Deviation from FAA Standard
Runway centerline to Taxiway centerline	240’	• Taxiway “A” = 199’
		• Taxiway “D” (near north end of Sullivan Hangars) = 232’
Taxiway Width	35’	• Taxiway “D” = 14’
		• Taxiway “E” = 10’
Taxiway Object Free Area	131’ overall (65.5’ from Taxiway centerline)	• Segments of Taxiway “D” east of Sullivan hangars = 32’
		• Segments of Taxiway “E” west of Sullivan hangars = 24’

FAA Design Criterion	ARC B-II Standard	Deviation from FAA Standard
Taxilane Object Free Area	115' overall (57.5' from Taxilane centerline) <u>ARC Grp I</u> 79' overall (39.5' taxilane centerline)	• Existing A,B,C hangars = 48' from apron-edge taxilane
		Tiedown apron south of FBO facility:
		• Two western-most tiedown positions = 40' from apron-edge taxilane
		• Center east/west taxilane = 54'
		• Northerly tiedown row distance from FBO building = 98'
		Tiedown apron north of FBO facility:
		• Apron taxilanes = 81'
		A,B,C Hangars - Finger Taxilanes
		• Finger Taxilane extensions between hangars = 54'
		New Hangars (south of A,B,C Hangars) - Finger Taxilanes
		• Finger taxilane extensions between hangars = 79'.

Source: URS Corp.

The general location of existing deviations from standards listed in Exhibit 4-11 above are depicted in Exhibit 4-12. While known existing deviations were noted in Chapter 2 – Existing Conditions Inventory, additional deviations have been identified under the current analysis.

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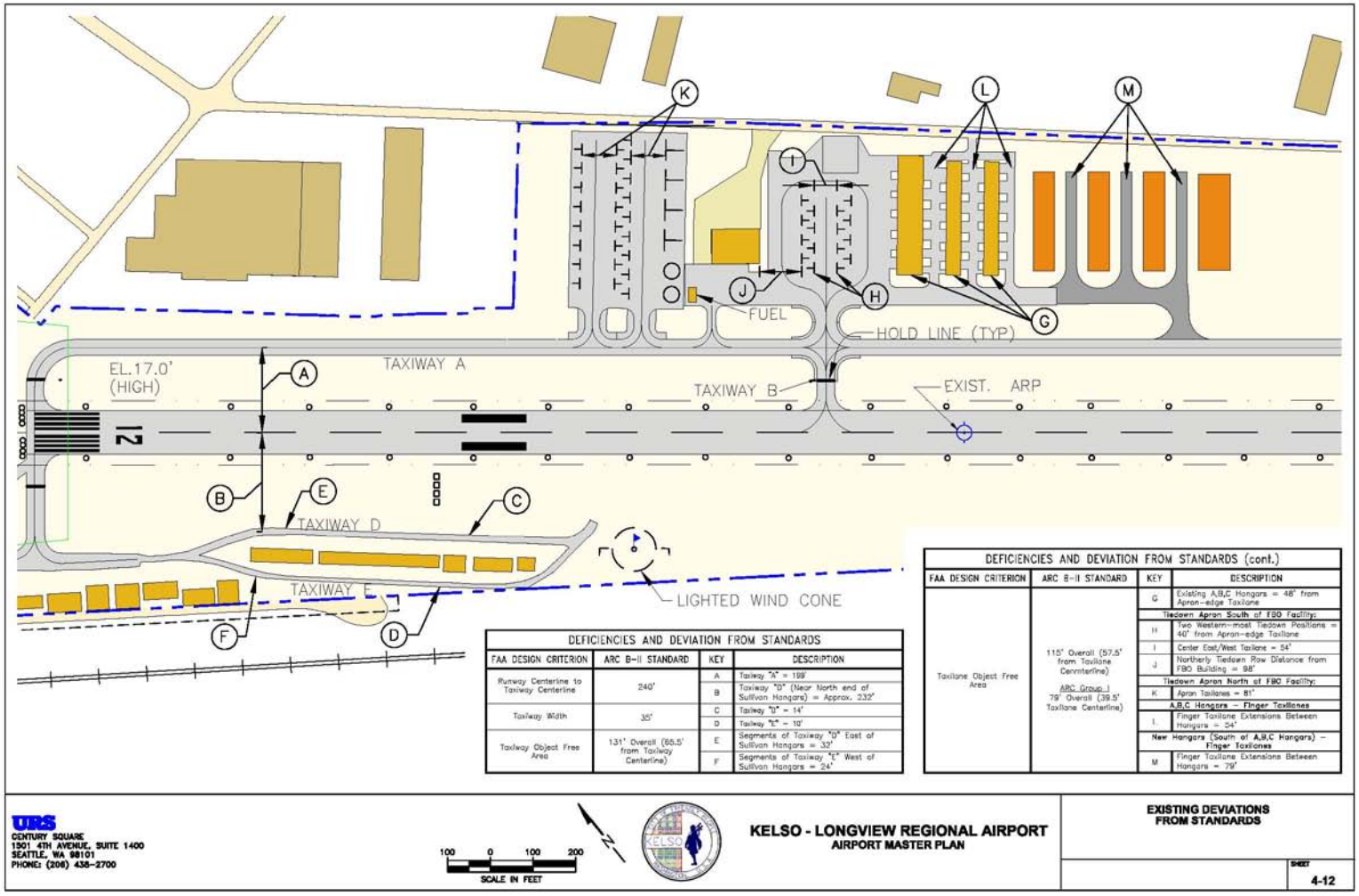

DEFICIENCIES AND DEVIATION FROM STANDARDS

FAA DESIGN CRITERION	ARC B-II STANDARD	KEY	DESCRIPTION
Runway Centerline to Taxiway Centerline	240'	A	Taxiway "A" = 199'
		B	Taxiway "D" (Near North end of Sullivan Hangars) = Approx. 232'
Taxiway Width	35'	C	Taxiway "D" = 14'
		D	Taxiway "E" = 10'
Taxiway Object Free Area	131' Overall (65.5' from Taxiway Centerline)	E	Segments of Taxiway "D" East of Sullivan Hangars = 32'
		F	Segments of Taxiway "E" West of Sullivan Hangars = 24'

DEFICIENCIES AND DEVIATION FROM STANDARDS (cont.)

FAA DESIGN CRITERION	ARC B-II STANDARD	KEY	DESCRIPTION
Taxilane Object Free Area	115' Overall (57.5' from Taxilane Centerline) ARC Group I 79' Overall (39.5' Taxilane Centerline)	G	Existing A,B,C Hangars = 48' from Apron-edge Taxilane
			Tiedown Apron South of FBO Facility:
		H	Two Western-most Tiedown Positions = 40' from Apron-edge Taxilane
		I	Center East/West Taxilane = 54'
		J	Northerly Tiedown Row Distance from FBO Building = 98'
			Tiedown Apron North of FBO Facility:
		K	Apron Taxilanes = 81'
			A,B,C Hangars – Finger Taxilanes
		L	Finger Taxilane Extensions Between Hangars = 24'
			New Hangars (South of A,B,C Hangars) – Finger Taxilanes
		M	Finger Taxilane Extensions Between Hangars = 79'

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SCALE IN FEET

KELSO - LONGVIEW REGIONAL AIRPORT
AIRPORT MASTER PLAN

EXISTING DEVIATIONS FROM STANDARDS

SHEET 4-12

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As noted in Exhibits 4-11 and 4-12, the Taxiway "A" separation distance from the runway does not meet FAA standards for ARC B-II aircraft. While the airport has expressed interest in seeking reduced minimums to its existing non-precision approach, the lack of proper separation between Taxiway "A" and the runway could be a limiting factor in any effort to improve approach capabilities to the airport. The feasibility of relocating Taxiway "A" will be reviewed under Alternatives, along with the implications that relocation could have on future airport development.

The deviations identified in the 2000 Master Plan Update for which corrective action remains to be taken primarily relate to Taxiways "D" and "E", which serve the west side Sullivan Hangars. The Sullivan Hangars are planned for removal as replacement facilities become available. Once these hangars are removed it is anticipated that Taxiways "D" and "E" will be relocated or reconfigured. Any deviations or deficiencies will be addressed at that time. The future layout of the west side hangar area will be examined under the Alternatives analysis.

All deviations and recommended corrective actions will be noted on the updated Airport Layout Plan as part of a recommended development plan for the airport. Deviations reflected on the existing ALP and proposed to remain under the 2000 Master Plan Update will again be reviewed for possible corrective action. In addition, those deviations noted for action on the existing ALP but as yet unaddressed will also be reviewed, along with any updates as to the proposed corrections.

The deviations from standards not previously identified primarily relate to taxilane object free area design standards. As noted in Exhibit 4-11, the apron taxilane separation distances for the south aircraft tiedown apron, as well as the existing and proposed aircraft hangars do not meet ARC B-II standards. Even the new hangars currently under development south of the existing A, B, and C hangars provide only ARC Group I OFA separation distances even though some of the hangars are intended for larger corporate aircraft.

The airport faces significant land area constraints, particularly for facilities east of the runway. At a minimum, the two western most tiedown positions of the south apron should be removed and/or relocated. While internal circulation within the tiedown area and between the existing and new east side hangars may be restricted to small Group I aircraft, it is possible that B-II aircraft may desire access to the fuel stand from Taxiway "A". At present, the two existing tiedown positions intrude into the apron-edge taxilane Object Free Area and could pose a hazard to larger aircraft. In addition, it should be noted that use of the aircraft wash down apron by B-II aircraft may be limited by the restricted taxilane separation distances on the south apron.

The aircraft parking positions depicted on the existing ALP for the apron north of the FBO facilities provide only ADG Group I Object Free Area clearances of 79 feet for the taxilanes between parked aircraft. Consequently, as currently designed there are no apron areas on airport specifically designed to accommodate ADG Group II aircraft based on FAA design standards. While utilization of the north apron is currently low, this may not prove to be a constraint to the movement and parking of aircraft. However, over time as activity by ADG Group II aircraft increases, constraints to accommodating the larger aircraft may be experienced.

Clearly, the airport is functioning in spite of aircraft apron and movement areas not in conformance with FAA design standards. It is not practical to remove or relocate existing major structures to accommodate the recommended separation distances. The deficiencies for west side Taxiways "D" and "E" remain to be addressed but will be resolved once the west side Sullivan hangars, scheduled for removal, are gone. However, during the Alternatives analysis opportunities for relocating some of the aircraft tiedowns or reconfiguring tiedown aprons will be reviewed as to the potential to accommodate FAA recommended clearance distances in and around aircraft parking areas.

In general, it is recommended that the airport differentiate apron areas between those serving based aircraft and aprons intended to serve transient aircraft. Transient aircraft are typically less familiar with the layout of and movement around the airport and would benefit from the added margin of safety provided by full separation distances and clearances as recommended by the FAA. While it is possible that different design standards may apply to different areas of the airport that, while performing a similar function, may be used by different ARC classification aircraft clear, distinctions should be made to ensure aircraft are routed to appropriately designed facilities on airport.

4.6 OTHER AIRPORT FACILITY REQUIREMENTS

This section of the Facility Requirements analysis addresses those additional facilities and airfield elements needed for the operation of the airport.

4.6.1 TAXIWAYS

Taxiway widths and compliance with FAA design standards are discussed in the preceding section. Taxiways "D" and "E" are expected to be removed or reconfigured once the west side Sullivan Hangars are removed.

Taxiway "A" is not equipped with aircraft engine run-up areas. As use of the airport by larger business-class aircraft increases over time, it is conceivable that aircraft operating under an IFR flight plan may need to "hold" while awaiting take-off clearance from the

Seattle Air Route Traffic Control Center (ARTCC). Other VFR aircraft behind the holding aircraft would be blocked from using the runway until the first aircraft is released for departure by ARTCC. It is recommended that run-up bays of sufficient size to accommodate at least one B-II aircraft be constructed on Taxiway "A" in the vicinity of the hold line at each runway end. These holding areas would allow aircraft to by-pass one waiting for take-off clearance as well as aircraft going through run-up procedures.

Taxiway "D" varies in width from nearly 43 feet where it connects to Runway 12/30 to approximately 13 feet wide north of the intersection with Taxiway "E". As noted, ARC B-II standards identify a 35' taxiway width, and a 25' width for Airplane Design Group (ADG) I aircraft. Once the long-term configuration of the northwest side of the airport is determined under the Alternatives analysis, recommendations should be made as to bringing Taxiway "D" up to the either ADG Group I or Group II standards as appropriate.

Immediately east of Building 40, the Civil Air Patrol (CAP) building in the northwest corner of the airport, is an apron with a paved undesignated connection to Runway 12/30. A compass rose is located on this apron adjacent to the northerly extension of taxiway "D". Site inspection of this apron and undesignated taxiway suggests they receive little use. In addition, a large portion of this apron lies within the Runway Object Free Area (OFA) and Runway Protection Zone (RPZ). The undesignated taxiway connects to Runway 12/30 beyond the existing Taxiway "D" hold line. Either an additional hold line should be painted on the undesignated taxiway, or the taxiway should be decommissioned and removed to preclude aircraft from inadvertently taxiing directly on to the runway.

Taxiways at KLS are unlighted with only centerline striping to guide aircraft. The 2000 Master Plan Update recommends that, long-term, reflectors be installed on all taxiways. Given the anticipated future role of the airport, it is recommended that medium intensity taxiway lighting be installed on Taxiway "A" and its connecting taxiways to Runway 12/30. As the runway's primary parallel taxiway and providing access to the east side FBO facilities and development area, taxiway lighting is warranted. The previous plan's recommendation for taxiway reflectors is carried over into the current Plan for west side taxiways. These improvements are recommended to occur during the intermediate phase (6 to 10 years) of the planning period.

Additional taxiway recommendations may result from the recommended plan for the airport developed under the Alternatives analysis.

4.6.2 NAVIGATION AND APPROACH AIDES

Existing airport navigational aids, including instrument approaches and associated equipment, airport lighting, and weather and airspace requirements were discussed in the Existing Conditions Inventory chapter of this plan. The following section details improvements that may be needed.

The airport provides limited navigation aids to assist pilots. Aids in locating the airport include the electronic Non-Directional Beacon (NDB) and a visual rotating beacon light. As navigation to the airport becomes increasingly reliant on on-board equipment such as GPS receivers, navigation aids such as the NDB become less significant. However, as one of the existing Non-Precision Approaches to the airport is based on the NDB, the beacon will continue to be relevant to the operation of the airport.

Approach aids at KLS consist of 4-box Precision Approach Path Indicator (PAPI-4) systems for each runway end. The PAPI-4 systems guide aircraft along a 4.0 degree approach slope to the touchdown zone for each runway end. The threshold of each runway end is marked by Runway End Identification Lights (REILS). No changes are proposed to the existing electronic or visual navigation or approach aids.

4.6.3 AIRPORT LIGHTING, MARKING AND SIGNAGE

FAA records indicate Runway 12/30 at KLS is equipped with non-standard Medium Intensity Runway Lights (MIRL). Under the recommended performance objectives established under WSDOT LATS, Regional Service Airports should provide Medium Intensity Runway Lighting systems. This recommendation is relevant to KLS given the expected growth in higher performance business class aircraft over time and the non-standard lighting currently installed at the airport. The LATS recommendation is consistent with the conclusions of this analysis. Consequently, it is recommended that long-term, the runway lighting system at KLS be brought to a standard MIRL configuration.

If Runway 12/30 is extended in the future, Taxiway "A", all lighting and visual aids (PAPIs, REILs, etc.) should be relocated and lighting systems extended as appropriate. If some interim measure is taken such as construction of an over-run area or displaced threshold, runway lighting and/or visual aids may not be affected depending on the design solution.

Taxiway lighting at KLS is discussed under Section 4.7.1 above.

No changes are recommended in pavement marking other than the hold line recommended for the undesignated taxiway in the northwest corner of the airport as discussed under the Taxiways section above. The hold line should be added during the initial phase (0 to 5 years) of the planning period.

Signage is currently provided to identify runway ends and taxiways at key intersections. It is recommended that as additional facilities are developed and activity increases, additional signage be installed to assist transient aircraft as well as ensure conformance with FAA signage requirements.

4.6.4 AUTOMATED WEATHER REPORTING

The airport is equipped with an Automated Weather Observation System - 3 (AWOS) weather reporting equipment. Pilots can receive current weather information such as: wind direction, wind speed, sky condition, visibility, temperature, dew point, and altimeter setting, via their radio in the cockpit or by telephone. No changes or modifications to this system are recommended.

4.6.5 APPROACH SLOPE AND RUNWAY PROTECTION ZONES (RPZS)

Approach Slope and Runway Protection Zone standards are defined by FAA based on the level of approach precision available at the airport and the Airport Reference Code assigned to the facility.

APPROACH SLOPE

For runways accommodating precision instrument approaches, the approach slope ratio is 50:1. For runways providing non-precision instrument and visual approaches, the slopes are 34:1 and 20:1 respectively. At Kelso-Longview Regional Airport, the Approach Slope for runway 12 is 34:1 driven by the existing non-precision approach for that runway. Runway 30 is classified as a visual runway with a 20:1 Approach Slope. This is anticipated to change to a 34:1 non-precision approach within the time frame of this master plan.

If in the future changes occur to the level of approach precision available at KLS, the Approach Slopes will need to be reviewed for consistency with applicable FAA standards. In addition, if and when the runway extension occurs, the approach surface to the affected runway end will need to be relocated to match the new runway threshold.

RUNWAY PROTECTION ZONES

The Runway Protection Zone (RPZ) is a trapezoidal area at ground level representing the innermost portion of the approach surface to the runway end. The specific dimensions are defined by the type of aircraft operations conducted on the runway. If separate take-off and landing distances are identified for a runway, such as when a displaced threshold exists, separate RPZs are defined for the landing and departure ends of the runway. An RPZ begins 200 feet beyond the runway threshold and is centered along the extended runway centerline. Its function is to enhance the protection of people and property on the ground through airport owner control over the RPZ area.

Where practical, the airport should own the property under the approach and departure areas to at least the limits of the RPZ. It is desirable to clear the RPZ area of incompatible objects and activities. While it is desirable to clear all objects from the RPZ, some uses are permitted, provided they do not attract wildlife.

The FAA recommended dimensions for KLS Runway Protection Zones and Approach Slopes are cited in 4-13.

Exhibit 4-13: Approach Surface and Runway Protection Zone Dimensions

Item	Slope	Width at Runway End (feet)	Length	Width at Outer End (feet)
Existing Approach Dimensions[1]:				
Runway 12	34:1	500	10,000	3,500
Runway 30	20:1	500	5,000	1,500
Existing RPZ Dimensions[2]:				
Runway 12	Not Applicable	500	1,000	700
Runway 30	Not Applicable	500	1,000	700
Future Approach Dimensions:				
Runway 12	No Change	No Change	No Change	No Change
Runway 30	34:1	500	10,000	3,500
Future RPZ Dimensions:				
Runway 12	Not Applicable	No Change	No Change	No Change
Runway 30	Not Applicable	No Change	No Change	No Change

[1]Approach Surface starts at the end of the area usable for takeoff and landing.

[2] Runway Protection Zone starts 200 feet beyond runway end.

Portions of the Runway Protection Zone at KLS extend off airport property on the north end of the runway. Those properties falling within the RPZ, but outside airport property,

are subject to avigation easements obtained by the airport. Avigation easements have also been obtained on properties north of the RPZ/airport property boundary as well. It is recommended that as funding becomes available, properties located within the RPZ boundary not currently under airport ownership be acquired in fee-simple consistent with FAA recommendations for full airport control over the RPZ.

The RPZ off the south end of the runway is entirely within airport ownership. Talley Way currently runs within the eastern boundary of the RPZ. The existing ALP depicts a possible future alignment of Talley Way to the east, shifting it outside of the RPZ boundary. The city has recently initiated a review of the Talley Way corridor and the future alignment depicted on the ALP may be subject to change.

Any extension of the existing runway, whether to the north or south, will also extend the Runway Protection Zones. Therefore, additional land acquisition to extend the RPZ must also be included in the cost of any runway extension project wherever the relocated RPZ extends beyond existing airport boundaries.

4.6.6 Aircraft Parking and Storage Requirements

Aircraft based at KLS are stored in one of several areas. These include private hangars on leased land, city-owned T-hangars leased to private parties and apron tiedown positions.

As noted in Chapter 2, Existing Conditions Inventory, parking and storage facilities at KLS can accommodate approximately 118 aircraft allocated between 70 hangar positions, 46 open fixed-wing tiedowns and two rotorcraft parking positions. As of 2007, the airport reported 74 based aircraft with all available hangar positions being occupied. This represents a breakdown of 94 percent of based aircraft being stored in hangars and six percent in open tiedowns.

The long-term based aircraft forecast for KLS anticipates 109 aircraft at the airport by 2027. Although the forecast number of aircraft appears to be within the overall existing basing capacity of the airport, the level of demand for hangar space could exceed the supply available at the airport. With 39 additional aircraft anticipated to base at the airport over the 20-year-planning period, the majority of aircraft will need to be accommodated in hangars since this is the preference of the aircraft owner community at KLS. The number and type of aircraft storage facilities needed over the course of the 20-year planning period are detailed in the sections below.

HANGAR STORAGE REQUIREMENTS

Covered aircraft storage is in high demand at the airport due to the wet weather conditions, particularly during the winter season. As of mid-2008, five individuals who currently store aircraft in the Sullivan hangars on the west side of the airport, which are planned for removal are seeking alternative storage on the airport. As of late-2008, the airport has approved and is moving forward with development of 33 new hangars south of the existing A, B, C hangar complex on the east side of the airport – including three corporate aircraft size hangars.

The growth in based aircraft will translate into need for additional hangar facilities. Assuming the percentage of based aircraft stored in hangars remains the same over the planning period, 103 hangar positions will be needed at the airport by 2027.

Of the existing hangar positions at the airport, as noted in Chapter 2 – Existing Conditions Inventory, 19 city-owned hangars on the west side of the runway are planned for removal due to their penetration of the FAR Part 77 Imaginary Surfaces. Furthermore, 19 additional west side hangar positions (one city owned and 18 private facilities) are also planned for eventual removal/replacement due to their age and condition. Combining the number of additional new hangars with those needed to replace existing facilities, 71 new hangars need to be planned for and located under the Alternatives analysis of this Plan.

The Aviation Demand Forecasts project 12 multi-engine turboprop aircraft and 7 turbojet aircraft based at KLS by 2027. It is assumed that these will not only be stored in hangars but also represent the ARC B-II component of the based aircraft fleet. As a result, at least 19 of the 103 hangars should be sized to accommodate the larger corporate aircraft. Hangar size is typically dictated by aircraft wingspan and tail height. A "stock" hangar offered by one manufacturer suitable for ARC B-II aircraft would have a door opening 65' wide and 18' high. It should be remembered that the demand for aircraft hangars is based on forecasts which can change over time. Consequently, while it is recommended that these larger hangar facilities be reflected in the airport's long-term plans, it is also recommended that hangars only be constructed as specific needs arise or are identified and not on a speculative basis. Further, the city has determined that there is a demand for economy hangars to house the smaller general aviation aircraft. These are being considered for construction on the airport's eastside as current hangars are removed.

BASED AIRCRAFT TIEDOWN STORAGE REQUIREMENTS

At present, an estimated six percent of the existing based aircraft are stored outside on tiedown aprons. These aircraft are generally the smaller single- and multi-engine piston

aircraft of the general aviation fleet. Space planning for these types of aircraft is typically calculated based on 360 square yards of apron for each parking space needed. This allowance provides space for aircraft parking and circulation between the rows of parked aircraft, although circulation space requirements can vary by site. This space allowance assumes that pilots have a certain degree of familiarity with the parking situation, and therefore represents a minimum that should be provided.

The existing east-side tiedown aprons at KLS provide 17 designated small aircraft (ADG Group I) tiedown positions on the south apron and 31 positions, including four large aircraft (B-II) and two rotorcraft positions on the north apron. There are no designated tiedown positions on the west side of the runway. The number of based aircraft stored on apron tiedowns may fluctuate with the seasons – particularly for ultra-light aircraft. With 48 open apron positions currently provided, there is significant excess open tiedown capacity currently available. Long-term, based aircraft open tiedown requirements are estimated at seven to ten aircraft over the 20-year-planning period. Using the apron area space planning guideline of 360 square yards per aircraft, 3,600 square yards or approximately 0.75 acres of tiedown apron would be needed for ten (ADG Group I) based aircraft.

TRANSIENT AIRCRAFT TIEDOWN STORAGE REQUIREMENTS

Tiedown space is also needed for transient aircraft for the purposes of daily parking and longer-term periods that can extend overnight. It is often best to provide this space at or adjacent to FBO facilities if layout configurations allow. The availability of, location and configuration of transient tiedown apron will be evaluated in the Alternatives assessment chapter of this Plan.

In calculating the area required for transient tiedowns, an allowance equal to 700 square yards per aircraft is used. This area is larger than that applied to spaces for based aircraft tiedowns for two reasons. First, the user of the transient space may not be as familiar with the airport's ground movement patterns and thus provided a greater margin of safety. Secondly, all types and sizes of aircraft will be parked in the transient tiedowns and a greater apron allowance provides more flexibility in how the spaces are used. The larger transient tiedown spaces will be reflected in the recommended Airport Layout Plan to the extent possible.

The following method is employed in calculating the number of aircraft that will require transient aircraft parking spaces.

- Determine the average day number of itinerant aircraft operations

- Convert the itinerant operations to the number of arrival aircraft by dividing by two.

- Divide the number of aircraft performing itinerant operations by two to account for the fact that some itinerant operations are by based aircraft.

- Assume that no more than 50 percent of the resulting daily transient aircraft operations will require storage at any one period of time.

Based on Chapter 3, Aviation Demand Forecasts, peak month average day operations are projected to reach 181 by 2027. Itinerant operations are forecast to constitute 51.3 percent of overall operations or 93 operations by 2027. Using the methodology cited above, 12 itinerant aircraft apron tiedown positions would be required. Assuming the existing four ADG B-II aircraft and two rotorcraft positions are retained, six additional positions would be required for other Group I aircraft. Using the itinerant aircraft apron space planning guideline, 8,400 square yards or 1.75 acres of transient tiedown apron will be required by 2027.

SUMMARY OF AIRCRAFT STORAGE REQUIREMENTS

It is clear from the analysis that the focus of future aircraft storage should be for hangars – either group or T-hangars. The long-term need to replace a significant number of existing hangars along with constructing new ones to accommodate future demand will need to be included in the Alternatives analysis. Overall, 71 hangars will need to be planned for in the Alternatives analysis, including 21 additional ADG Group II corporate aircraft size facilities.

At present, there is approximately 4.5 acres of open tiedown apron available at the airport. Long-term demand suggests that approximately 2.5 acres of tiedown apron would be adequate. This area calculation may need to be adjusted to provide better separation of rotorcraft and fixed wing aircraft operations which can conflict with one another. However, the alternatives evaluation should explore opportunities to balance the demand for apron with the anticipated need, as well as the airport's ability to address future hangar requirements.

4.6.7 AUTOMOBILE PARKING AND ACCESS

This section includes assessment of the airport's vehicle parking lots and internal ground circulation of aircraft and vehicles.

ACCESS

Vehicular access to the airport is available via Parrott Way for east side facilities, and South Pacific Avenue to the hangar complex in the northwest corner of the airport.

Security requirements for general aviation are still being developed by the government and industry; however, what is clear is that access to the airfield will increasingly become more limited. Vehicle access gates at KLS currently enable automobile access to the operations and hangars areas. Recently installed automated gates serve the east side A, B, C hangars and the south tiedown apron adjacent to the FBO facility. Additional manually operated vehicle access gates are available on both the east and west sides of the airport. Specific gate locations are depicted on the Airport Layout Plan. Personal vehicles can drive to aircraft hangars and vehicle gates are not always kept closed. Such ready vehicle access to the airfield operating areas may become more restricted as security measures at general aviation airports are enacted in the future.

The number and location of vehicle access points, as well as internal vehicle circulation will need to be considered in the alternatives development and evaluation task of this plan. Where dual lane vehicle access is provided it is recommended that a 26-foot design width be used.

PARKING

Vehicle parking on the east side of the airport is primarily provided adjacent to the FBO facility. Only the southerly portion of this parking area is paved and there are no formally designated parking stalls. A small additional parking area with space for several vehicles is located adjacent to Parrott Way and Hangar A.

Parking on the northwest side of the airport is limited to several spaces inside the gate and airside of the Civil Air Patrol (CAP) building. Several of the northwest hangars located immediately adjacent to South Pacific Avenue have street-side doors large enough for vehicles to use. Otherwise, pilots must either park their vehicles on the shoulder of the roadway or drive onto the airport and park at their hangar.

Given that there are no formal parking stalls designated on airport it is not possible to calculate the exact number of spaces available. During the Alternatives analysis, estimates will be made as to where and how much parking should be provided to support the layout of facilities at the airport. It is recommended that vehicle access points and designated parking areas be clearly delineated in the future development plans. Absence of clearly designated parking and circulation areas will increase the chance for mishap including aircraft/vehicle collisions and runway incursions.

4.6.8 UTILITIES AND DRAINAGE

Existing utility services at KLS were discussed in Chapter 2 – Existing Conditions Inventory. There are no identified deficiencies in the current level of services available. Consequently, no recommendations are provided for changes to the existing utility services.

As new facilities are developed, utilities will need to be extended or expanded to provide the necessary services. For aircraft hangars, utility services typically include electricity and the collection of storm run-off. Other services that may be extended to new hangar facilities may include water for domestic use and/or fire sprinkler systems as well as natural gas for space heating purposes.

Drainage and the handling of storm run-off will require attention in the creation of new development areas for aircraft hangars and associated facilities. Overall drainage of the airfield may affect existing wetlands and require special attention once a recommended development alternative has been identified.

4.6.9 AIRPORT SUPPORT FACILITIES

Analysis of airport support facilities and services include requirements for the storage and distribution of aircraft fuel, facilities and equipment required for the maintenance of the airport.

FUEL SERVICE

As noted in Chapter 2 – Existing Conditions Inventory, fuel service at KLS is available for 100LL and JetA. Three underground tanks provide a total storage capacity of 36,000 gallons including 24,000 gallons of 100LL and 12,000 gallons of JetA. The 100LL avgas is available via a 24-hour self service fuel stand. JetA fuel is delivered by fuel truck. No changes are recommended to the existing fuel services at the airport.

AIRPORT MAINTENANCE FACILITIES

Airport maintenance is performed by the City of Kelso, which retains use of office and storage space in the northwest hangar complex, as well as a small storage area on the east side in the A,B, C hangar complex. There are no large storage yards or maintenance shops provided on airport. Maintenance vehicles and equipment not stored on airport are located nearby at the city maintenance facilities on the east side of Parrott Way south of the airport FBO area. As a result, there is little need for additional maintenance facilities on airport.

AVIATION SUPPORT SERVICES

As noted in Chapter 2 – Existing Conditions Inventory, Kelso Aviation provides a range of services from fuel sales to pilot supplies and aircraft rental. While major maintenance is available through NW AirTech for power plant and airframe repairs, there is not a dedicated maintenance hangar facility present on airport – particularly one capable of supporting ARC B-II aircraft. An aircraft upholstery shop and small coffee shop operated in recent years, however these are now closed.

Future planning for the airport should consider the potential need for a dedicated maintenance hangar. The undeveloped land adjacent to the existing FBO facility would be a logical location to capture business from the transient aircraft as well as the larger business-class aircraft expected to use the airport in the future. Airport management has also expressed a desire to provide facilities for U.S. Customs for processing international aircraft arrivals.

OTHER AIRPORT IMPROVEMENTS

From time to time, interest has been expressed in providing precision instrument approach capabilities to KLS, or at least reducing the existing 1-mile approach visibility minimums. The WSDOT LATS performance objectives for Regional Service airports also recommend precision approach capabilities with minimums of ¾ mile or lower.

Based on current technology, a precision approach would require installation of appropriate equipment including a localizer and glide slope antenna on airport. Lowering visibility minimums could potentially be accomplished without additional on-airport equipment. However, the level of approach precision able to be implemented at the airport is dictated largely by the orientation of the runway and the surrounding terrain relative to FAR Part 77 Surfaces and other FAA safety criteria.

As already noted, the airport does not meet the current FAA design standard for runway/taxiway separation distance. Reducing the approach visibility minimums at KLS to less than ¾ mile increases the runway/taxiway separation requirement from 240 feet to 300 feet, or 100 feet more than currently available. Similarly, the Runway Object Free Area increases from 200 feet from the runway centerline to 400 feet from the centerline (800 feet overall width). The more restrictive FAA design standards and setback distances therefore would require removal of all west side structures and the west end of all of the east side facilities within 400 feet of the runway centerline. If the airport is unable to meet the necessary setback requirements, FAA waivers may be granted, however approach visibility minimums would be increased accordingly, most likely eliminating any benefit that could be derived. Consequently, precision approach

capabilities and/or reduced visibility minimums will not be included in the alternatives analysis due to the impact on the physical layout of the airport.

During the course of this plan, the Life Flight medical evacuation service expressed interest in locating at the airport. The alternatives analysis will need to include incorporating a Life Flight facility into the airport in a manner that minimizes conflicts between the helicopter activity and fixed wing basing and operations.

4.6.10 AIRPORT LAND

The existing footprint or configuration of the airport is very constrained. The Burlington Northern railroad track to the west and Talley Way to the east limit airport expansion potential. These two constraints immediately east and west of the airport create a long, narrow site. Given that FAA safety requirements preclude development of the land off the north and south ends of the runway, the airport has limited land area available for development. As already noted, a large number of the west side hangars penetrate FAR Part 77 Surfaces and must be removed. The question is not whether the airport has sufficient overall acreage but how many of those acres may be developed consistent with FAA standards while still meeting the long-term needs of the airport.

The Alternatives analysis will explore possible configurations of the airport based on the requirements set forth in this chapter. The primary issues to be addressed include the following:

- How and where a runway extension can be accommodated
- The feasibility of relocating Taxiway "A" to meet FAA design standards and its impact on airport development.
- Removal and replacement of those west side hangars penetrating the FAR Part 77 surfaces and correcting Taxiway "D" and "E" deviations from standards.
- Location and configuration of additional new hangars to meet future demand.
- Reconfiguration of tiedown aprons consistent with the anticipated demand from based and transient aircraft.
- Creation of a transient activity apron close to supporting facilities and services.
- Plan for potential development of a maintenance/service facility capable of accommodating B-II aircraft.

- Potential location for U.S. Customs facility.
- Location alternatives for Life Flight facility.

The overall land area and footprint of the airport will need to be reviewed based on the ability of the existing airport configuration to accommodate the future demands on the facility.

Contents

CHAPTER 5 – ALTERNATIVES

5.1 INTRODUCTION

During this element of the Master Plan, alternatives for addressing the facility requirements set forth in Chapter 4 are identified and evaluated. Based on the analyses conducted herein, recommendations are made as to the appropriate course of action for each alternative and these are compiled into a final 20-year development plan for the airport. Not all findings and recommendations of the Facility Requirements chapter are suited to an alternatives analysis. Consequently, the alternatives analyses will concentrate on two primary factors. The first is the ultimate development of the runway to accommodate forecast demand levels and runway length requirements. The second is the maximization of the airport's landside area to support anticipated aviation growth. The steps taken in the analyses are as follows:

1. Identify alternative ways of accommodating future facility requirements based on the demand forecasts;

2. Evaluate the alternatives to determine which best suits the needs of the City relative to accommodating the increased demand for aviation facilities in Kelso and transitioning from into a Regional Service Facility; and,

3. Recommend a plan for future development based on the results of the evaluation.

The following items lend themselves to alternatives analysis and are analyzed in the subsequent sections of this chapter.

- **Runway Extension**: How and where to best accommodate a runway extension to 5,000 feet. Alternative interim measures to achieve increased runway declared distances will also be discussed, however any final recommendations will be presented under the Implementation element of the Master Plan.

- **Runway/Taxiway Separation Distance**: Relocation of Taxiway "A" to meet FAA ARC B-II design standards.

- **Airport Landside Development Alternatives**: Layout and configuration of aviation support and services including aircraft hangar and tiedown areas, alternative locations for an emergency medical helicopter transport facility and land area reserved for additional aviation support activities and services such as aircraft maintenance and U.S. Customs. The development alternatives

focus primarily on the east side of Runway 12/30 due to the significant constraints to developing the west side of the airport. In addition, the runway extension alternatives are not reflected in these Development Alternatives as the future of the runway is independent of the layout of airport support facilities.

- **Airport Land Acquisition**: The overall land area and footprint of the airport needed to accommodate the future demands on the facility will be determined based on the recommended airport configuration. The alternatives analysis will explore the implications on future airport capacity of acquiring or not acquiring additional land.

Those items cited in the Facilities Requirements chapter that are not subject to alternatives analysis but reflected in the Recommended Plan for the airport include the following:

- Compliance with FAA design standards.
- Removal and replacement of those west side hangars penetrating the FAR Part 77 surfaces and correcting Taxiway "D" and "E" deviations from standards.

The remainder of this chapter provides a detailed description of the alternatives that were identified as serving the airport's needs and the criteria used to compare the advantages and disadvantages of each. Following these is a report on the decisions that were made for each individual development item. Those who wish to review the detailed analyses should refer to these sections. The following summary table sets forth the final recommendations of this analysis.

Runway Extension

It is recommended that a 605 feet runway extension be constructed on the south end of the runway. In the interim, it is further recommended that the City provide for increased airport access by constructing a hard surfaced stopway. This stopway should be built to meet FAA Standards for use as a runway as demand levels grow.

Compliance with FAA Design standards for ARC B-II Aircraft

It is recommended that every feasible action be taken to assure that the airport complies with FAA Design Standards for ARC B-II Aircraft. This includes the following actions;

1. Relocate Taxiway "A" to provide for a 240 feet of separation between the runway and taxiway centerlines

2. The width of all taxiways to be used by B-II Aircraft will be increased to 35 feet.
3. All taxiway Object Free Areas (OFAs) will be cleared to meet standards
4. Existing hangars that have been identified as FAR Part 77 obstructions on the airport's west side will be removed. The BNSF tracks, signals and other associated facilities will remain.
5. The City will make a reasonable attempt to resolve an agreement with the Burlington Northern Santa Fe Railroad (BNSF) to keep the OFA for Runway 12/30 free from obstructions in the future.

Landside Development (West Side)

It is recommended that the westside hangar area be redeveloped to assure that no structures penetrate FAR Part 77 standards. Further, future development will mostly be limited to aircraft classified as A-I (small). With the completion of the purchase of several additional land parcels, including areas recommended in the previous master plan, there will be isolated areas where larger aircraft hangars may be built, pending a Part 77 review. These development sites will be limited.

Landside Development (East Side)

It is recommended that all portions of existing airport property with airfield access be developed for aircraft hangar or tiedown purposes.

Beyond the twenty year time frame of this master plan, land on the northern edge of the existing GA area will need to be acquired if the airport to expand into its Regional Service Role, as defined in the LATS Study. A regional service facility must be capable of accommodating increased jet traffic under all weather conditions, among other things and the land recommended for purchase is necessary to allow for ultimate expansion of aviation support areas that are recommended by LATS.

Land Acquisition

On the east side of the airport it is recommended that the airport property be expanded to include all property bordered by taxiway A to the west, Colorado Street to the north, Parrot Way to the east and the existing FBO area to the south. This land will be redeveloped to provide space for hangar development. In addition, it is recommended that all property within the AWOS critical area be purchased in order to assure that the City can assure the continued reliability of this critical facility.

On the west side, land purchase will concentrate on assuring that the city can control development within the RPZ as well as provide affordable hangar space. The

recommended acquisition is slightly more than was recommended in the 2000 master plan.

5.2 RUNWAY EXTENSION ALTERNATIVES

The proposed 605 foot runway extension at KLS could occur at either the north or south end of Runway 12/30 or be a combination of shorter extensions at each runway end. Following is a summary of the key factors that will influence the recommended alternative.

Extend Runway to the North

Extension of the runway to the north, as shown on exhibit 5-1 would carry runway pavement into the open level, graded area off the end of the Runway 12 threshold. All land needed for the extension, the runway Object Free Area (OFA) and Runway Safety Area (RSA) is currently under ownership of the City of Kelso.

Extension of the runway to the north would require relocating the Runway Protection Zone (RPZ) farther north encompassing a number of residential properties along the extended runway centerline. These properties would need to be acquired.

Height limitations within the RPZ would require closure of both Douglas and Hazel Streets within the RPZ boundary. Extending beyond the RPZ, existing height limitations beneath the approach surface to Runway 12 would be reduced by approximately 17 feet. New obstruction surveys would be needed to identify whether shifting this threshold would result in any new obstructions along with remedial actions that may be required. An extension to the north is further complicated by a preliminary proposal by WSDOT Rail Branch to extend Hazel Street over or under the BNSF tracks, thereby providing a grade separation. This plan is not consistent with the need to have a clear RPZ that would call for the closure of Douglas and Hazel Streets.

Additional FAR Part 77 Imaginary Surfaces surrounding the airport would also need to be adjusted to reflect the relocated runway threshold. Existing terrain penetrations of the Part 77 Conical Surface approximately 2 miles north of the airport would increase as the height of the Conical Surface is pushed further north.

The existing non-precision GPS approach to Runway 12 would need to be reviewed and revised to reflect the change in the Runway 12 threshold location and potential additional obstructions to the approach surface.

The alternative of extending Runway 12/30 to the north is depicted in Exhibit 5-1.

Extend Runway to the South

The runway extension area south of the Runway 30 threshold, as shown in Exhibit 5-2 is clear of obstructions but will require more grading and site preparation than the north end. The extension will project into what is likely to be classified as wetland areas but these will need to be relocated under any circumstances due to their location within the RSA. However, as part of the runway extension they will result in greater attention needed with regard to soil conditions and runway subgrade design. Runway pavement and associated taxiway development will extend into and across an existing drainage channel which drains northeast off airport property eventually reaching the confluence of the Coweeman and Cowlitz Rivers. The extended runway Runway Safety Area (RSA) and Object Free Area (OFA) also will extend into the wetland area. The Runway Protection Zone (RPZ) is owned by the City of Kelso, as is the land area encompassed by a relocated RPZ resulting from a runway extension to the south.

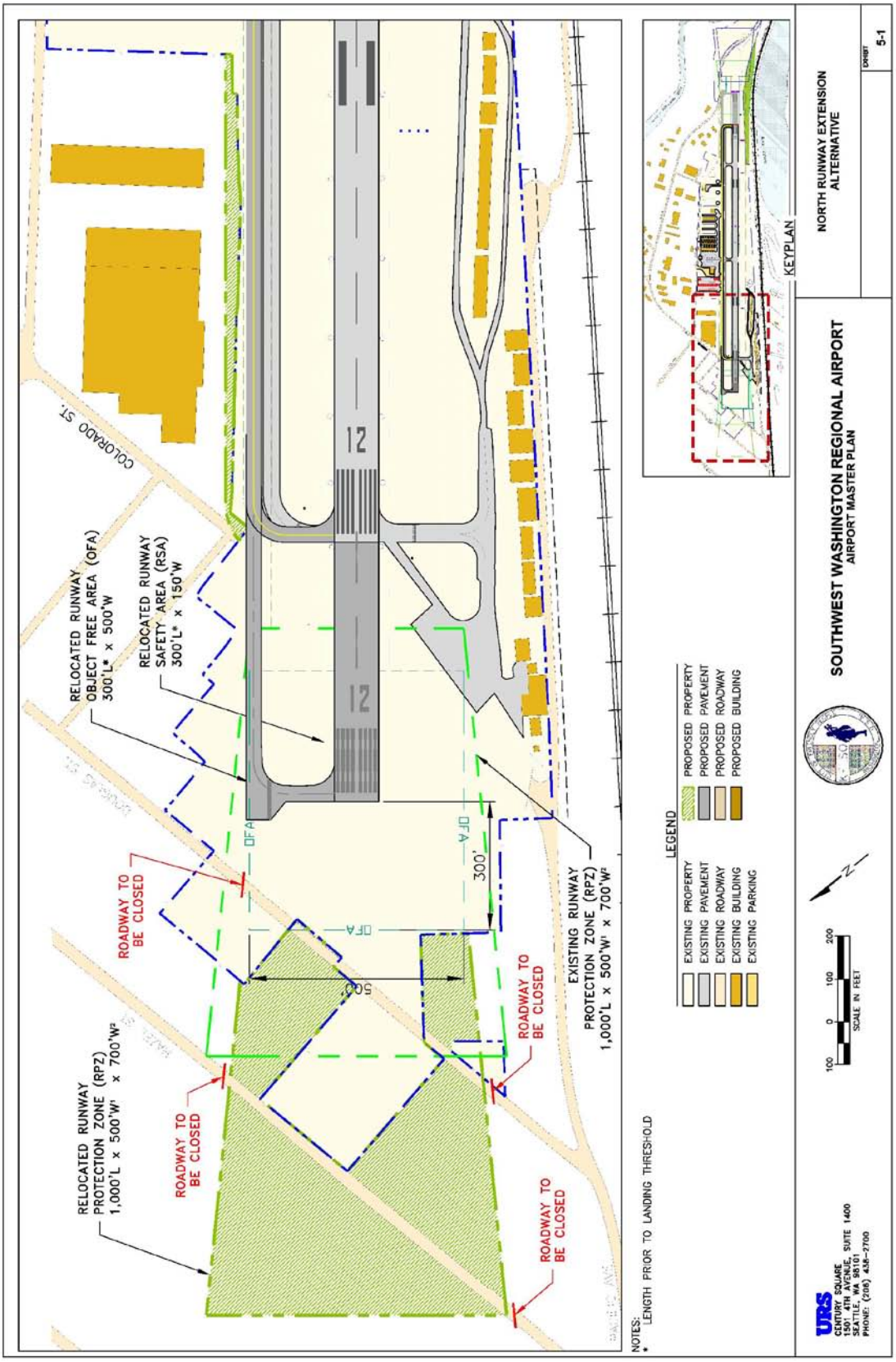
Talley Way currently skirts the southeastern edge of the RPZ and will require realignment or relocation if the runway is extended to the south. The city has adopted a plan developed in the Talley Way Corridor Study that provided a 35-MPH design speed on the relocated roadway. Responsible design of future roadway realignments should incorporate this design speed. This relocation permitted extension of the RSA and OFA as well as providing for unobstructed 34:1 approach surfaces associated with a potential new Non-Precision Instrument Approach to Runway 30. At the present time it is not known what type of approach procedure will be designed. Some ATC personnel have stated that a procedure designed for KLS should not be allowed to interfere with operations at the Portland International Airport. However with changes in technology, airspace utilization and other factors it is likely that a procedure can be developed that will be independent of PDX. Therefore it is recommended that the City reserve the ability to improve this approach in the future. Preliminary analyses show that this relocation corridor is still appropriate.

The western edge of the existing RPZ for Runway 30 currently extends off airport property into the Burlington Northern Santa Fe (BNSF) right-of-way. Extension of the runway to the south will shift the RPZ away from the BNSF right-of-way reducing the area of RPZ outside airport control from approximately 2.8 acres to 0.3 acres.

Extending Runway 12/30 to the south effectively lowers the Runway 30 FAR Part 77 Approach Surface by approximately 30 feet. Although this could impact the State Route 432/Talley Way interchange, it is reported that current planning of roadway improvements in this area take into consideration potential height limitations resulting from a 605 foot runway extension to the south.

The southwestern corner of the Runway 12/30 OFA extends off airport property into the BNSF Right of Way. The area encompasses 1.8 acres beginning at the southern end of the OFA and extending north 739 feet. The intrusion into the OFA varies from 0 feet at the northern end to approximately 95 feet at the southern end. At the southern end, the Right of Way extends to approximately 155 feet of the runway centerline. At the Runway 30 threshold, the Right of Way is located 168 feet from the runway centerline. Extending Runway 12/30 to the south increases the area of OFA impacted by the BNSF Right of Way from the existing 1.8 acres to approximately 3 acres. The BNSF Right of Way's closest proximity is 150 feet from the runway centerline occurring immediately north of the runway's threshold. The Runway 12/30 RSA is 150 feet wide, centered on the runway, and is not currently affected by the BNSF Right of Way, nor will it be in the future if the runway is extended to the south.

Terrain south and east of the airport penetrates the FAR Part 77 Horizontal and Conical Surfaces. While the penetrations of the Horizontal Surface would not change due to runway extension to the south, existing penetrations of the Conical Surface would increase as the surface shifts south reflecting the relocated runway threshold.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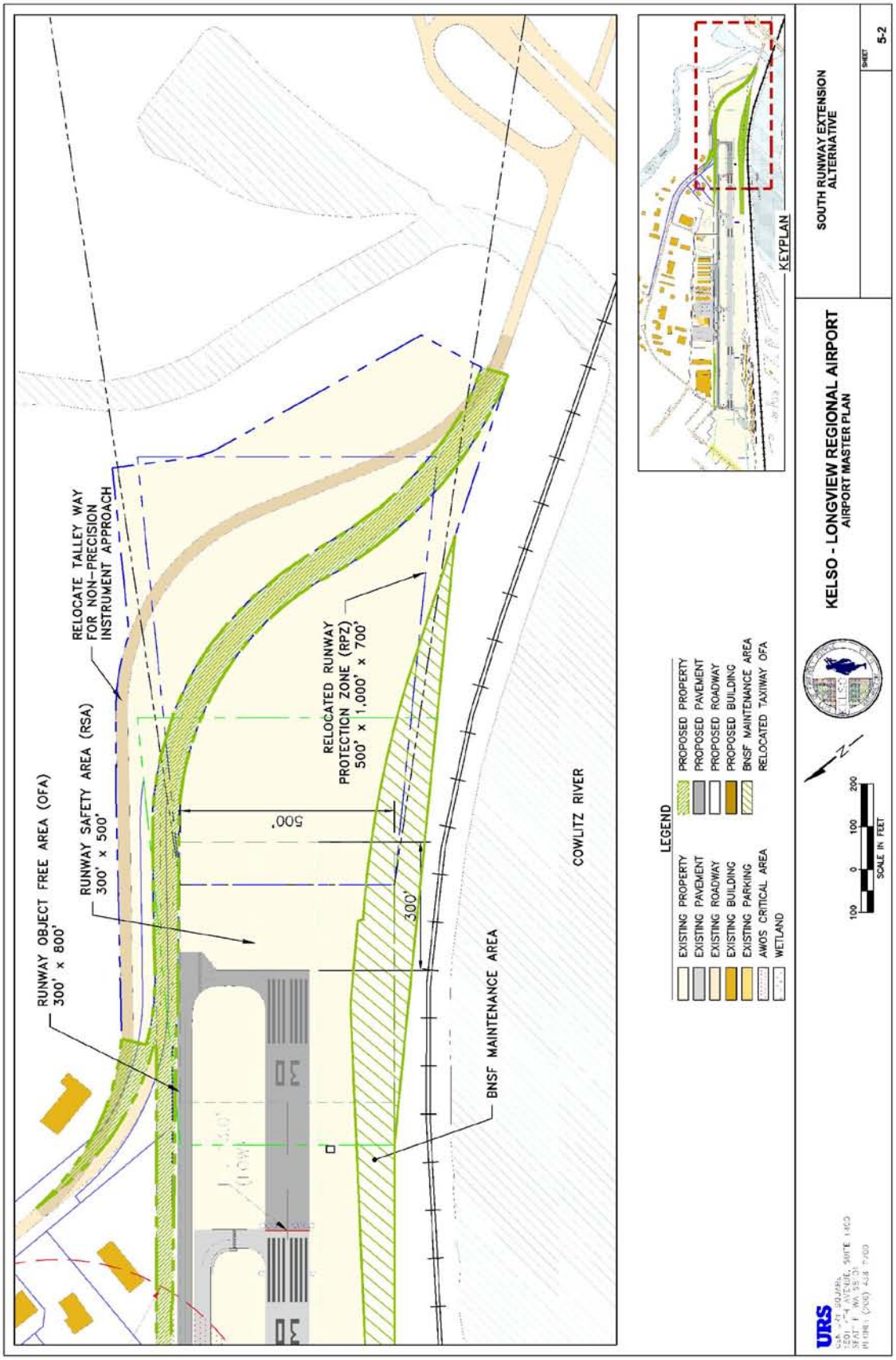
KEYPLAN
LEGEND
EXISTING PROPERTY
EXISTING PAVEMENT
EXISTING ROADWAY
EXISTING BUILDING
EXISTING PARKING
PROPOSED PROPERTY
PROPOSED PAVEMENT
PROPOSED ROADWAY
PROPOSED BUILDING
SCALE IN FEET
RELOCATED RUNWAY OBJECT FREE AREA (OFA) 300'L* x 500'W
RELOCATED RUNWAY SAFETY AREA (RSA) 300'L* x 150'W
RELOCATED RUNWAY PROTECTION ZONE (RPZ) 1,000'L x 500'W' x 700'W*
EXISTING RUNWAY PROTECTION ZONE (RPZ) 1,000'L x 500'W' x 700'W*
ROADWAY TO BE CLOSED
COLORADO ST.
300'
500'
OFA
12
30
NOTES:
* LENGTH PRIOR TO LANDING THRESHOLD
URS
CENTURY SQUARE
1501 4TH AVENUE SUITE 1400
SEATTLE, WA 98101
PHONE: (206) 438-2700


RUNWAY OBJECT FREE AREA (OFA)
300' x 800'
RUNWAY SAFETY AREA (RSA)
300' x 500'
RELOCATE TALLEY WAY
FOR NON-PRECISION
INSTRUMENT APPROACH
RELOCATED RUNWAY
PROTECTION ZONE (RPZ)
500' x 1,000' x 700'
500'
300'
BNSF MAINTENANCE AREA
COWLITZ RIVER
LEGEND
EXISTING PROPERTY
EXISTING PAVEMENT
EXISTING ROADWAY
EXISTING BUILDING
EXISTING PARKING
AWOS CRITICAL AREA
WETLAND
PROPOSED PROPERTY
PROPOSED PAVEMENT
PROPOSED ROADWAY
PROPOSED BUILDING
BNSF MAINTENANCE AREA
RELOCATED TAXIWAY OFA
KEYPLAN
SCALE IN FEET
100 0 100 200
KELSO - LONGVIEW REGIONAL AIRPORT
AIRPORT MASTER PLAN
SOUTH RUNWAY EXTENSION
ALTERNATIVE
SHEET
5-2
URS

Previous Runway Extension Recommendation – 2000 Master Plan Update

The 2000 Master Plan Update reviewed runway extension alternatives based on the recommended development of a 5,000 foot runway. At the time the previous plan was prepared, the Runway 12 threshold was displaced 292 feet due to obstructions within the approach surfaces and Runway Protection Zone. Since the 2000 Master Plan Update was completed, the obstructions have been removed and the Runway 12 threshold relocated to the north end of the runway pavement.

The specific runway alternatives considered under the 2000 Master Plan Update included 1) no action, 2) extending the runway 605 feet to the south, and 3) extend both runway ends – 405 feet south and 200 to the north. An extension of the runway solely to the north was not evaluated.

The 2000 Master Plan Update recommended that Runway 12/30 be extended to the south based on the following factors:

- The No Action alternative did not meet the airport's long term goals and objectives to accommodate larger, more demanding aircraft.
- A southerly extension was able to accommodate the recommended 5,000 foot runway length.
- Runway extension to the south was estimated to be one-half the cost of extending both ends of the runway.
- Land use and property acquisition impacts of a southerly runway extension were significantly less than extending both ends of the runway.
- The airport already owned the land required for the extension compared to significant land acquisition and relocation impacts that would be required under any extension to the north.

However, extension of Runway 12/30 to the south was not without potential impacts. The most significant impact of the proposed alternative was that relocation of Talley Way would be required. The existing alignment of Talley Way located the roadway through the center of the RPZ off the south end of Runway 12/30. Relocation of Talley Way was recommended, to the extent possible due to physical limitations imposed by the existing dike and Coweeman River. The proposed relocation of Talley Way was expected to reduce but not eliminate the intrusion of the roadway within the RPZ.

Ultimately, the extension of Runway 12/30 to the south was recommended as the most feasible, lowest cost and lowest impact alternative.

Current Runway Extension Alternatives

In defining the range of runway extension alternatives, the airport's long-term requirement for a 5,000 foot runway is the primary evaluation criterion. The objective of this analysis is to determine the best alternative for extending the airport runway in the long-term. Any interim measures that may be taken to increase the existing declared distances at the airport should be consistent with eventual development of a fully functional runway extension. Once a recommended long-term alternative is selected, other potential interim measures for achieving the desired declared distances prior to full-scale runway development taking place can be examined.

The following runway extension alternatives were considered under this analysis.

- **No Action:** This scenario represents the base case condition which assumes the existing runway length remains as is.

- **Extend Runway to North:** Extend the runway north 605 feet to achieve the 5,000 foot length recommended under the Facility Requirements chapter

- **Extend Runway to South:** Extend the runway south 605 feet to achieve the 5,000 foot length recommended under the Facility Requirements chapter

- **Extend Runway both North and South:** Extend each runway end to obtain a total runway length of 5,000 feet. Given that infinite variations of this alternative are available depending on how much each runway end is extended; a balanced extension of 302.5 feet to each runway end was assumed for evaluation purposes.

The runway extension alternatives do not consider the ARC B-II runway/taxiway separation distance which is addressed later in the Alternatives analysis. Each of the above runway extension scenarios are compared using the following process.

5.2.1 RUNWAY ALTERNATIVES EVALUATION

The runway development alternatives are compared to permit evaluation of the advantages and disadvantages of each. Only those factors that distinguish between the alternatives are considered in the evaluation. For example, whether the runway is extended to the north or the south, taxiway access will need to be provided to the runway end and runway and approach lighting will need to be relocated (to name but two of a number of factors common between the alternatives). A matrix comparing the alternatives against the following evaluation criteria is presented in Exhibit 5-3:

- **Meets Airport Objectives:** While the existing runway can meet the needs of the Critical Aircraft through the end of the forecast period, each alternative is also evaluated on whether or not it can meet the airport's ultimate objective of serving as a Regional Service Airport for Southwest Washington. If aircraft operations requirements are met, this role requires that the runway and associated facilities be expanded to accommodate a broad range of corporate aircraft, including the Cessna Citation X.

- **Airport Design Standards:** Each alternative will be evaluated as to its ability to meet FAA airport design standards.

- **Airport Safety and Operations:** Implications on airport safety and operations of the runway extension alternatives – including any compliance issues with FAA design standards will be included.

- **Airspace Compatibility:** Using the FAR Part 77 Surfaces for the airport as well as the Terminal Instrument Procedures (TERPs) standards required for instrument approach procedures, a determination will be made as to which alternative can be most readily implemented. The impact that an improved approach and extended runway length and width will be looked at relative to the City and County's land use plans, particularly as they may change any airport overlay zoning. Any impacts to existing and planned published approach minimums will be identified and analyzed.

- **Land Use and Environmental Compatibility:** The alternatives will be evaluated to determine the impact each may have on the environment. The analysis will be conducted in accordance with impact categories outlined in FAA Environmental Handbook 5050.4B and pertinent SEPA Guidance. The purpose of this analysis will be to allow for an environmental screening process that identifies potential environmental issues without generating new data or conducting new analyses. It is anticipated that a detailed EA and SEPA process will be required before any action can be taken. This level of environmental analysis is not included in this work scope.

- **Development Costs:** Preliminary estimates of the development and operational costs required to expand the runway under each alternative will be prepared. Estimates of up-front capital costs and ongoing operational costs will provide a basis for comparing cost-effectiveness among the alternatives.

The alternative evaluation matrix (Exhibit 5-3) is presented on the following page.

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Exhibit 5-3: Runway Extension Alternatives

Alternative	Meets 5,000' Runway Objective	Airport Design Standards	Airport Safety and Operations	Airspace Compatibility	Land Use and Environmental Compatibility	Development Costs
No Action	• Does not meet objective	• No change to OFA, RSA or RPZs. • BNSF R.O.W. extends into Runway 12/30 OFA for southern 740' of runway. Maximum penetration is 94' at southern end of OFA.	• Reduced margin of safety over time as larger aircraft use the airport in increasing numbers. • Operating penalties on larger aircraft seeking to use airport. • Limits airport ability to grow to it's potential	• No change to existing conditions	• No change to existing conditions	• No development costs
Extend Runway 605' to North	• Meets objective	• Developed to FAA design standards • BNSF R.O.W. extends into Runway 12/30 OFA for southern 740'. Maximum penetration is 94' at southern end of OFA.	• Increased margin of safety as larger aircraft use the airport. • Increases ability of airport to serve larger aircraft. • Supports airport's ability to grow to it's potential as a Regional Airport	• Redefine and republish existing GPS approach procedure to Rwy. 12. • Reduces height of non-precision approach surface to Runway 12 over city and residential areas north of airport. • Part 77 Imaginary Surface Obstructions and Penetrations expected to increase on Rwy. 12 approach due to lowered surfaces.	• Acquire property within relocated RPZ and close all or portions of Douglas and Hazel Streets. • Revise local Airport Overlay Zones to reflect relocated surfaces and height restrictions. • Lowers height of aircraft landing Rwy. 12 over city and populated areas possibly resulting in increased noise impacts.	• Direct construction costs o $2.105 million • Land acquisition: o 21 parcels/11.1 acres acquired o Est. acquisition cost: $2.368 million o Relocation costs unknown o FAR Part 77 Compliance costs unknown • Total Est. Cost: $4.474 million
Extend Runway 605' to South	• Meets objective	• Developed to FAA design standards. • Runway RPZ conflict with BNSF Right of Way is reduced. • BNSF Right of Way penetration of Runway OFA increases from max. of 94' to 104'. • Relocate Talley Way out of extended runway RPZ to the extent possible.	• Increased margin of safety as larger aircraft use the airport. • Increases ability of airport to serve larger aircraft. • Supports airport's ability to grow to it's potential as a Regional Airport • Increases aircraft altitude over city for departures on Rwy. 30.	• Reduces height of visual approach surface to Runway 30 over State Route 432 and industrial area to south. • Part 77 Imaginary Surface Obstructions and Penetrations expected to increase due to lowered surfaces.	• Relocated/extended RPZ property already under airport ownership. • Increases height of aircraft operations over city and populated areas for aircraft departing on Rwy. 30. • Potentially reduces noise impacts over city and populated areas for aircraft departing on Rwy. 30.	• Direct construction costs o $1.746 million • No additional land required • BNSF easement costs: Unknown • Talley Way relocation costs (airport share) included in estimate. • Costs cited include provisions for widening the bridge on Talley Way. • Total Est. Cost: $6.0 million
Balanced North/South Extension (302.5' each direction	• Meets objective	• Developed to FAA design standards. • BNSF Right of Way penetration of Runway OFA increases from max. of 94' to 104'.	• Increased margin of safety as larger aircraft use the airport. • Supports airport ability to grow to it's potential	• Redefine and republish existing GPS approach procedure. • Reduces height of non-precision approach surface to Rwy. 12 over city and residential areas north of airport. • Reduces height of visual approach surface to Runway 30 over State Route 432 and industrial area to south. • Part 77 Imaginary Surface Penetrations and Obstructions expected to increase due to lowered surfaces.	• Acquire property within relocated north RPZ and close all or portions of Douglas Street. • Relocate Hazel St. out of RPZ. • Revise local Airport Overlay Zones to reflect relocated surfaces and height restrictions. • Lowers height of aircraft landing Rwy. 12 over city and populated areas resulting in possible increased noise impacts.	• Direct construction costs o $1.926 million • Land acquisition: o 17 parcels/6.2 acres acquired o Est. acquisition cost: $2.424 million o Relocation costs unknown o FAR Part 77 Compliance costs unknown • Total Est. Cost: $4.350 million

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5.2.2 RECOMMENDED RUNWAY EXTENSION ALTERNATIVE

The No Action alternative is rejected as not meeting long-term airport objectives nor the operational demands created by aircraft expected to use the airport in the future. The Balanced North/South Extension alternative is also rejected as it reflects many of the negative aspects of the North and South Extension alternatives while yielding no greater benefit. It is also anticipated to be the most expensive alternative to implement due to the combination of land acquisitions that would still be required off the north end of the runway, as well as needing to work on a split construction site and relocate the approach and end lighting systems at both runway ends.

The North Runway extension is rejected due to the significant land acquisition that would be required and associated community impacts resulting from relocation of residents within the extended RPZ, as well as road closures that would be needed. A northerly extension of the runway moves airport operations closer to the Kelso city center and lowers the altitude of aircraft operations over the city, as well as shifting approach, departure and landing patterns closer to the greatest concentration of incompatible land uses.

The South Runway Extension is the recommended alternative for Kelso-Longview Regional Airport. The following compares the north and south runway extension, showing the benefits to a southern extension over a northern one.

- **Land Acquisition:** The land needed for runway extension to the south is mostly under airport ownership with only a small triangular shaped parcel required for acquisition. Land acquisition costs for the north runway extension alternative significantly increase the cost of the project. In addition, financial relocation assistance for residents will further increase the cost of the project.

- **Community Impacts:** Extending the runway to the north causes greater disruption to the community through the property acquisitions, relocations and road closures that would be required. Furthermore, it causes the airport to encroach upon the less compatible uses within the City of Kelso to the north. The properties acquired for a north runway extension would be permanently removed from the public tax roles reducing revenues by more than $10,000 per year based on current tax rates. The land impacted by a runway extension to the south is already off the public tax roles and not likely usable for any alternative use in the future.

- Extending the runway threshold to the north lowers the altitude of aircraft approaches over the community thereby increasing impacts, even if only marginally.

- Extending Runway 12/30 to the south will enable aircraft departing on Runway 30 to attain a higher altitude over the city than currently possible. In addition, although realignment of Talley Way out of the 34:1 approach slope is required, no road closures would be necessary under this alternative.

- **Airspace Compatibility:** The existing non-precision instrument approach into the airport is for Runway 12. The airport's FAR Part 77 Imaginary Surfaces already reflect terrain obstructions north of the airport. A runway extension to the north would increase the obstruction penetration of the Imaginary Surfaces whereas extending the runway to the south would maintain current conditions.

- **Community Expectations:** The 2000 Master Plan Update recommended runway extension to the south. Since that time, public agencies and private individuals have proceeded with plans and decision-making predicated on the Master Plan Update's recommendation. The current analysis of runway extension alternatives has found no compelling reason to deviate from the findings, conclusions and recommendation of the 2000 Master Plan Update.

5.2.3 INTERIM RUNWAY IMPROVEMENTS

While the long-term goal of the airport is to provide a fully functional 5,000 foot runway, other interim measures may be taken to address the operating needs of the larger aircraft before the extension of Runway 12/30 is fully justified. However, any of these interim measures should be consistent with and contribute to the long-term goal of an extended runway. The following discussion explores potential interim improvements that may be implemented at KLS to increase the "declared distances" used by many aircraft operators to determine when an airport can accommodate the operating requirements of their aircraft.

The FAA uses four measures in the calculation of declared distances available at an airport. These measures are defined by the FAA as follows:

T**ake-Off Run Available (TORA)**: The runway length declared available and suitable for the ground run of an airplane taking off.

Take-Off Distance Available (TODA): Includes the TORA plus the length of any remaining runway or clearway (CWY) beyond the far end of the TORA.

Accelerate Stop Distance Available (ASDA): The runway plus stopway (SWY) length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff.

Landing Distance Available (LDA): The runway length declared available and suitable for a landing airplane.

As noted in the FAA definitions above, Clearways and Stopways may be used in the calculation of declared distances. Using FAA design standards, it is possible to construct either a "Clearway" or "Stopway" off one or both runway ends that could be applied to FAA Take-Off Distance Available (TODA) declared distances. The FAA defines Clearways and Stopways as follows:

Clearway: A defined rectangular area beyond the end of a runway cleared or suitable for use in lieu of runway to satisfy takeoff distance requirements. The clearway is a clearly defined area connected to and extending beyond the runway end available for completion of the takeoff operation of turbine-powered airplanes. A clearway increases the allowable airplane operating takeoff weight without increasing runway length.

a. Dimensions. The clearway must be at least 500 feet (150 m) wide and centered on the runway. The practical limit for clearway length is 1,000 feet (300 m).

b. Clearway Plane Slope. The clearway plane slopes upward with a slope not greater than 1.25 percent.

c. Clearing. Except for threshold lights no higher than 26 inches (66 cm) and located off the runway sides, no object or terrain may protrude through the clearway plane. The area over which the clearway lies need not be suitable for stopping aircraft in the event of an aborted takeoff. Consequently, there is no specific wheel/load bearing capabilities required of the ground surface within a clearway.

d. Control. An airport owner interested in providing a clearway should be aware of the requirement that the clearway be under its control, although not necessarily by direct ownership. The purpose of such

control is to ensure that no fixed or movable object penetrates the clearway plane during a takeoff operation.

Stopway: A stopway is an area beyond the takeoff runway, centered on the extended runway centerline, and designated by the airport owner for use in decelerating an airplane during an aborted takeoff. It must be at least as wide as the runway and able to support an airplane during an aborted takeoff without causing structural damage to the airplane. When a stopway is provided, the stopway length and the declared distances is provided in the Airport/Facility Directory (and in the Aeronautical Information Publication for international airports) for each operational direction.

Due to a minimum required width of 500 feet, a clearway is larger in overall area than a stopway however a clearway is not required to be paved or even to provide a load bearing surface. In contrast, the stopway is at least equal in width to the runway and typically paved to full strength runway standards. The stopway must be capable of supporting the largest (heaviest) aircraft able to use the runway. Consequently, the cost of constructing a stopway begins to approach that of a runway extension, without providing the utility that a complete extension provides. Ideally, any stopway also includes an associated clearway.

Clearways and stopways are constructed off the departure end of a runway and therefore only contribute to TODA and ASDA declared distance calculations for one direction of runway operation. Neither area can be used for takeoff or declared distance calculations in the opposite direction of operation. The only "non-runway" element that would be usable for take-off purposes and TORA, TODA and ASDA calculations in both operating directions of the runway would be a displaced threshold. However, displaced thresholds are commonly used to address other runway-related issues, such as clearing obstructions in an approach surface, or reducing noise impacts in neighborhoods and not solely as a means of meeting declared distance requirements.

To achieve a "balanced field length" clearway/stopways of equal length would need to be constructed off each end of the runway. If development occurs off only one runway end, the TODA and ASDA for the opposite runway will not benefit from the clearway/stopway in calculating its declared distances. Wind data collected for KLS does not indicate one direction of runway operation is significantly favored over the other so other operational requirements or preferences may dictate which end of Runway 12/30 might be considered for clearway/stopway development.

By definition, a stopway is intended for emergency use and is not considered to be runway. Therefore, a paved stopway is not available for use during normal takeoff as would the paved portion of a runway preceding a displaced threshold. In fact, a stopway would likely not be provided with taxiway connections as would be expected at a runway end.

While not providing the full functionality of an extended runway, clearway/stopway development can be used in the calculation of declared distances and TODA in particular in order to allow pilots the flexibility to operate. Furthermore, the additional requirements associated with extending the runway may not apply depending how the stopway will be used. The items include relocating runway and associated runway lighting, extending taxiways, extending Runway Protection Zones along with possible land acquisition requirements, modifications to FAR Part 77 Surfaces, redefining approach procedures where applicable, or undergoing the full environmental process associated with an FAA approved runway extension. However, some level of environmental review would still be required depending on the final development option proposed.

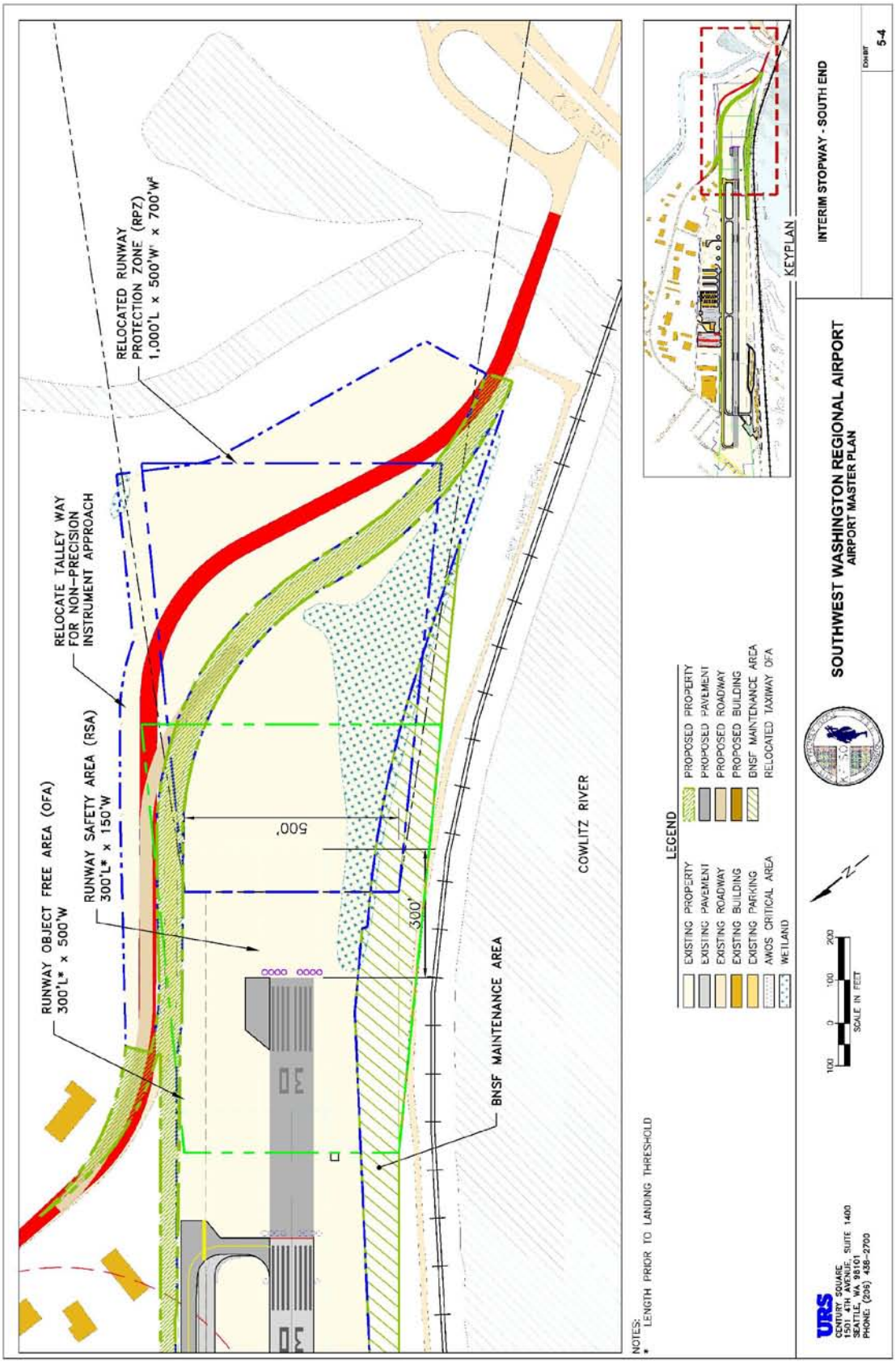
To achieve the same benefits that would be provided by a paved 5,000 feet runway, the existing Runway 12/30 at Kelso would require 605 foot clearway/stopway development off each runway end. If a clearway/stopway were to be developed off the departure end of only one runway, only that runway would meet the 5,000 feet TODA objective.

Given that the recommended runway extension alternative is to the south, clearway/stopway development off the south end of the runway could be considered as an interim step to eventual extension of the runway. Such development would provide a 5,000 foot TODA and ASDA for Runway 12. Under this scenario, the TODA and ASDA values for Runway 30 would remain unchanged until such time as the runway extension area receives full-strength pavement, which would then yield 5,000 feet declared distances in both runway directions.

The creation of a clearway/stopway off the north end of Runway 30 will be considered in the interim period to provide the desired declared distances in both runway directions prior to the south runway extension, however no further runway improvements are recommended in this area. Based on FAA standards, the RSA and Runway OFA must extend 300 feet beyond the end of any stopway that is constructed. Off the north end of Runway 12/30 a clearway of only approximately 400 feet could be identified if the RSA and OFA are to be accommodated on airport property without additional land acquisition or road relocation. Existing conditions on the ground in this area would likely require modest improvements to meet clearway standards although it is likely that the clearway

would not be paved. Once the runway is extended to the south, the additional clearway/stopway off the north end of the runway would yield declared distances greater than the 5,000 foot runway alone.

It is recommended that, a paved stopway be constructed at the runway end designated for eventual conversion to fully operational runway. While construction of this stopway will not be eligible for funding by FAA, it should be constructed in a fashion that permits eventual conversion to use as a full runway. Prior to that however the construction will be limited to the stopway itself with no extension of the taxiway or clearing of the approach surface, Exhibit 5.4 depicts this. Any final recommendations regarding interim measures to be taken prior to formal extension of the runway will be discussed later under the implementation element of this Master Plan.


RELOCATED RUNWAY
PROTECTION ZONE (RPZ)
1,000'L x 500'W' x 700'W'
RELOCATE TALLEY WAY
FOR NON-PRECISION
INSTRUMENT APPROACH
RUNWAY SAFETY AREA (RSA)
300'L* x 150'W
RUNWAY OBJECT FREE AREA (OFA)
300'L* x 500'W
500'
300'
BNSF MAINTENANCE AREA
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EXISTING PROPERTY
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EXISTING ROADWAY
EXISTING BUILDING
EXISTING PARKING
AWOS CRITICAL AREA
WETLAND
PROPOSED PROPERTY
PROPOSED PAVEMENT
PROPOSED ROADWAY
PROPOSED BUILDING
BNSF MAINTENANCE AREA
RELOCATED TAXIWAY OFA
NOTES:
* LENGTH PRIOR TO LANDING THRESHOLD
100 0 100 200
SCALE IN FEET
SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN
INTERIM STOPWAY - SOUTH END
EXHIBIT 5-4
URS
CENTURY SQUARE
1501 4TH AVENUE SUITE 1400
SEATTLE, WA 98101
PHONE: (206) 438-2700

5.3 TAXIWAY "A" RELOCATION AND AIRPORT DESIGN CRITERIA IMPROVEMENTS

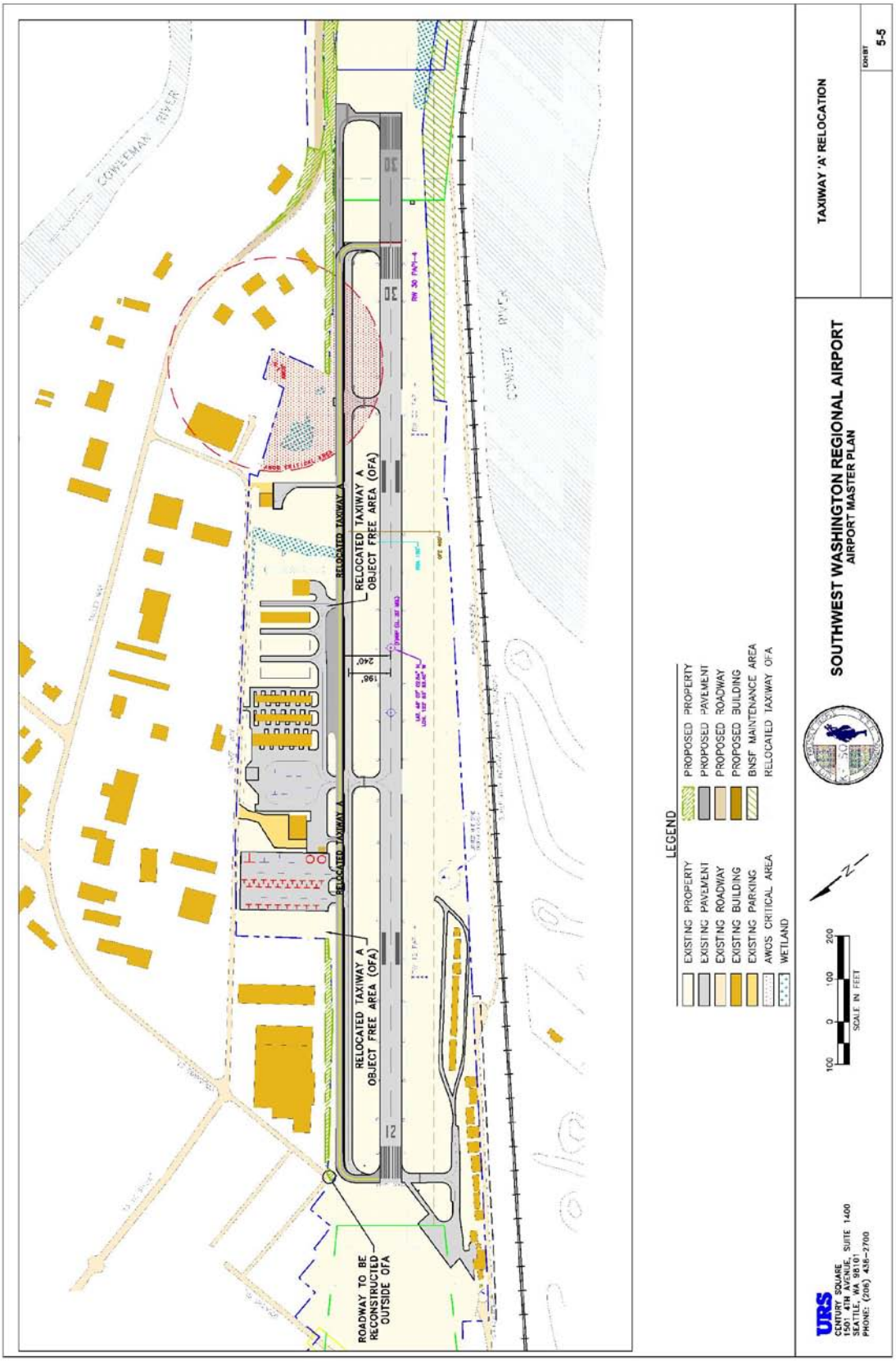
The existing Runway 12/30/Taxiway "A" separation distance is 200 feet and does not meet FAA design standards for ARC B-II aircraft. The FAA runway/taxiway separation distance for ARC B-II aircraft is 240 feet. An analysis was conducted to determine whether this runway/taxiway separation distance could be brought into compliance with FAA design standards. Impetus for the analysis was driven, in part, by whether the deviation from FAA standards might impact the airport's ability to obtain improved instrument approach capabilities beneficial to business class aircraft.

Relocation of Taxiway "A" to meet the FAA's ARC B-II runway/taxiway separation distance is depicted in Exhibit 5-5.

Land acquisition would need to occur both north and south of the east side "terminal" area to bring the taxiway OFA under airport ownership. Cost of acquiring the additional property is estimated at $500,000. In addition the property owner is likely to seek additional compensation since the acquisition would limit access and circulation around the existing building.

During the course of this Master Plan, FAA has indicated a willingness to review the existing approaches into KLS to evaluate whether any improvements may be possible. However, improved approach capabilities into KLS are impacted by other factors over which airport has little or no control including terrain penetrations of Part 77 Surfaces on three sides of the airport, the needs of the precision approach procedures for Portland International Airport as well as significant intrusions of the BNSF right-of-way into the Runway 12/30 OFA. While relocation of Taxiway "A" to ARC B-II separation standards is feasible, the airport's ability to address other factors which impact approach capabilities into the airport is limited. It is recommended as part of the upgrading of the airport that the city and the FAA annually review changes in technology and practices to assure that KLS continues to have the best approaches available.

Even with these limitations, it is desirable for the Airport to take all steps possible to meet FAA design standards for ARC B-II aircraft. Therefore, the recommendation for the Master Plan is to schedule the relocation of Taxiway "A" by 40 feet to meet FAA design standards for B-II aircraft. This project will include land acquisition, reconfiguration of some hangar taxilanes and other minor changes to existing facilities but will move the airfield closer to full compliance with FAA Design Group B-II Standards.


COWEEMAN RIVER
RELOCATED TAXIWAY A
OBJECT FREE AREA (OFA)
RELOCATED TAXIWAY A
OBJECT FREE AREA (OFA)
RELOCATED TAXIWAY A
ROADWAY TO BE RECONSTRUCTED OUTSIDE OFA
LEGEND
EXISTING PROPERTY
EXISTING PAVEMENT
EXISTING ROADWAY
EXISTING BUILDING
EXISTING PARKING
AWOS CRITICAL AREA
WETLAND
PROPOSED PROPERTY
PROPOSED PAVEMENT
PROPOSED ROADWAY
PROPOSED BUILDING
BNSF MAINTENANCE AREA
RELOCATED TAXIWAY OFA
SCALE IN FEET
SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN
TAXIWAY 'A' RELOCATION
EXHIBIT 5-5
URS
CENTURY SQUARE
1501 4TH AVENUE SUITE 1400
SEATTLE, WA 98101
PHONE: (206) 438-2700

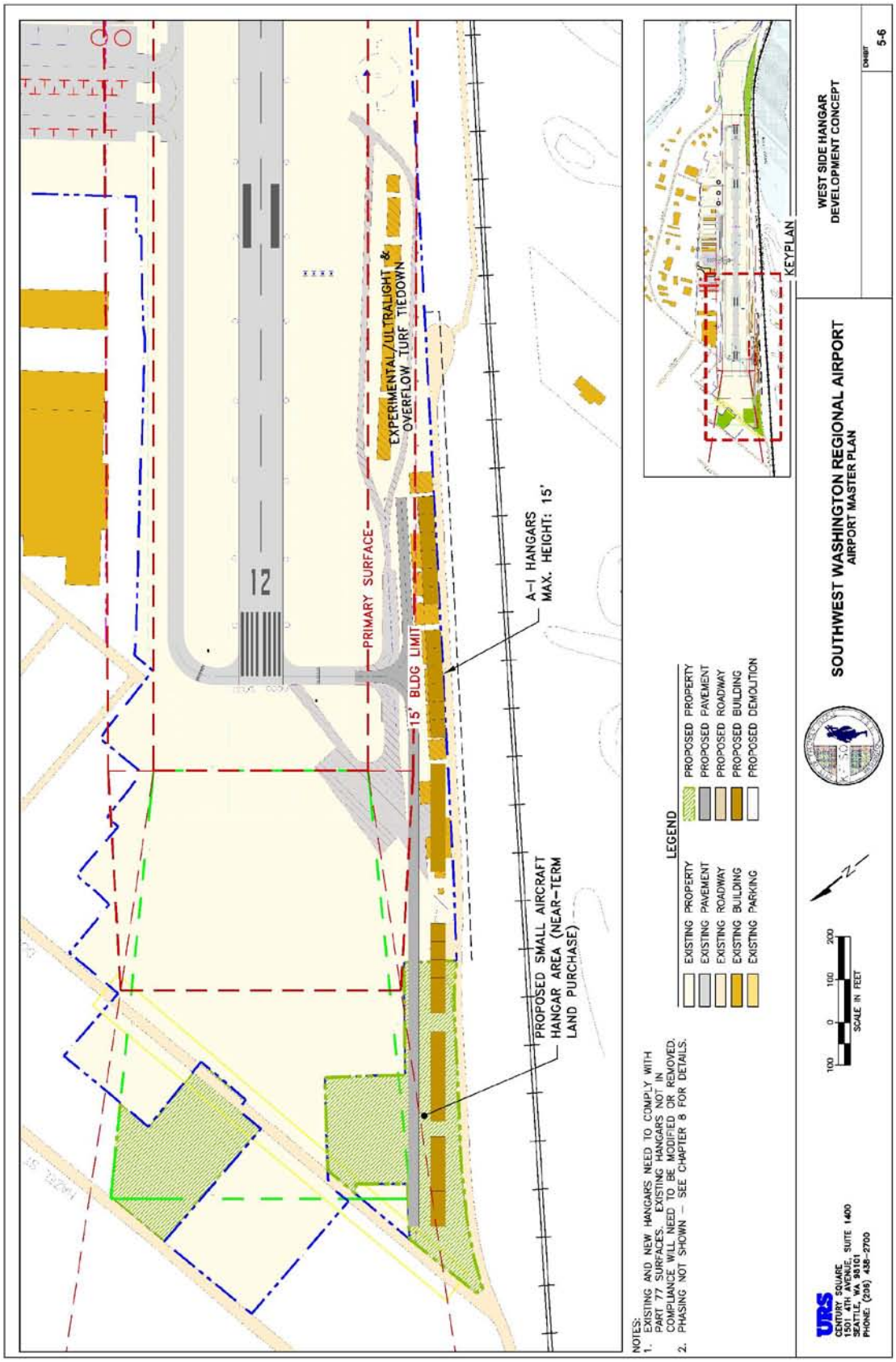
5.4 AIRPORT LANDSIDE DEVELOPMENT ALTERNATIVES

A total of six different landside development alternatives were identified and tested for the airport. Each of the alternatives was compared with the future requirements as set forth in the Facility Requirements chapter. The alternatives were eventually narrowed to those presented below. As noted above, the extension of Runway 12/30 was not included in the development alternatives as it is considered an independent issue. Additionally, the purchase of approximately 18 acres of property within the AWOC critical area needed to protect the installation wasn't included in this analysis. This land purchase will be needed regardless which alternative is selected. The underlying assumptions used in developing the alternative development scenarios included the following.

- Accommodate the 20-year demand forecast.
- Maximize existing airport land resources and minimize acquisition.
- To the extent possible, separate large and small aircraft activity.
- Provide a logical and efficient layout for airport facilities.
- Preserve future opportunity to expand should demand exceed forecast levels.

5.4.1 WEST SIDE DEVELOPMENT

The constraints to the west side of the airport limit the range of options for development. Consequently, all development alternatives assume the same west side development. All six scenarios assume that the west side of the airport is largely dedicated to small aircraft (ARC A-I, homebuilt and ultralight). Hangars for these aircraft will be located in this area to the extent possible within the limitations imposed by the FAR Part 77 Surfaces. Existing hangars on the west side of the airport that currently penetrate the Part 77 Transitional Surface will either be removed, or modified to reduce their height to the allowable limits. Existing hangars that do not violate the FAR Part 77 Transitional surface height restrictions may remain. New hangar development in the area must also comply with FAR Part 77 restrictions. Where conditions allow, hangars that can accommodate B-II aircraft could be constructed. These will need to be approved prior to issuing permission for construction. A conceptual diagram of the west side hangar layout common to all development alternatives is presented in Exhibit 5-6.


12
PRIMARY SURFACE
EXPERIMENTAL/ULTRALIGHT & OVERFLOW TURF TIEDOWN
15' BLDG LIMIT
A-I HANGARS
MAX. HEIGHT: 15'
PROPOSED SMALL AIRCRAFT
HANGAR AREA (NEAR-TERM
LAND PURCHASE)
KEYPLAN
LEGEND
EXISTING PROPERTY
EXISTING PAVEMENT
EXISTING ROADWAY
EXISTING BUILDING
EXISTING PARKING
PROPOSED PROPERTY
PROPOSED PAVEMENT
PROPOSED ROADWAY
PROPOSED BUILDING
PROPOSED DEMOLITION
NOTES:
1. EXISTING AND NEW HANGARS NEED TO COMPLY WITH PART 77 SURFACES. EXISTING HANGARS NOT IN COMPLIANCE WILL NEED TO BE MODIFIED OR REMOVED.
2. PHASING NOT SHOWN — SEE CHAPTER 8 FOR DETAILS.
100 0 100 200
SCALE IN FEET
SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN
WEST SIDE HANGAR
DEVELOPMENT CONCEPT
5-6
URS
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5.4.1 EAST SIDE DEVELOPMENT

A fundamental question in the alternatives analysis centered on the airport's ability to accommodate the anticipated future demand within its existing property boundary. While an additional 18 acres of property will need to acquired to protect the AWOS installation, this land will not be available for hangar development. Consequently, the extent of facility development possible within the existing airport boundary and site configuration played a key role in the alternatives analysis. East side airport development alternatives were defined as follows:

Alternative 1: The underlying assumption of this alternative was that no additional land acquisition would occur and any future development would need to be accommodated within the existing airport property. This alternative served two purposes. First, it was intended to determine whether the anticipated future demand could, in fact, be met within the existing airport footprint. Second, it was also intended to evaluate the operating compromises, constraints and limitations that might result if no additional land were acquired. Alternative 1 was further subdivided into two sub-alternatives as follows:

- **Alternative 1A:** This subalternative requires no additional land acquisition, no development of the wetland area north of the Clary hangar and provides for the emergency medical helicopter facility to be located north of the existing FBO facilities.

- **Alternative 1B:** The subalternative also requires no land acquisition but does require the wetland area north of the Clary hangar to be mitigated and made available for development. Under this scenario the emergency medical helicopter facility is located south of the existing FBO facilities in the vicinity of the Clary hangar.

- **Alternative 2:** This alternative assumes land acquisition to the extent necessary to address long-term needs. A portion (approximately one acre) of the Tolleycraft site north of the north apron is assumed to be acquired consistent with the acquisition limits identified in the 2000 Master Plan Update. The wetland area north of the Clary hangar is assumed to be mitigated and made available for development.

Several additional alternatives were evaluated based on various land acquisition scenarios. Acquisition of the entire Tolleycraft site for airport use has been suggested

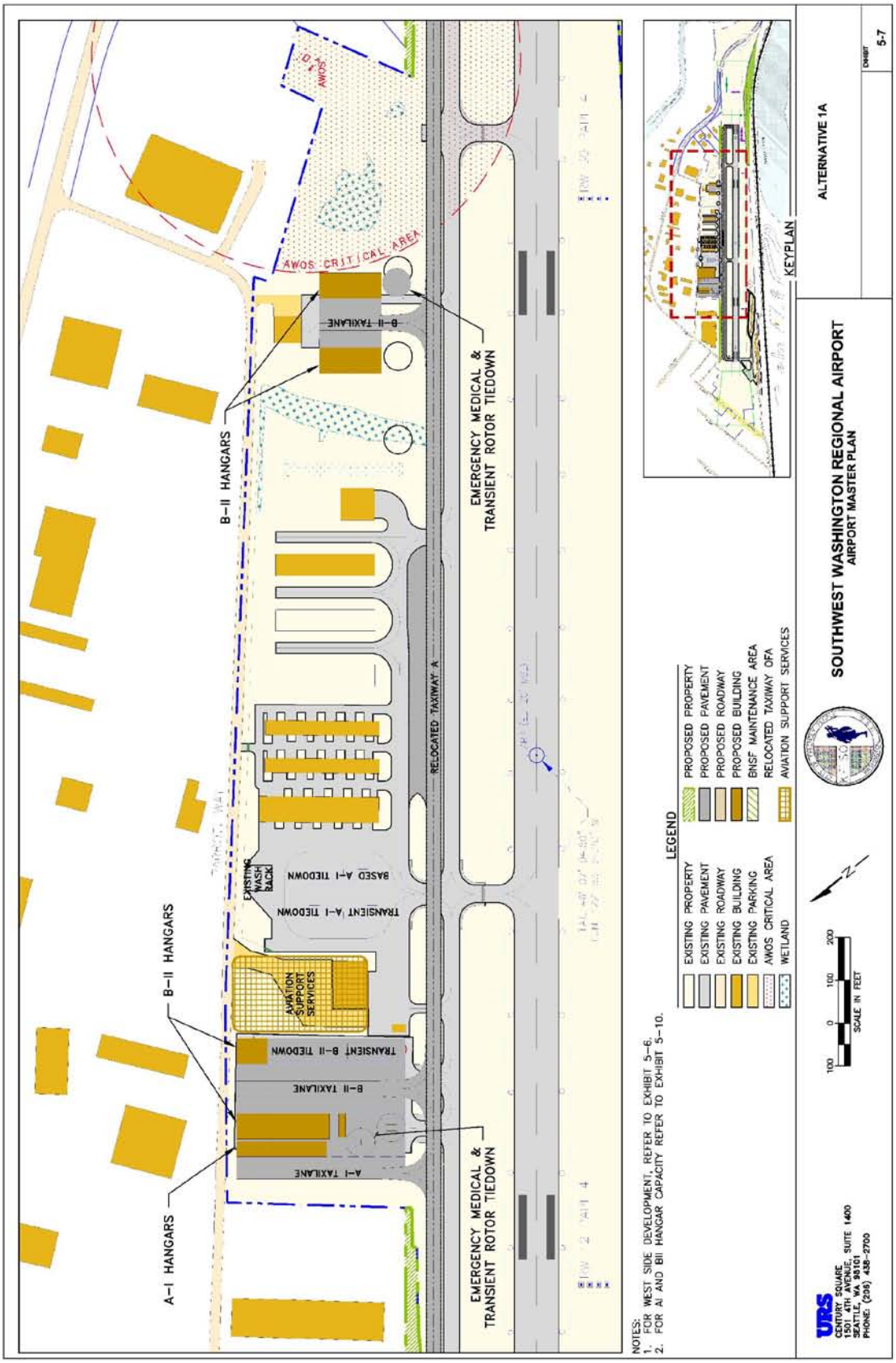
during the course of this Master Plan. While this site presents the most feasible expansion opportunity for the airport relative to its location and configuration, it is significantly larger than the area required under the current 20-year demand forecasts. Consequently, other development scenarios using alternate land acquisition options were explored. These options included;

- acquiring property northeast of the intersection of Colorado and Clinton Streets,
- acquiring property east of the airport across Parrott Way, and
- acquiring property in the extreme northwest corner of the airport.

Airport expansion to the north and/or east requires street closures disrupting traffic flow in the vicinity of the airport. Two of the three scenarios required acquisition of residential properties resulting in displacement of existing residents and disruption to the surrounding community. Preliminary cost estimates for land acquisition under these expansion scenarios ranged from $0.75 million to $4.4 million. However, acquiring residential properties could also entail paying relocation and replacement housing costs to displaced residents significantly increasing the total overall cost of the property. Furthermore, the location of the potential expansion areas relative to Runway 12/30 and other airport facilities resulted in poor operational solutions requiring extended taxi distances and/or convoluted taxi routes. As a result, these expansion scenarios were rejected from further consideration. It should be noted that land in the northwest corner of the airport is ultimately recommended for purchase under this plan. This is required for Part 77 control rather that development area expansion.

Of the alternatives receiving detailed analysis, Alternatives 1B and 2 assume development of the wetland located between the Clary hangar and the storm water retention facility. Development of any wetland area will require some form of mitigation. If the south runway extension is implemented, additional wetland mitigation will also be required. Although the alternatives analysis assumes wetland mitigation will require acquisition of replacement property this may or may not be necessary depending upon other options that may be available. A more complete study of wetland mitigation alternatives will be required before a final mitigation plan can be determined.

Conceptual sketches for Alternatives 1A, 1B and 2 are presented in Exhibits 5-7 through 5-9 below. The sketch alternatives are followed by Exhibit 5-10, which summarizes the alternatives relative to future facility requirements as determined under the demand forecasts.


B-II HANGARS
A-I HANGARS
B-II HANGARS
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EMERGENCY MEDICAL & TRANSIENT ROTOR TIEDOWN
AWOS CRITICAL AREA
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AVIATION SUPPORT SERVICES
TRANSIENT B-II TIEDOWN
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EXISTING BUILDING
EXISTING PARKING
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WETLAND
PROPOSED PROPERTY
PROPOSED PAVEMENT
PROPOSED ROADWAY
PROPOSED BUILDING
BNSF MAINTENANCE AREA
RELOCATED TAXIWAY OFA
AVIATION SUPPORT SERVICES
SCALE IN FEET
100 0 100 200
NOTES:
1. FOR WEST SIDE DEVELOPMENT, REFER TO EXHIBIT 5-6.
2. FOR A-I AND B-II HANGAR CAPACITY REFER TO EXHIBIT 5-10.
SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN
ALTERNATIVE 1A
EXHIBIT 5-7
URS
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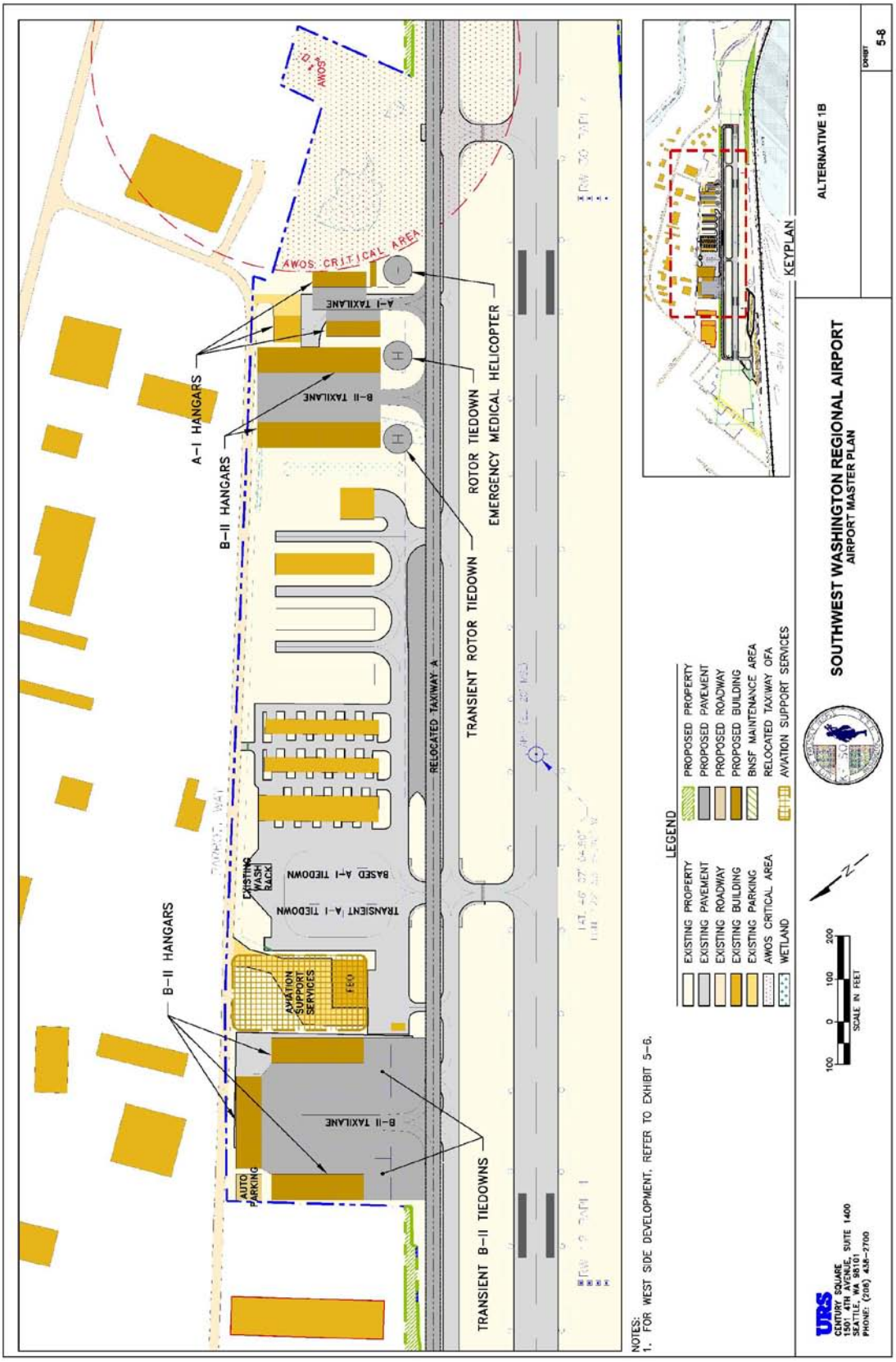
A-I HANGARS
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EMERGENCY MEDICAL HELICOPTER
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EXISTING WASH RACK
AVIATION SUPPORT SERVICES
FBO
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AUTO PARKING
TRANSIENT B-II TIEDOWNS
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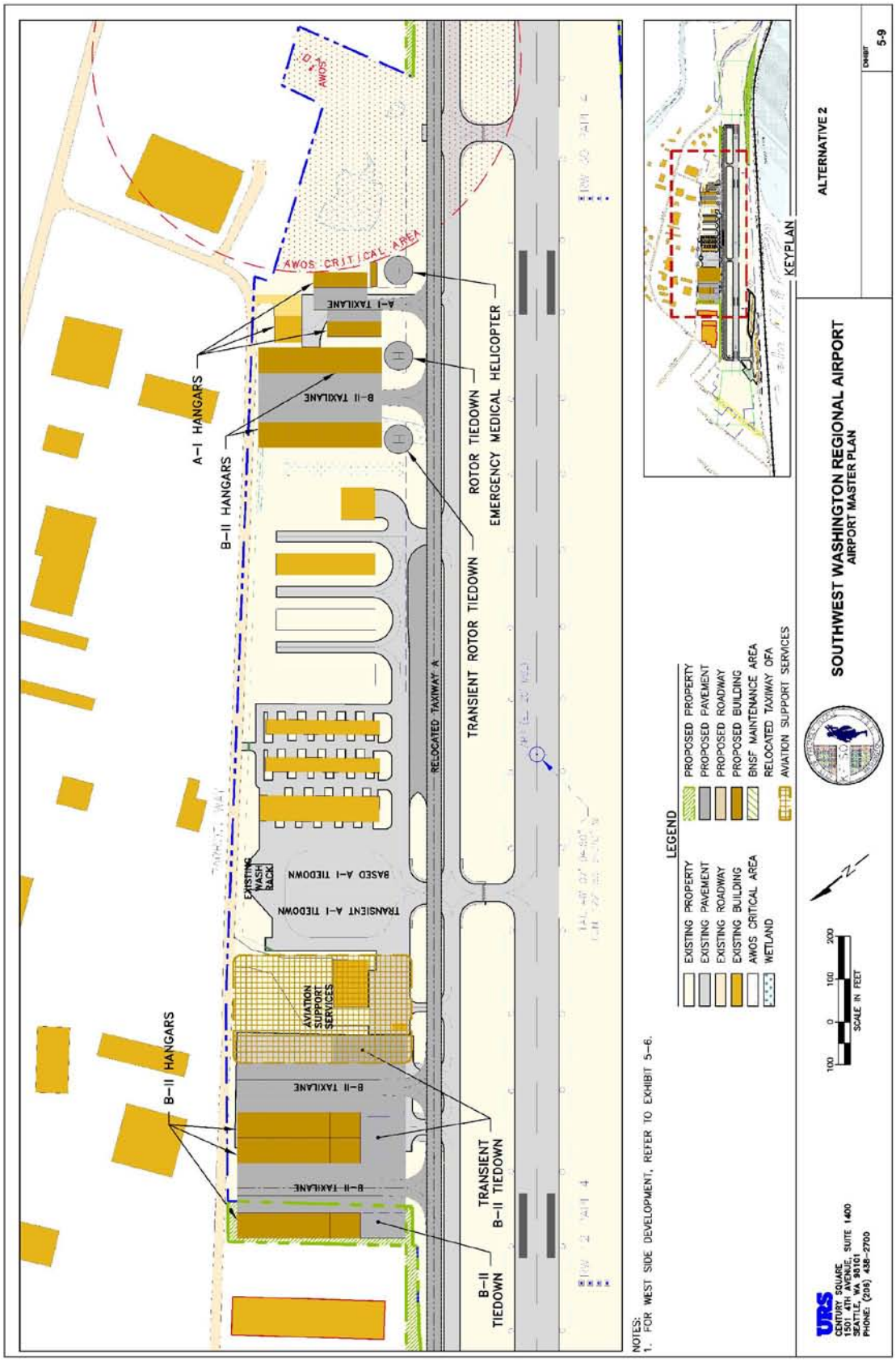
AIRPORT MASTER PLAN
ALTERNATIVE 1B
EXHIBIT 5-8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AIRPORT MASTER PLAN
ALTERNATIVE 2
EXHIBIT
5-9

Exhibit 5-10: Kelso Longview Regional Airport Master Plan - Summary of Demand Accommodated by Alternative

	Required Facilities (Long Term)	Alternati
Key Assumptions	No development constraints	No Land Ac No Wetland De Emergency Med. H
Apron Tiedown		
Based Aircraft		
Small/A-I Aircraft	10[1]	8
Large/B-II Aircraft	0	0
Rotorcraft	2	1
Subtotal - Based Aircraft	12	9
Transient Aircraft		
Small/A-I Aircraft	6	8
Large/B-II Aircraft	4	4
Rotorcraft	0	1
Subtotal - Transient Aircraft	10	13
Total Apron Tiedowns	22	22
A-I Hangars		
West side - A-I/Height Restricted[2]	34	34
Existing East Side	28	28
Programmed East Side	30	30
New East Side	6	5
Subtotal A-I Hangars	98	97
B-II Hangars		
Existing East Side	1	1
Programmed East Side	3	3
New East Side	15	8
Subtotal B-II Hangars	19	12
Total Hangars	103	95
SUMMARY		
Based Aircraft Forecast	109	109
Total Based Aircraft Accommodated (Hangars + Based Aircraft Tiedown)	115	104
Total Aircraft Accommodated (Based Aircraft + Transient Aircraft)	125	117
Estimated Land Acquisition Req'd	N/A	Non
Wetland Mitigation Required	N/A	Non

NOTES: [1]Number of A-I tiedowns exceeds forecast demand to allow for seasonal variations.
[2]Number of West Side hangars remains the same for all alternatives.
[3]Assumes Clary Hangar converted to A-I aircraft facility.

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Recommended Development Alternative

Selecting a long-term development concept for the airport depends on the criteria applied under the evaluation process. The unranked six criteria used in selecting the development alternative under this analysis are:

- Does the development concept meet the long-term demand anticipated to occur at the airport over the planning period?
- Which development concept provides the most efficient operating environment and organization of facilities?
- What is the development feasibility of the alternative?
- What is the impact on the community?
- Which concept is best able to accommodate additional expansion beyond the forecast period should the need arise in the future?
- What is the relative cost of the alternative?

Exhibit 5-11 compares Alternatives 1A, 1B and 2 against the evaluation criteria identified above. Based on Exhibit 5-11, Exhibit 5-12 summarizes the relative strengths, weaknesses, opportunities and threats of each alternative.

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Exhibit 5-11: Summary of Development Alternatives

Alternative	Meets Demand Forecast	Operating Efficiency	Development Feasibility	Community Impact	Future Expansion Potential	Relative Development Costs[1]
Alternative 1A	• Does not meet forecast demand. • Meets apron tiedown requirement • Provides 83 out of 84 required A-I hangars long-term • Provides 12 out of 19 required B-II hangars long-term	• Tight operating environment. • Mixed aircraft and activity sharing same operating environment.	• Good development potential • No land acquisition. • No wetland development	• No development-related impact. • No land acquisition.	• Limited potential to expand aviation support/services area. • Wetland development required to expand. • Limited potential to expand aircraft capacity without land acquisition.	• Preliminary estimate :$410,700. • Lowest cost alternative to develop .
Alternative 1B	• Meets or exceeds forecast demand. • Meets apron tiedown long-term • Meets A-I hangars long-term • Meets B-II hangars long-term	• Good overall operating efficiency. • Possible operating conflicts between some B-II hangars. • Good separation of aircraft/ types of activity	• Good development potential subject to wetlands. • Requires wetland determination and classification, and permits and approvals from appropriate agencies with mitigation as required. • No land acquisition	• Wetland mitigation likely required. • Land acquisition limited to wetland mitigation(if required) • No other development-related impacts anticipated.	• Good future expansion potential for facilities and support services. • Land acquisition required to expand. • Specific sequencing of development needed to preserve expansion potential in service area. • Ultimate capacity estimated at 164 aircraft, including 40 B-II aircraft hangars..	• Preliminary estimate: $1,285,200. • Mid-range cost alternative to develop.
Alternative 2	• Exceeds forecast demand in all categories. • Accommodates greatest number of B-II aircraft. • Accommodates greatest number of based and transient aircraft.	• Best overall operating efficiency. • Good separation of aircraft/ types of activity	• Good development potential subject to wetlands. • Requires wetland determination and classification, and permits and approvals of appropriate agencies with mitigation as required. • Requires approximately 1 acre of land acquisition (excluding wetland mitigation) for airport development	• Wetland mitigation likely required. • Requires acquisition of approx. 1 acre of Tolleycraft site long-term. • No Tolleycraft property acquisition needed until 2020 or beyond.	• Best future expansion potential for optimum facility long-term. • Ultimate capacity estimated at 171 aircraft, including 42 B-II aircraft hangars.	• Preliminary estimate: $1,691,100. • Most expensive alternative to develop. • Phasing of development may moderate cost impacts. • Property acquisition not required until 2020 or beyond.

Note: [1]Development Costs are preliminary order of magnitude estimates for new pavements and land acquisition only. Estimates do not reflect potential Federal participation, Runway 12/30 extension costs, or other improvements that may be required under each conceptual alternative.

[2] Land acquisition costs do not include possible additional relocation costs that may be required or allowance for potential Federal funding participation where applicable.

Exhibit 5-12: Strengths, Weaknesses, Opportunities, Threats Assessment

Alternative	Strengths	Weaknesses	Opportunities	Threats
Alternative 1A	• Least expensive alternative to develop. • Does not require property acquisition. • Does not impact wetland areas. • Requires minimal changes to existing airport configuration.	• Does not meet long-term facility requirements. • Large aircraft, small aircraft and rotorcraft share the same operating areas. • Aviation support/services area is constrained and difficult to expand.	• Able to be implemented immediately.	• Unable to accommodate anticipated growth in activity.
Alternative 1B	• Accommodates long-term facility demand. • Does not require property acquisition. • Separates B-II, A-I and rotorcraft activity. • Provides more “open” aircraft movement areas. • Wetland area development removes wildlife hazard.	• Requires development of wetland area. • Aviation support/services area is constrained and difficult to expand. • Requires eventual conversion of Clary hangar to A-I aircraft facility.	• Some North Apron area hangars could be developed immediately. • Layout supports long-term expansion beyond forecast period with additional land acquisition.	• Unable to develop wetland area. • Some North Apron B-II hangars would need to be removed/relocated for long-term expansion or not constructed until long-term airport configuration has been determined.
Alternative 2	• Exceeds long-term facility demand. • Separates B-II, A-I and rotorcraft activity. • Provides more “open” aircraft movement areas. • Accommodates expansion of aviation support/services area. • Wetland area development removes wildlife hazard.	• Requires land acquisition for full implementation. • Requires development of wetland area. • Requires eventual conversion of Clary hangar to A-I aircraft facility. • Most expensive alternative to develop.	• Some North Apron area hangars could be developed immediately. • Phased approach to development could defer property acquisition until 2022 or dictated by demand. • Provides best overall long-term configuration of airport for expansion beyond the forecast period.	• Unable to develop wetland area. • Development cost.

Based on the above analyses, it is this consultant's recommendation that Alternative. 2 provide the basis for airport landside development. Alternative 2 meets the forecast demand for overall total as well as B-II aircraft. Furthermore, Alternative 2 enables expansion of the aviation support/services area near-term, something not possible under the other alternatives.

While Alternative 2 assumes eventual development of the wetland area north of the Clary hangar, the existence of the wetland has been found to be an undesirable attractant of wildlife activity under the recently completed Wildlife Hazard Management Plan. Therefore, eventual removal of the wetland would be beneficial to and enhance safety at the airport.

The additional land acquisition depicted under Alternative 2 is consistent with previous long-standing recommendations for the airport and therefore neither significantly expands the airport nor deviates from the community's understanding of and expectations for the future of the facility. Furthermore, incremental development of Alternative 2 would enable the airport to meet demand forecast levels through 2022 before any additional land would need to be acquired.

Although Alternative 2 is estimated to be the most expensive of the alternatives to develop, the additional dollars spent provide an improved operating environment, greater basing capacity – particularly for the larger B-II business class aircraft, and the best potential for future expansion of the airport beyond the forecast period.

Ultimate Vision

The demand forecasts prepared under this Master Plan are based on a 20-year planning horizon. The WSDOT/Aviation Long-Term Air Transportation Study has identified KLS as the Regional Service airport for Southwest Washington. Consequently, it is assumed that the airport will play an important role in the Washington aviation system well beyond the end of the 20-year planning period. It would be short-sighted if this master plan did not consider the airport's expansion potential beyond 2027 as part of the alternative evaluation process even though specific future needs are unknown at this time.

While this plan does not specifically predict growth of airport activity beyond that identified in the demand forecasts, it is important to preserve opportunities for future growth should the need arise. As the recommended development concept, Alternative 2 accommodates a logical expansion of airport facilities should it become necessary in the future. Exhibit 5-13 depicts the ultimate vision of what "ultimate build-out" of the airport might look like beyond 2027 by expanding upon the Alternative 2 development concept.

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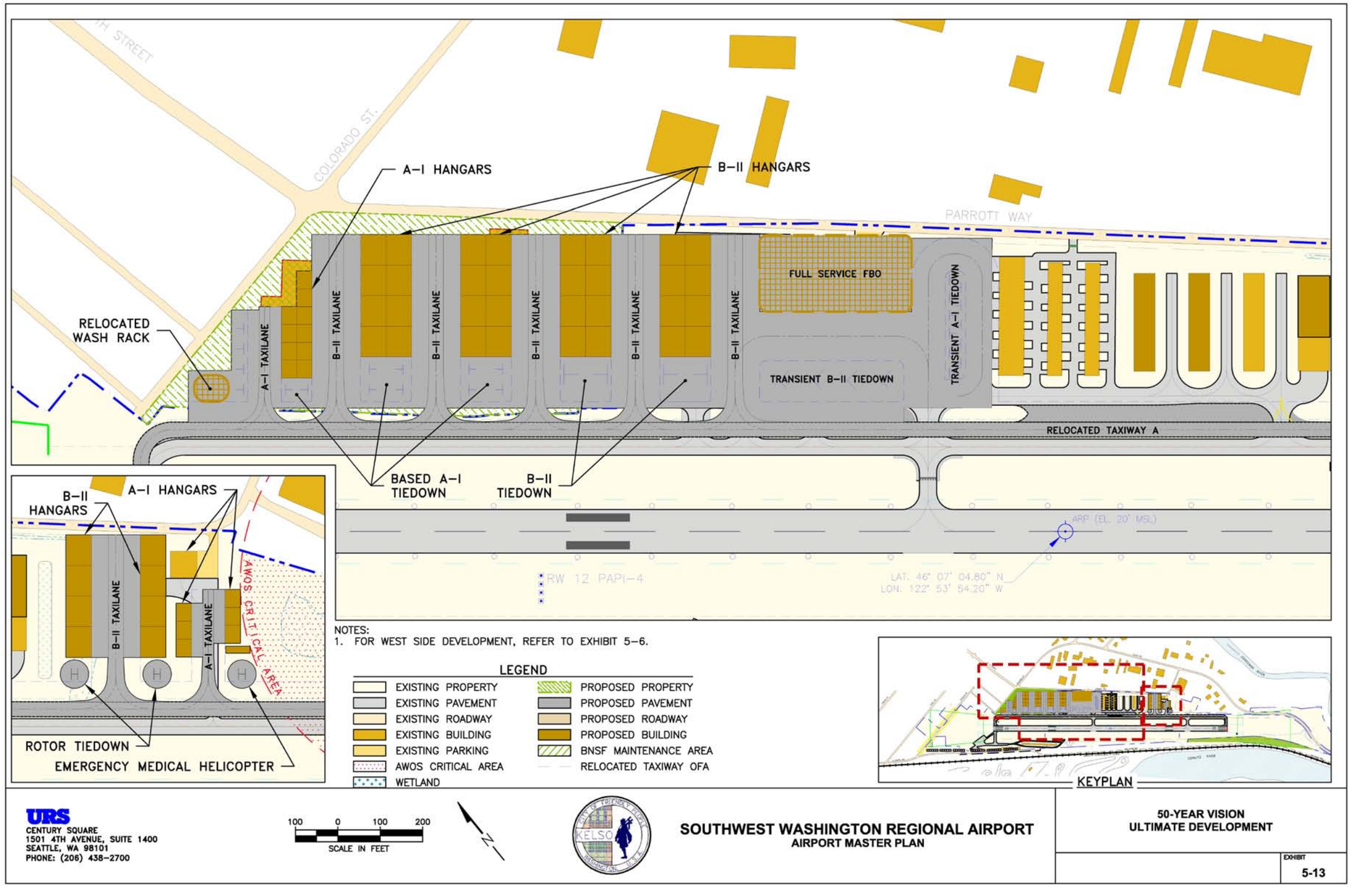
COLORADO ST.
PARROTT WAY
A–I HANGARS
B–II HANGARS
RELOCATED WASH RACK
A–I TAXILANE
B–II TAXILANE
B–II TAXILANE
B–II TAXILANE
B–II TAXILANE
B–II TAXILANE
FULL SERVICE FBO
TRANSIENT B–II TIEDOWN
TRANSIENT A–I TIEDOWN
RELOCATED TAXIWAY A
BASED A–I TIEDOWN
B–II TIEDOWN
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LAT. 46° 07' 04.80" N
LON. 122° 53' 54.20" W
B–II HANGARS
A–I HANGARS
B–II TAXILANE
A–I TAXILANE
AWOS CRITICAL AREA
ROTOR TIEDOWN
EMERGENCY MEDICAL HELICOPTER
NOTES:
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EXISTING ROADWAY
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SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN
50-YEAR VISION
ULTIMATE DEVELOPMENT
EXHIBIT
5-13

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Contents

CHAPTER 6 – AIRPORT PLANS

6.1 INTRODUCTION

This chapter describes and graphically depicts recommended development for the Southwest Washington Regional Airport (KLS). The program, covering a period of 20 years reflects input received over the course of the planning process from the City, the Airport Advisory Committee, the FAA, WSDOT Aviation, airport users, and the general public. The analyses and findings of the previous chapters of the Master plan provide technical and policy guidance for the plan's outcome.

The projects included in the twenty year capital improvement program for KLS relate to safety, maintenance, or the need to accommodate future demand. It is recommended that implementation of the improvement program be monitored by the Airport on a year-by-year basis as circumstances dictate to insure that facilities are brought on line as needed.

The following airport plans are depicted graphically and include synopses describing the associated information:

- Sheet 1, Title Sheet
- Sheet 2, Airport Layout Plan
- Sheet 3, General Aviation Plan
- Sheet 3, FAR Part 77 Airspace Plan, Runway 15-33
- Sheet 4, Inner Runway Approach Surfaces, Runways 15 and 33
- Sheet 5, On-Airport Land Use Plan
- Sheet 6, Community Land Use Plan
- Sheet 7, Airport Exhibit 'A'

6.1.1 TITLE SHEET

The Title Sheet, Sheet 1, serves as an introduction to the Airport Layout Plan (ALP) drawing set, providing a location and vicinity map of the airport and an index of the drawings included in the ALP.

6.1.2 AIRPORT LAYOUT PLAN

The Airport Layout Plan, Sheet 2 depicts the airside and landside projects included in the improvement program in a graphic manner. Details on these are;

Airfield Improvements

The Southwest Washington Regional Airport (KLS) primarily services small general aviation users at the present time but records obtained during the development of this plan show that increasing demand by corporate jets is being experienced. In addition, the Washington State Long-term Air Transportation Study (LATS) designated KLS as the regional service facility for all of Southwest Washington. The combination of analyses conducted in this Master Plan and the LATS analysis shows that Runway 12-30 should meet the needs of B-II general aviation aircraft weighing less than 60,000 pounds and the runway should eventually be extended to a total length of 5,000 feet. Specific improvements to the airfield at KLS are as follows;

- Extend Runway 12-30 from its current length of 4,395 feet to 5,000 feet.
- Establish a clearway/stopway area off the Runway 30 end of at least 250 feet to allow the based Cessna Citation to operate at full gross weight at standard temperatures.
- Relocate Taxiway A to meet BII Design Standards. This will entail reconstructing the taxiway to provide 240 feet of separation between the runway and taxiway centerlines.
- Remove the current FAR Part 77 obstructions in the Westside hangar area.
- Continue the rehabilitation and maintenance of the runway and taxiway system.
- Continue to work with FAA to install a new Pattern Indicator and windsock on the airport.

Aircraft Aprons and Storage Improvements

Given the limited land area that is available for aircraft storage and services at KLS it is recommended that all airport land that has access to the airfield be reserved for aviation use purposes. This includes the following.

- After the obstructions to Part 77 are removed from the current Westside hangar area, the undeveloped land should be developed as economy hangar storage area. This area should be restricted to small aircraft.
- All undeveloped property on the east side of the runway, between the taxiway and Parrot Road, should be developed for aircraft storage purposes. This includes eventual development of the wetland area north of the Clary Hangar. This wetland has been determined to be an undesirable attractant of wildlife activity under the recently completed Wildlife Hazard Management Plan. Therefore,

eventual removal of the wetland would be beneficial to and enhance safety at the airport.

- In addition to full development of all existing property, additional land will need to be acquired to assure ample growth opportunity. Specifically this includes the parcel commonly referred to as the Tollycraft Property. This acquisition is consistent with previous recommendations for the airport and therefore neither significantly expands the airport nor deviates from the community's understanding of and expectations for the future of the facility.
- Over the long term (beyond 20-years) the landside development area should include expansion of airport facilities to encompass the Tollycraft site. This "ultimate build-out" area will include the construction of additional corporate hangars as well as provide for additional FBO area to allow for the eventual expansion and improvement to this area's facilities and services. This expansion may be beyond the year 2027 but will be needed if the airport is to fully function as a regional service airport.

6.1.3 FAR PART 77 AIRSPACE PLAN, RUNWAY 12-30

The airspace plan for KLS is depicted in Sheet 3. The drawing illustrates the imaginary surfaces defined in Federal Aviation Regulation (FAR) Part 77, Obstructions to Navigable Airspace as they apply to Runway 12/30. The surfaces indicate airspace that should not be penetrated by objects of natural growth, man-made objects, or terrain.

The following subsections contain descriptions of the various airspace surfaces together with specific dimensional criteria as applied to KLS.

Primary Surface

The primary surface is an imaginary surface of specific width longitudinally centered on a runway and extending 200 feet beyond each end of that runway. The primary surface width is dependent upon the type of approach procedure available for that runway. The primary surface width for Runway 12-30 is 500 feet based on the existence of a non-precision instrument approach to Runway 12. This dimension is applicable for both current and future conditions. Although it is expected that improvements will be made to the instrument approach capacity of Runway 30 in the future, this is not likely to upgrade the approach beyond the non-precision category.

Approach Surface

The approach surface is an imaginary inclined plane beginning at the end of the primary surface and extending outward to distances up to 50,000, depending upon the type of approach procedure for the runway. The width and slope of the approach surface are also dependent on the type of approach procedure available on the runway.

The approach slope to Runway 12 is based on the current non-precision approach. It begins 200 feet from the physical end of the runway, is 500 feet wide at that point. It extends outward for 10,000 feet and upward at a slope of 34:1 at which point it is 3,500 feet wide. This approach will be continued throughout the planning period.

For Runway 30 the existing approach is limited to visual conditions. It begins 200 feet from the end of the runway where it is 500 feet wide. It extends outward for 5,000 feet and upward at a slope of 20:1 at which point it is 1,500 feet wide. In the future, this approach is likely to be improved to a non-precision instrument approach with visibility minimums greater that ¾ mile. This will change the approach to match the current approach to Runway 12. It will begin 200 feet from the physical end of the runway, be 500 feet wide at this innermost point. It then will extend outward for 10,000 feet and upward at a slope of 34:1 at which point it will be 3,500 feet wide.

Horizontal Surface

The horizontal surface is an imaginary plane 150 feet above the established airport elevation. The shape of the plane is determined by striking arcs from the end of each primary surface. The radius of each arc is based on the most demanding type of approach procedure planned for the runway. The individual arcs are then connected by lines tangent to the arcs. For KLS, the airport elevation is 20 feet above mean sea level, making the Horizontal Surface 170 feet MSL.

Conical Surface

The conical surface is an imaginary inclined plane beginning at the edge of the horizontal surface and extending outward at a 20:1 slope for a distance of 4,000 feet. At KLS the conical surface begins at 170 feet at extends outward and upward to 370 feet.

Transitional Surface

The transitional surface is an inclined plane extending outward from the primary surface, at a 7:1 slope until it intersects with the horizontal surface. Along the approach surface it extends upward from the approach surface to the intersection with the horizontal surface.

In reviewing the FAR Part 77 Imaginary Surfaces drawing, it is seen that numerous objects penetrate the defined surfaces including trees, buildings and terrain. The terrain

penetrations to the north and eat are a limiting factor on the airport's ability to provide better instrument approach procedures.

6.1.4 INNER RUNWAY APPROACH SURFACE, RUNWAYS 12 AND 30

The existing and future Inner Approach Plans and Profiles for both runway ends are shown on Sheet 4. This drawing depicts the critical inner portions of the approach zones for each runway end. On the sheet, existing and potential obstructions to the approaches have been identified and are noted and an obstruction removal plan is provided.

The city does not own outright or retain easements for all portions of the RPZs to runway 12. This could complicate the process of removing any obstructions. It is recommended that the city investigate and pursue the acquisition of easements until all area within the RPZs is under some form of height and land use control under the city's land use and zoning ordinances.

6.1.5 LAND USE PLAN

The updated Airport Land Use Plan reflecting the recommendations of the Master Plan is presented on Sheet 5. Land within the existing airport property boundary is part of a City of Kelso ILM (Light Manufacturing/Industrial) zone. While Light Manufacturing/Industrial zoning would generally be considered compatible with airport operations, certain uses and activities permitted within the zone are not. Permitted but incompatible uses would include those sensitive to noise impacts or that allow large congregations of people. Airports are not specifically listed as a permitted or conditional use in an ILM zone.

The Airport property encompasses approximately 126 acres of land. This has been subdivided in this report to represent the proposed long range development plan. Each of the subdivisions is compatible within the overall Light Industrial Zone and include.

- **Aircraft Operations Area**: This area is comprised of the runway and taxiway facilities, and the Object Free Areas and Runway Safety Areas associated with the runway. The Aircraft Operations Area is defined by a combination of requirements and recommendations promulgated by the Federal Aviation Administration in Advisory Circular 150/5300-13, Airport Design, and Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Surfaces. No development is allowed within this area except that permitted by FAA and specifically required to support aircraft operations at the Airport. This use category encompasses more than 92 acres of the airport property.

- **Aviation Use:** All uses in support of the based aircraft are included in this category. Some possibilities include FBO services, aircraft storage and tiedown facilities, T-hangars, conventional hangars, aircraft maintenance and repair, specialty services, and other aviation activities and businesses. This category includes nearly 35 acres of land with an additional 12 acres dedicated to aviation development beyond the 20-year period.
- **Non-Aviation**: A small portion of airport property is not suited for aviation use due to physical separation or topographic conditions. This land should be developed for non aviation purposes or held in reserve as open space. Should the city develop the property for non-aviation purposes it will be essential that the revenue derived form these developments be dedicated to the airport.

6.1.6 OFF-AIRPORT LAND USE

The Southwest Washington Regional Airport is surrounded by a mixture of residential, commercial, industrial development and undeveloped land. To the east the land is currently occupied a mixture of light industrial, commercial or office uses. To the south the land is mostly undeveloped. To the west it is a mixture of recreational (golf course or residential. On the north the airport is bordered residential uses.

To assure that land in the airport area remains compatible with airport operations three critical factors are considered. The first is height hazards, as represented on the FAR Part 77 Imaginary Surfaces Plan. The second is safety of both aircraft operators and people on the ground. The final consideration is aircraft noise. At KLS the off-airport land use planning drawing considers these three elements using guidance materials from the Washington State Department of Transportation (WSDOT), Aviation Division publication entitled “Airports and Compatible Land Use”. The compatibility planning boundary for the geographic area encompassed by this land use plan represents a composite of the following:

- DNL 65 noise contour for the year 2025,
- FAR Part 77 Imaginary Surfaces; and the
- Safety Compatibility Planning Zones as set forth in the WSDOT guidance.

Sheet 6 shows the off-airport land use planning recommendations made as part of the ALP Update.

Noise

At the present time, daily aircraft operations do not generate much attention and since most are conducted by small, piston powered aircraft, noise hasn't been a community issue. However, preparing and implementing plans for continued compatible land uses in the airport vicinity within the 65 DNL noise contour is encouraged. FAA Advisory Circular 150/5020-1, Noise Control and Compatibility Planning for Airports, provides guidance for determining land uses that are compatible with these noise levels.

The noise analysis for KLS used both existing and forecast operational data as the foundation for determining noise impact levels. Aircraft mix and day/night operations breakdowns were estimated for the forecast period. Noise contour maps were prepared to represent existing conditions and the conditions expected at the end of the 20-year planning period. Flight operations for a typical day were combined with the information detailed in the forecast chapter to determine the following:

- The number of aircraft departures and arrivals,
- The type of aircraft used in these operations,
- The percentage of aircraft operations that occur during nighttime hours,
- The runway usage patterns, and
- Aircraft arrival and departure flight paths.

Discussions with Airport Management the Fixed Base Operator and aircraft users were used to define flight corridors (flight tracks) and the percentage of use of each track on a typical day. Using this data, the information was formatted for input into the FAA's Integrated Noise Model (INM), Version 6.0B.

Based on the output from the INM, noise exposure contours showing DNL 65 and above values were plotted on base maps. As is seen on the attached map, the airport noise contours are fully contained on airport property for both the current and the year 2025 conditions. Therefore, it is not anticipated that the airport's noise impact on the surrounding communities will change as a result of the recommended improvements.

Height

Height requirements around an airport are defined by Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace. The Part 77 Surfaces surrounding KLS have been discussed and defined previously in this chapter. The drawing illustrates the airspace that should be clear of obstructions, including objects of natural growth, man-made objects, and terrain.

Safety

The Washington Land Use Planning Handbook provides guidance to airports on identifying Aircraft Accident Safety Zones surrounding airports. These safety zones are defined based on both the runway system and the nature of aircraft activity associated with the runway. The zones are based on statistical analyses of historical aircraft accident data obtained from a broad cross-section of airports. The objective of the zones is to preclude development of non-compatible land uses in those locations on airport property that statistically, may have a higher risk of aircraft accidents.

There are six Aircraft Accident Safety Zones identified in the Airports and Compatible Land Use document including;

- **Zone 1**: Runway Protection Zone,
- **Zone 2**: Inner Safety Zone,
- **Zone 3**: Inner Turning Zone,
- **Zone 4**: Outer Safety Zone,
- **Zone 5**: Sideline Safety Zone, and
- **Zone 6**: Traffic Pattern Zone.

The dimensions of these zones depend on the runway length, level of approach precision, and character of aviation activity – i.e. small general aviation, corporate aviation, air carrier or military. The Safety Zones applied to the Southwest Washington Regional Airport KLS) are depicted in Sheet 6 and the recommendations on the compatible and non-compatible land use activities within each are presented below.

Exhibit 6-1: Washington State Guidelines for Accident Safety Zones

Zone 1		
Land Use Characteristics	**Land Use Guidelines**	**Land Use Planning Strategies**
Population Density	Avoid Land Uses that concentrate people indoors or outdoors	1. 0 – 5 people per acre 2. Airport sponsor should purchase property if possible. 3. Zone land uses, which by nature, will be relatively unoccupied by people (i.e.: mini-storage, small parking lots)
Residential vs. Non-Residential Land	Prohibit all residential land uses. All non-residential land uses permitted outright subject to the Population Density and Special Function Land Use guidelines	1. Create height hazard overlay ordinance around the airport. 2. Airport sponsor should purchase property if possible 3. Airport sponsor should obtain avigation and obstruction easements. 4. During site development process, shift all structures away from the runway centerlines if possible. 5. Landscaping requirements shall establish only low growing vegetation 6. Prohibit high overhead outdoor lighting 7. Require downward shading of lighting to reduce glare

		8. Evaluate all possible permitted conditional uses to assure compatible land use
Special Function Land Use	Prohibit all Special Function Land Uses	1. Prohibit overhead utilities and all noise sensitive land uses. 2. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 3. Limit storage of large quantities of hazardous or flammable materials. 4. Ensure permitted uses will not create large areas of standing water or generate smoke/ steam, etc.

Zone 2		
Land Use Characteristics	**Land Use Guidelines**	**Land Use Planning Strategies**
Population Density	Avoid Land Uses that concentrate people indoors or outdoors	1. 0 – 5 people per acre 2. Zone land uses, which by nature, will be relatively unoccupied by people (i.e.: mini-storage, small parking lots)
Residential vs. Non-Residential Land	Prohibit all residential land uses. All non-residential land uses permitted outright subject to the Population Density and Special Function Land Use guidelines	1. Create a height hazard overlay ordinance around the airport. 2. Obtain avigation and obstruction easements. 3. During site development process, shift all structures away from the runway centerlines if possible. 4. Prohibit mobile home parks 5. Landscaping requirements shall establish only low growing vegetation 6. Prohibit high overhead outdoor lighting 7. Require downward shading of lighting to reduce glare 8. Evaluate all possible permitted conditional uses to assure compatible land use
Special Function Land Use	Prohibit all Special Function Land Uses	1. Prohibit overhead utilities and all noise sensitive land uses. 2. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 3. Limit storage of large quantities of hazardous or flammable materials. 4. Ensure permitted uses will not create large areas of standing water or generate smoke/ steam, etc.

Zone 3		
Land Use Characteristics	**Land Use Guidelines**	**Land Use Planning Strategies**
Population Density	Avoid Land Uses that concentrate people indoors or outdoors	1. <25 people per acre 2. Zone land uses, which by their nature, will be relatively unoccupied by people (i.e.: mini-storage, parking lots)
Residential vs. Non-Residential Land	Limit residential development to one dwelling unit per five acres. All non-residential land uses permitted outright subject to the Special Function Land Uses.	1. Create a height hazard overlay ordinance around the airport. 2. Obtain avigation and obstruction easements. 3. During site development process, shift all structures away from the runway centerlines if possible. 4. Prohibit mobile home parks 5. Landscaping requirements shall establish only low growing vegetation 6. Prohibit high overhead outdoor lighting 7. Require downward shading of lighting to reduce glare 8. Evaluate all possible permitted conditional uses to assure compatible land use
Special Function Land Use	Prohibit all Special Function Land Uses	1. Prohibit overhead utilities and all noise sensitive land uses. 2. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 3. Limit storage of large quantities of hazardous or flammable materials. 4. Ensure permitted uses will not create large areas of standing water or generate smoke/ steam, etc.

Zone 4		
Land Use Characteristics	**Land Use Guidelines**	**Land Use Planning Strategies**
Population Density	Limit population concentrations	1. <40 people per acre in buildings, <75 people per acre outside buildings
Residential vs. Non-Residential Land	Maximum of one dwelling unit per five acres in rural areas, one dwelling unit per 2.5 acres in urban areas. All non-residential land uses permitted outright subject to the Special Function Land Uses	1. Create a height hazard overlay ordinance around the airport. 2. Obtain avigation easements. 3. Clustered development to maintain density as long as open space remains unbuilt. Place clustered development away from the extended runway centerline. 4. Prohibit mobile home parks 5. Require downward shading of lighting to reduce glare 6. Evaluate all possible permitted conditional uses to assure compatible land use
Special Function Land Use	Prohibit all Special Function Land Uses	1. Evaluate noise sensitive land uses in light of aircraft noise contour lines when establishing new zoning. 2. Prohibit overhead utilities and all noise sensitive land uses. 3. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 4. Limit storage of large quantities of hazardous or flammable materials. 5. Ensure permitted uses will not create large areas of standing water or generate smoke/ steam, etc.

Zone 5		
Land Use Characteristics	**Land Use Guidelines**	**Land Use Planning Strategies**
Population Density	Avoid Land Uses that concentrate people indoors or outdoors	1. 0 – 5 people per acre 2. Zone land uses, which by nature, will be relatively unoccupied by people (i.e.: mini-storage, small parking lots)
Residential vs. Non-Residential Land	Prohibit all residential land uses. All non-residential land uses permitted outright subject to the Population Density and Special Function Land Use guidelines	1. Airport sponsor should purchase property if possible 2. Create a height hazard overlay ordinance around the airport. 3. Obtain avigation and obstruction easements. 4. During site development process, shift all structures away from the runway centerlines if possible. 5. Landscaping requirements shall establish only low growing vegetation 6. Prohibit high overhead outdoor lighting 7. Require downward shading of lighting to reduce glare 8. Evaluate all possible permitted conditional uses to assure compatible land use
Special Function Land Use	Prohibit all Special Function Land Uses	1. Prohibit overhead utilities and all noise sensitive land uses. 2. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 3. Limit storage of large quantities of hazardous or flammable materials. 4. Ensure permitted uses will not create large areas of standing water or generate smoke/ steam, etc.

Zone 6		
Land Use Characteristics	**Land Use Guidelines**	**Land Use Planning Strategies**
Population Density	Limit large concentrations of people	1. Fewer than 100 people per acre in buildings, fewer that 150 people per acre outside buildings
Residential vs. Non-Residential Land	Maximum of one dwelling unit per five acres in rural areas, one dwelling unit per 2.5 acres in urban areas. All non-residential land uses permitted outright subject to the Special Function Land Uses	1. Prohibit mobile home parks 2. Create a height hazard overlay ordinance around the airport 3. Obtain avigation and obstruction easements 4. Clustered development to maintain density as long as open space remains unbuilt. Place clustered development away from extended runway centerline 5. Require downward shading of lighting to reduce glare 6. Evaluate all possible permitted conditional uses to assure compatible land use
Special Function Land Use	Prohibit all Special Function Land Uses	1. Prohibit all Special Function Land Uses 2. Evaluate noise sensitive land uses in light of aircraft noise contour lines when establishing new zoning

Source: Washington State Department of Transportation, Aviation Division, "Airports and Compatible Land Use, Volume 1", revised February 1999.

Based on this information it is recommended that the City work with the land use and comprehensive planning agencies to:

1. Adopt the master plan by reference into local comprehensive plans.
2. Describe airport facilities and operations, existing and future, in the transportation inventory.
3. Discourage incompatible land uses adjacent to public-use airports.
4. Identify the airport as an essential public facility.
5. Identify the important role of airports in local and regional economic development.

6.1.7 AIRPORT PROPERTY MAP

The Airport Property Map is shown on Sheet 7. This map depicts how various tracts of land within the airport boundaries were acquired.

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Sheet 1: Title Sheet

One half size (11X17) version of the Title sheet will be included here upon final approval by the City and FAA

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Sheet 2: Airport Layout Plan

One half size (11X17) version of the Airport Layout Plan will be included here upon final approval by the City and FAA

INTENTIONALLY

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Sheet 3: FAR Part 77 Airspace Plan

One half size (11X17) version of the Airspace plan will be included here upon final approval by the City and FAA

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Sheet 4: Inner Runway Approach Surfaces

One half size (11X17) version of the Inner Runway Approach Surfaces will be included here upon final approval by the City and FAA

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Sheet 5: On-Airport Land Use Plan

One half size (11X17) version of the On-Airport Land Use Plan will be included here upon final approval by the City and FAA

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Sheet 6: Community Land Use Plan

One half size (11X17) version of the Community Land Use Plan will be included here upon final approval by the City and FAA

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Sheet 7: Airport Property Map - Exhibit 'A'

One half size (11X17) version of the Airport Property Map will be included here upon final approval by the City and FAA

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SOUTHWEST WASHINGTON REGIONAL AIRPORT

Kelso, Washington

Airport Layout Plan Drawing Set

AIP NUMBER: 3-53-0034-13

SHEET INDEX

URS
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101
PHONE: (206) 438–2700

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE

KELSO, WASHINGTON

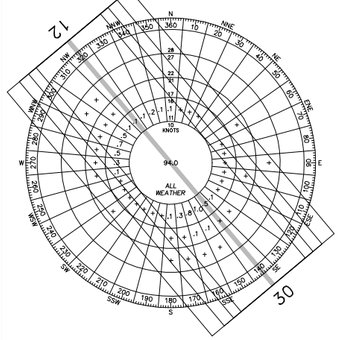
SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN

TITLE SHEET

PROJECT MANAGER:	JJY
DESIGNED BY:	RLO
DRAWN BY:	JKC
CHECKED BY:	JJY

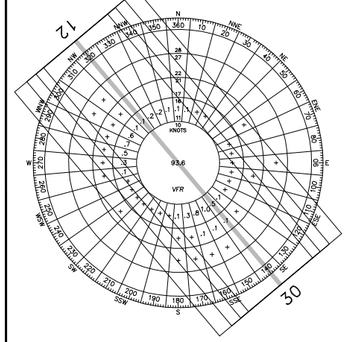
DATE: JUNE 2010

SHEET 1 of 8



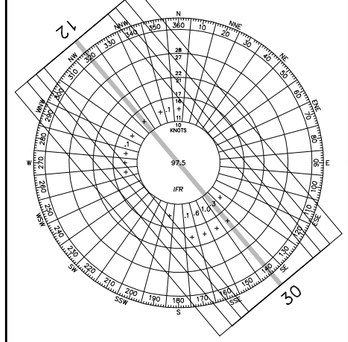
ALL-WEATHER (75,182 OBSERVATIONS)

CROSSWIND	RWY 12	RWY 30	RWY 12–30
10.5 KNOTS	96.99%	96.45%	99.60 %
13 KNOTS	97.06%	96.68%	99.92 %
16 KNOTS	97.08%	96.70%	99.99 %
20 KNOTS	97.08%	96.70%	100.00 %



VISUAL FLIGHT RULES (68,701 OBSERVATIONS)

CROSSWIND	RWY 12	RWY 30	RWY 12–30
10.5 KNOTS	97.58%	96.26%	99.57 %
13 KNOTS	97.60%	96.51%	99.91 %
16 KNOTS	97.60%	96.59%	99.99 %
20 KNOTS	97.60%	96.59%	100.00 %



INSTRUMENT FLIGHT RULES (6,481 OBSERVATIONS)

CROSSWIND	RWY 12	RWY 30	RWY 12–30
10.5 KNOTS	99.50%	97.70%	99.94 %
13 KNOTS	99.50%	97.70%	99.99 %
16 KNOTS	99.50%	97.70%	100.00 %
20 KNOTS	99.50%	97.70%	100.00 %

SOURCE: NOAA WEATHER REPORTING STATION: KELSO WA
PERIOD COVERED: 2000–2008

SYMBOL	ITEM	EXISTING STANDARD	EXISTING ACTUAL	CONDITION	MITIGATION	ISSUED
Ⓐ	RUNWAY 30 OFA	250'	200'	GROUND	CONTINUE COORDINATION WITH BNSF TO ALLOW CLEARING STANDARD TO BE MITIGATED, TO PROVIDE A LONG-TERM CLEARING AND MAINTENANCE AGREEMENT, AND TO PURSUE A PLAN TO MEET OFA STANDARDS.	
Ⓑ	RUNWAY 30 OFZ	200'	260'	BNSF MAINTENANCE AREA	KEEP OFZ CLEAR THROUGH BNSF RAILROAD MAINTENANCE AGREEMENT	
Ⓒ	TAXIWAY D	35'	14'	14' WIDE TAXIWAY D	REMOVE TAXIWAY	
Ⓓ	RUNWAY OFZ	200'	180'	TAXIWAY A	RELOCATE TAXIWAY	
Ⓔ	RW ℄ TO TW A ℄ SEPARATION	240'	200'	TAXIWAY A	RELOCATE TAXIWAY	
Ⓕ	RW ℄ TO TW D ℄ SEPARATION	240'	230'	TAXIWAY D	REMOVE TAXIWAY	
Ⓖ	TAXIWAY ℄ TO FIXED OBJECT SEPARATION	65.5'	50'	T-HANGAR	NONE – TO REMAIN	
Ⓗ	TAXIWAY D AND E TOFA	89'	37'	HANGARS ENCROACH	REMOVE HANGARS AND TAXIWAYS	

MODIFICATIONS TO STANDARDS

SYMBOL	ITEM	EXISTING STANDARD	EXISTING ACTUAL	CONDITION	MITIGATION	ISSUED
⊖	NONE	–	–	–	–	–

ABBREVIATIONS

ITEM	DEFINITION
LATS	LONG-TERM AIR TRANSPORTATION STUDY
MSL	MEAN SEA LEVEL
NPI	NON-PRECISION INSTRUMENT
NPIAS	NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS
TBR	TO BE REMOVED
V	VISUAL

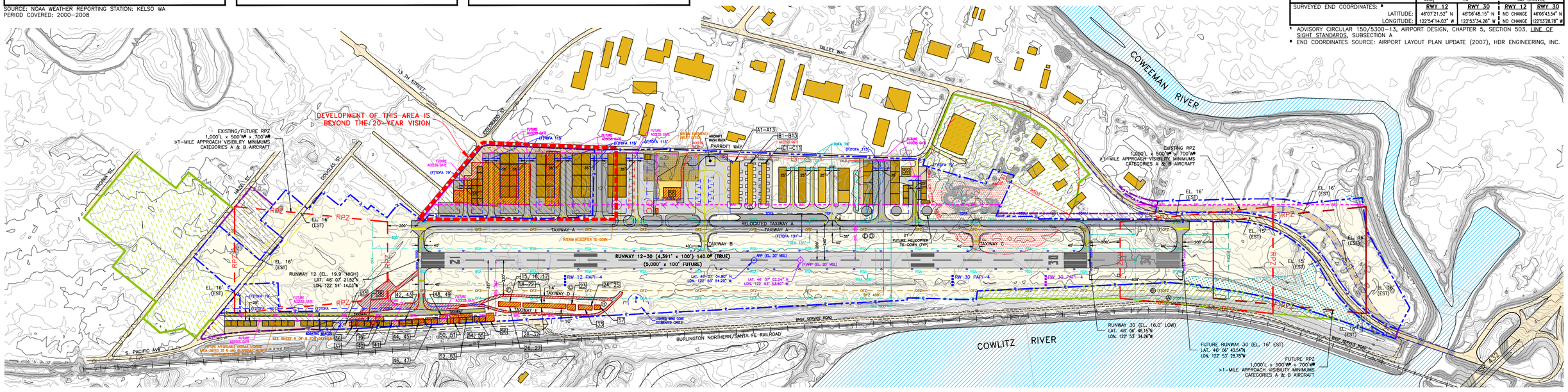
AIRPORT DATA TABLE

ITEM	EXISTING	PROPOSED
AIRPORT TERMINAL CODE	KLS	NO CHANGE
AIRPORT ELEVATION	20' MSL	NO CHANGE
AIRPORT REFERENCE POINT (ARP)* LAT.	46° 07' 04.80" N	46° 07' 02.54" N
AIRPORT REFERENCE POINT (ARP)* LON.	122° 53' 54.20" W	122° 53' 53.40" W
MEAN MAX. TEMP. OF HOTTEST MONTH	77.8° F (AUGUST)	NO CHANGE
WIND COVERAGE	99.92% (13 KNOT)	NO CHANGE
MAGNETIC DECLINATION & YEAR	16°45' E (MARCH 2009)	NO CHANGE
AIRPORT REFERENCE CODE (ARC)	B-II	NO CHANGE
CRITICAL AIRCRAFT	BEECH KING AIR	CESSNA CITATION II
CRITICAL AIRCRAFT 1,000 MILE STAGE LENGTH	1,000 MI	NO CHANGE
NPIAS SERVICE LEVEL	GA	NO CHANGE
LATS SERVICE LEVEL	REGIONAL SERVICE	NO CHANGE
TAXIWAY LIGHTING	MITL	NO CHANGE
TAXIWAY MARKING	CNTRLINE, EDGE MRKNG	NO CHANGE
AIRPORT & TERMINAL NAVAIDS	GPS/NDB-A	NO CHANGE

* NAD 88 (ESTIMATE)

ITEM	EXISTING STANDARD	EXISTING ACTUAL	PROPOSED STANDARD	PROPOSED ACTUAL
RUNWAY DESIGN CATEGORY		B-II		NO CHANGE
CRITICAL AIRCRAFT		BEECH KING AIR		CESSNA CITATION II
RUNWAY DIMENSIONS LENGTH:		4,395'		5,000'
RUNWAY DIMENSIONS WIDTH:		75' 100'		NO CHANGE
RUNWAY ORIENTATION		140 TRUE		NO CHANGE
PERCENT WIND COVERAGE (16 KNOT)		95% 99.99%		NO CHANGE
LINE-OF-SIGHT ▪		UNOBSTRUCTED		NO CHANGE
PAVEMENT TYPE		ASPHALT		NO CHANGE
PAVEMENT DESIGN STRENGTH SINGLE GEAR:		38,000 LBS		NO CHANGE
PAVEMENT DESIGN STRENGTH DUAL GEAR:		46,000 LBS		NO CHANGE
PAVEMENT DESIGN STRENGTH DUAL TANDEM GEAR:		74,000 LBS		NO CHANGE
VISUAL APPROACH AIDS	RWY 12:	PAPI-4, REIL		NO CHANGE
	RWY 30:	PAPI-4, REIL		NO CHANGE
INSTRUMENT APPROACH AIDS	RWY 12:	GPS/NDB-A		NO CHANGE
	RWY 30:	NONE		GPS
APPROACH VISIBILITY MINIMUMS	RWY 12:	NPI ≥1-MILE		NO CHANGE
	RWY 30:	VISUAL		NPI ≥1-MILE
FAR PART 77 APPROACH SLOPE	RWY 12:	34:1	34:1	NO CHANGE
	RWY 30:	20:1	20:1	34:1
LIGHTING		MIRL	MIRL	NO CHANGE
MARKING	RWY 12:	NP	NP	NO CHANGE
	RWY 30:	V	NP	NO CHANGE
RUNWAY SAFETY AREA (RSA) WIDTH:		150'	150'	NO CHANGE
RUNWAY SAFETY AREA (RSA) LENGTH BEYOND RW END:		300'	300'	NO CHANGE
OBJECT FREE AREA (OFA)		(SEE NON-STANDARD CONDITIONS)		(SEE NON-STANDARD CONDITIONS)
OBJECT FREE AREA (OFA) WIDTH:		500'	500'	NO CHANGE
OBJECT FREE AREA (OFA) LENGTH BEYOND RW END:		300'	300'	NO CHANGE
OBSTACLE FREE ZONE (OFZ)		(SEE NON-STANDARD CONDITIONS)		(SEE NON-STANDARD CONDITIONS)
OBSTACLE FREE ZONE (OFZ) WIDTH:		400'	400'	NO CHANGE
OBSTACLE FREE ZONE (OFZ) LENGTH BEYOND RW END:		200'	200'	NO CHANGE
PERCENT EFFECTIVE GRADIENT		1.5%	0.09%	NO CHANGE
MAX GRADE WITHIN RWY LENGTH (%)		1.5%	0.21%	NO CHANGE
RUNWAY ELEVATIONS EXISTING END:	RWY 12:	19.9'		NO CHANGE
RUNWAY ELEVATIONS EXISTING END:	RWY 30:	16'		16' (EST)
RUNWAY ELEVATIONS DISPLACED THRESHOLD:	RWY 12:	NA		NO CHANGE
RUNWAY ELEVATIONS DISPLACED THRESHOLD:	RWY 30:	NA		NO CHANGE
RUNWAY ELEVATIONS TOUCHDOWN ZONE:	RWY 12:	19.9'		NO CHANGE
RUNWAY ELEVATIONS TOUCHDOWN ZONE:	RWY 30:	16'		16' (EST)
RUNWAY INTERSECTIONS:		NOT APPLICABLE		NO CHANGE
RUNWAY ELEVATIONS HIGH & LOW POINTS:	HIGH:	19.3'		NO CHANGE
RUNWAY ELEVATIONS HIGH & LOW POINTS:	LOW:	16'		NO CHANGE
SURVEYED END COORDINATES: ▪		RWY 12	RWY 30	RWY 12	RWY 30
SURVEYED END COORDINATES: ▪ LATITUDE:		46°07'21.52" N	46°06'48.15" N	NO CHANGE	46°06'43.54" N
SURVEYED END COORDINATES: ▪ LONGITUDE:		122°54'14.03" W	122°53'34.26" W	NO CHANGE	122°53'28.78" W

▪ ADVISORY CIRCULAR 150/5300-13, AIRPORT DESIGN, CHAPTER 5, SECTION 503, LINE OF SIGHT STANDARDS, SUBSECTION A
▪ END COORDINATES SOURCE: AIRPORT LAYOUT PLAN UPDATE (2007), HDR ENGINEERING, INC.



AIRPORT FACILITIES *

BLDG	DESCRIPTION	HEIGHT	DISPOSITION
A1–13	T–HANGARS	–	–
B1–13	T–HANGARS	–	–
C1–11	T–HANGARS	–	–
15–17	SULLIVAN HANGARS	30'	TO BE REMOVED
18–22	SULLIVAN HANGARS	29'	TO BE REMOVED
23	SULLIVAN HANGAR	34'	TO BE REMOVED
24,25	SULLIVAN HANGARS	30'	TO BE REMOVED
26,27	SULLIVAN HANGARS	30'	TO BE REMOVED
28–32	SULLIVAN HANGARS	29'	TO BE REMOVED
33	SULLIVAN HANGARS	30'	TO BE REMOVED
35	HANGAR	32'	–
36	HANGAR	35'	–
37	HANGAR	36'	–
38	HANGAR	36'	–
39	HANGAR	32'	–

AIRPORT FACILITIES *

BLDG	DESCRIPTION	HEIGHT	DISPOSITION
40	CAP HANGAR	38'	TO BE REMOVED OR REMODELED
41	HANGAR	35'	–
42,43	T–HANGARS	31'	–
44,45	T–HANGARS	34'	–
46,47	T–HANGARS	37'	TO BE REMOVED
48,49	T–HANGARS	39'	TO BE REMOVED
50,51	T–HANGARS	38'	TO BE REMOVED
52,53	T–HANGARS	32'	TO BE REMOVED
54,55	T–HANGARS	30'	–
56	HANGAR	36'	TO BE REMOVED
57	SULLIVAN HANGAR	30'	TO BE REMOVED
58	FBO HANGAR	41'	–
59	CORPORATE HANGAR	–	–

* BUILDING HEIGHTS ARE IN FEET ABOVE MEAN SEA LEVEL (MSL) AS PROVIDED BY THE CITY OF KELSO AND ROUNDED TO THE NEAREST FOOT.

* ALL BUILDINGS SCHEDULED FOR REMOVAL HAVE BEEN IDENTIFIED AS OBSTRUCTIONS TO THE FAR PART 77 TRANSITIONAL SURFACES. HANGARS REMOVED WILL BE REPLACED EITHER IN A NEW LOCATION OR IN PLACE.

LEGEND

DESCRIPTION	EXISTING	PROPOSED
AIRCRAFT TIEDOWN POSITION	T	T TBR* T
AIRFIELD PAVEMENT		
AIRPORT PROPERTY		
AIRPORT REFERENCE POINT (ARP)		
AVIATION SUPPORT AREA	NA	
AVIGATION EASEMENT		
AWOS CRITICAL AREA		NO CHANGE
BNSF MAINTENANCE AREA		NO CHANGE
BUILDING		
BUILDING RESTRICTION LINE (BRL)		NO CHANGE
TO BE REMOVED	NA	
FENCE		
PRECISION APPROACH PATH INDICATOR (PAPI)		
ROADWAY		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
RUNWAY OBJECT FREE AREA (OFA)		
RUNWAY OBJECT FREE ZONE (OFZ)		
RUNWAY PROTECTION ZONE (RPZ)		
RUNWAY SAFETY AREA (RSA)		
TAXIWAY OBJECT FREE AREA (TOFA)		
TOPOGRAPHIC CONTOUR		NO CHANGE
WETLAND		CONDUCT ENV. STUDY
WIND SOCK		NO CHANGE

*TBR = TO BE REMOVED

NOTES

1. THERE ARE NO DECLARED DISTANCES AT THE AIRPORT.
2. THE AIRPORT IS LOCATED IN THE COWLITZ COUNTY CONSOLIDATED DIKING IMPROVEMENT DISTRICT NO. 3 WHOSE LEVEE SYSTEM PROVIDES PROTECTION FOR A 100-YEAR FLOODPLAIN.
3. BRL IS BASED ON A MAXIMUM BUILDING HEIGHT OF 16 FEET AT A 112' DISTANCE FROM THE PRIMARY SURFACE. MAXIMUM ALLOWABLE BUILDING HEIGHT FROM THE BRL INCREASES AT A 7:1 HORIZONTAL TO VERTICAL SLOPE UPWARD AND AWAY FROM THE PRIMARY SURFACE IN CONFORMANCE WITH FAR PART 77 SURFACES.
4. SOME EXISTING HANGARS ON THE WEST SIDE OF THE AIRPORT VIOLATE FAR PART 77 AIRSPACE REQUIREMENTS. ALL HANGARS WILL BE REMOVED OR REBUILT OVER TIME ON THE EAST SIDE OF THE AIRPORT AS LEASE AGREEMENTS ALLOW. REFER TO THE ACIP FOR DETAILS.
5. SEE SHEET 5 OF 8 FOR DETAILS ON LANDSIDE DEVELOPMENT.
6. GROUND CONTOURS PROVIDED BY THE CITY OF KELSO.
7. HELICOPTERS WILL NOT PARK SO THAT THEY ARE FAR PART 77 OBSTRUCTIONS.
8. EXTENSION OF RUNWAY 30 TO BE COMPLETED IN TWO PHASES. PHASE 1, TO BE COMPLETED IN THE SHORT TERM, IS THE CONSTRUCTION OF A FULL-STRENGTH PAVED STOPWAY TO PROVIDE IMPROVED TAKE-OFF LENGTH. IN THE LONG-TERM, THE STOPWAY WILL BE CONVERTED TO A RUNWAY AND TAXIWAY A WILL BE EXTENDED, TALLEY WAY RELOCATED, AND OTHER IMPROVEMENTS MADE. DURING THE PERIOD WHEN THE STOPWAY IS IN OPERATION, THE FOLLOWING DECLARED DISTANCES WILL BE IN PLACE.

PHASE 1 STOPWAY DECLARED DISTANCES

RUNWAY	TORA	TODA	ASDA	LDA
RUNWAY 12	4,391'	4,391'	5,000'	5,000'
RUNWAY 30	5,000'	5,000'	5,000'	4,391'

9. THE CITY INTENDS TO DECLARE A 440 FOOT UNPAVED CLEARWAY ON RUNWAY 12 IN THE SHORT-TERM.

AIRPORT VICINITY

AIRPORT LOCATION

URS
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101
PHONE: (206) 438-2700

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150 0 150 300
SCALE IN FEET
18 0 18 36 54 72 90
SCALE IN METERS

MAGNETIC 16.45° EAST
MAGNETIC NORTH

FEDERAL AVIATION ADMINISTRATION APPROVAL
THIS AIRPORT DRAWING IS APPROVED BY:
SIGNATURE: _____ DATE: _____
NAME: _____
TITLE: _____

CITY OF KELSO - LONGVIEW
THIS AIRPORT DRAWING IS APPROVED BY:
SIGNATURE: _____ DATE: _____
NAME: _____
TITLE: _____

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE

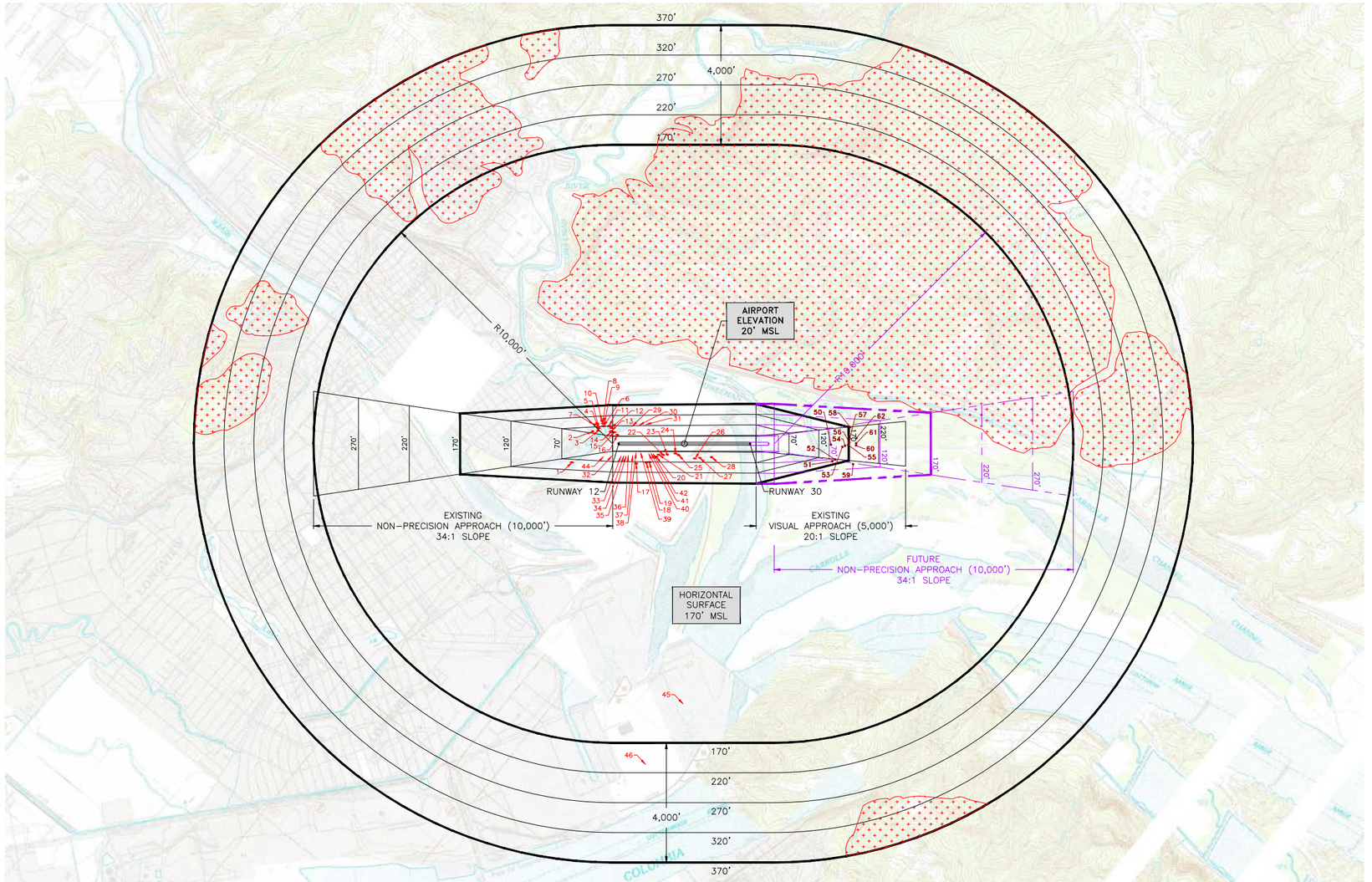
KELSO, WASHINGTON

SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN

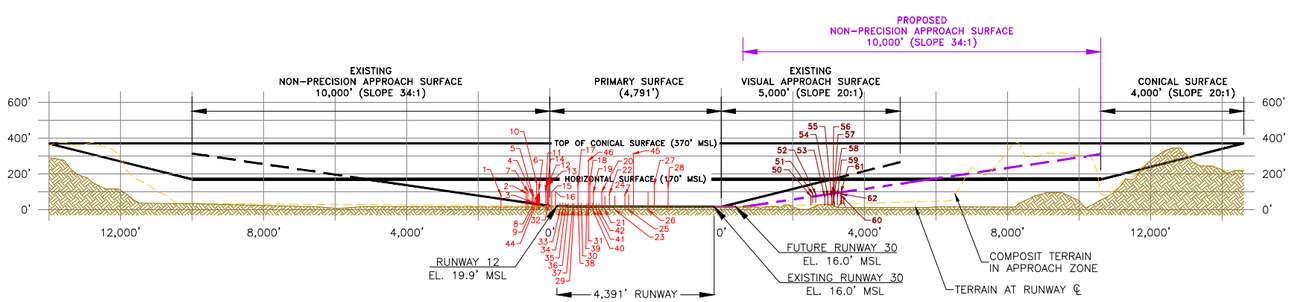
AIRPORT LAYOUT PLAN

PROJECT MANAGER:	JJY
DESIGNED BY:	RLO
DRAWN BY:	RLO
CHECKED BY:	JJY

DATE: JUNE 2010
SHEET 2 of 8



PLAN VIEW



PROFILE VIEW

FAR PART 77 DIMENSIONAL STANDARDS				
ITEM	RUNWAY 12		RUNWAY 30	
	EXISTING	PROPOSED	EXISTING	PROPOSED
APPROACH	NP >3/4-MILE	NO CHANGE	VISUAL	NP >3/4-MILE
APPROACH SLOPE	34:1	NO CHANGE	20:1	34:1
APPROACH SURFACE INNER WIDTH	500'	NO CHANGE	500'	500'
APPROACH SURFACE OUTER WIDTH	3,500'	NO CHANGE	1,500'	3,500'
APPROACH SURFACE LENGTH	10,000'	NO CHANGE	5,000'	10,000'
PRIMARY SURFACE WIDTH	500'			
RADIUS OF HORIZONTAL SURFACE	10,000'			

OBSTRUCTION DATA TABLE*

#	ITEM	EL	PNTR	SURFACE	CORRECTIVE ACTION
1	POLE	82'	0'	TRANSITIONAL	NO ACTION
2	TREE	93'	42'	TRANSITIONAL	REMOVE
3	POLE	41'	0'	TRANSITIONAL	REMOVE
4	TREE	85'	18'	TRANSITIONAL	REMOVE
5	TREE	80'	16'	TRANSITIONAL	REMOVE
6	TREE	111'	40'	TRANSITIONAL	REMOVE
7	TREES (2)	102'	20'	TRANSITIONAL	REMOVE
8	TREE	86'	2'	TRANSITIONAL	REMOVE
9	TREE	92'	8'	TRANSITIONAL	REMOVE
10	TREE	146'	50'	TRANSITIONAL	REMOVE
11	TREE	106'	39'	TRANSITIONAL	REMOVE
12	CLUMP OF TREES	146'	86'	TRANSITIONAL	REMOVE
13	TREE	139'	96'	TRANSITIONAL	REMOVE
14	TREE	139'	100'	TRANSITIONAL	REMOVE
15	POLE	50'	13'	TRANSITIONAL	REMOVE
16	POLE	50'	25'	TRANSITIONAL	REMOVE
17	CLUMP OF TREES	137'	62'	TRANSITIONAL	REMOVED IN 2007
18	CLUMP OF TREES	143'	74'	TRANSITIONAL	REMOVED IN 2007
19	CLUMP OF TREES	97'	31'	TRANSITIONAL	REMOVED IN 2007
20	CLUMP OF TREES	101'	60'	TRANSITIONAL	REMOVE
21	TREE	78'	47'	TRANSITIONAL	REMOVE
22	CLUMP OF TREES	90'	59'	TRANSITIONAL	REMOVE
23	TREE	78'	48'	TRANSITIONAL	REMOVE
24	TREE	85'	59'	TRANSITIONAL	REMOVE
25	CLUMP OF TREES	86'	54'	TRANSITIONAL	REMOVE
26	CLUMP OF TREES	101'	53'	TRANSITIONAL	REMOVE
27	CLUMP OF TREES	140'	94'	TRANSITIONAL	REMOVE
28	CLUMP OF TREES	132'	88'	TRANSITIONAL	REMOVE
29	BUILDING	37'	5'	TRANSITIONAL	NO ACTION
30	BUILDING	37'	4'	TRANSITIONAL	NO ACTION
31	BUILDING	38'	6'	TRANSITIONAL	NO ACTION
32	BUILDING	38'	4'	TRANSITIONAL	REMOVE
33	BUILDING	40'	6'	TRANSITIONAL	REMOVE
34	BUILDING	36'	4'	TRANSITIONAL	REMOVE
35	BUILDING	36'	4'	TRANSITIONAL	REMOVE
36	BUILDING	41'	10'	TRANSITIONAL	REMOVE
37	BUILDING	33'	2'	TRANSITIONAL	REMOVE
38	BUILDING	32'	10'	TRANSITIONAL	REMOVE
39	BUILDING	32'	9'	TRANSITIONAL	REMOVE
40	BUILDING	37'	15'	TRANSITIONAL	REMOVE
41	BUILDING	32'	10'	TRANSITIONAL	REMOVE
42	BUILDING	32'	9'	TRANSITIONAL	REMOVE
44	AIRPORT BEACON	70'	24'	TRANSITIONAL	NO ACTION
45	LONGVIEW FIBRE STACK	313'	143'	HORIZONTAL	TO BE LIGHTED
46	BUILDING ANNEX TOWER	275'	35'	CONICAL	TO BE LIGHTED

* OBSTRUCTIONS LISTED ARE ESTIMATES ONLY.
FIELD SURVEYS WILL BE REQUIRED TO IDENTIFY ALL OBSTRUCTIONS.

DATA SOURCE: AIRPORT MASTER PLAN DATED OCTOBER 2000,
WSDOT I-5/SR432 TALLEY WAY INTERCHANGES PROJECT

EL = ELEVATION – MEAN SEA LEVEL (MSL)
PNTR = AMOUNT OF OBJECT PENETRATION INTO PART 77 SURFACE
OL = OBSTRUCTION LIGHT

SHADING INDICATES AREAS WHERE TERRAIN PENETRATES IMAGINARY SURFACES

PROPOSED OBSTRUCTIONS DATA TABLE*

#	ITEM	EL	PNTR	SURFACE	CORRECTIVE ACTION
50	50' LUMINAIRE (WSDOT)	76.0'	Δ	APPROACH	YET TO BE BUILT
51	50' LUMINAIRE (WSDOT)	90.4'	Δ	TRANSITIONAL	YET TO BE BUILT
52	50' LUMINAIRE (WSDOT)	89.8'	Δ	TRANSITIONAL	YET TO BE BUILT
53	50' LUMINAIRE (WSDOT)	76.2'	Δ	APPROACH	YET TO BE BUILT
54	50' LUMINAIRE (WSDOT)	77.1'	Δ	APPROACH	YET TO BE BUILT
55	50' LUMINAIRE (WSDOT)	77.7'	Δ	APPROACH	YET TO BE BUILT
56	50' LUMINAIRE (WSDOT)	55.0'	Δ	APPROACH	YET TO BE BUILT
57	50' LUMINAIRE (WSDOT)	76.8'	Δ	APPROACH	YET TO BE BUILT
58	50' LUMINAIRE (WSDOT)	93.5'	Δ	TRANSITIONAL	YET TO BE BUILT
59	50' LUMINAIRE (WSDOT)	84.7'	Δ	TRANSITIONAL	YET TO BE BUILT
60	50' LUMINAIRE (WSDOT)	82.1'	Δ	APPROACH	YET TO BE BUILT
61	50' LUMINAIRE (WSDOT)	87.7'	Δ	APPROACH	YET TO BE BUILT
62	50' LUMINIARE (WSDOT)	99.4'	Δ	APPROACH	YET TO BE BUILT

* OBSTRUCTIONS LISTED ARE ESTIMATES ONLY.
FIELD SURVEYS WILL BE REQUIRED TO IDENTIFY ALL OBSTRUCTIONS.

Δ WSDOT I-5/SR432 TALLEY WAY INTERCHANGES PROJECT PENETRATIONS WILL REQUIRE FURTHER DEFINITION ONCE CONSTRUCTION IS COMPLETE.

NOTES

1. ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL) AT TOP OF OBJECT. THIS VALUE INCLUDES 15 FEET ADDED TO NON-INTERSTATE ROADWAYS, 17 FEET ADDED TO INTERSTATE HIGHWAYS, AND 23 FEET ADDED TO RAILROADS.
2. US GEOLOGICAL SURVEY (USGS) DIGITAL RASTER GRAPHIC (DRG) PROJECTED IN UTM NAD 27, 7.5 MINUTE QUAD. USGS MAPS DATED 1994.
3. BUILDING ELEVATIONS ARE PER OCTOBER 2000 MASTER PLAN.
4. SEE INNER APPROACH PLAN, SHEET 4, FOR OBSTRUCTIONS TO THE INNER APPROACH.
5. OBSTRUCTION DATA BASED ON 2000 AIRPORT MASTER PLAN. ANY IMPROVEMENTS TO THE INSTRUMENT APPROACHES WILL REQUIRED A DETAILED OBSTRUCTION SURVEY.

URS
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101
PHONE: (206) 438-2700

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1000 0 1000 2000
HORIZONTAL SCALE IN FEET

200 0 200 400
VERTICAL SCALE IN FEET

MAGNETIC 16°46' EAST OF TRUE NORTH

REVISIONS				
NO.	DESCRIPTION	BY	APP.	DATE

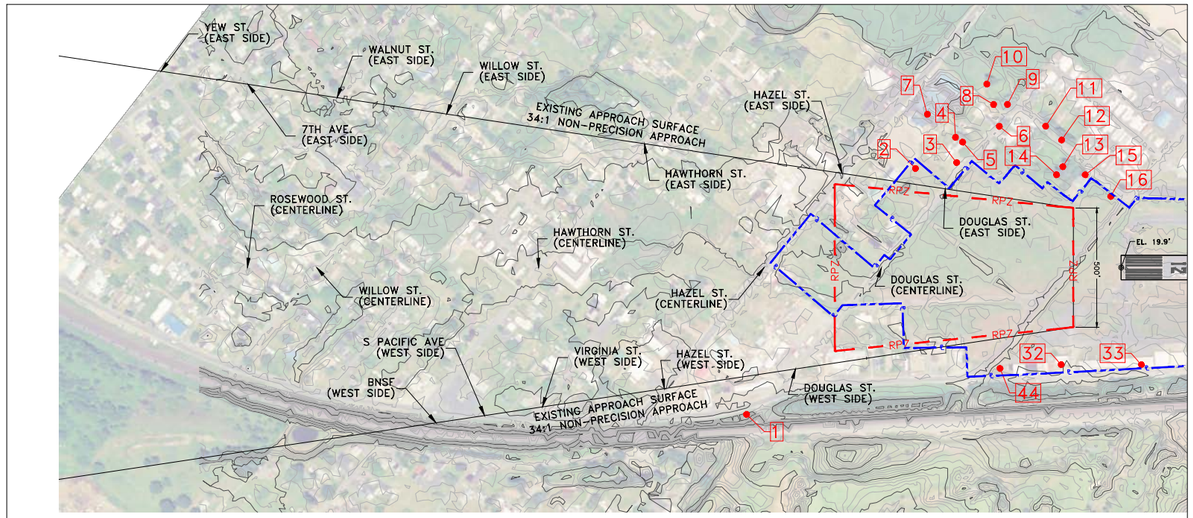
KELSO, WASHINGTON

SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN

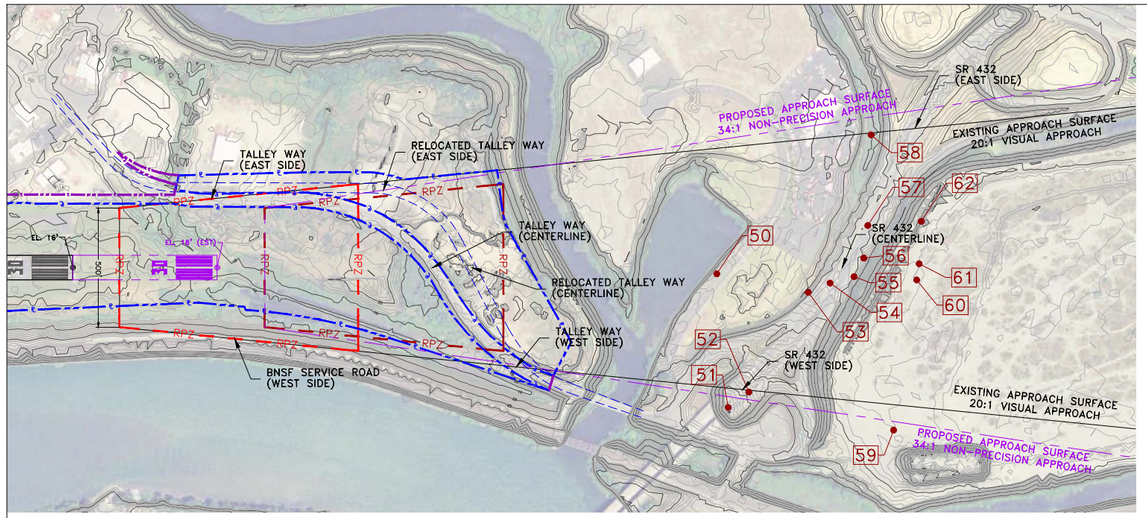
AIRPORT AIRSPACE PLAN
RUNWAY 12-30

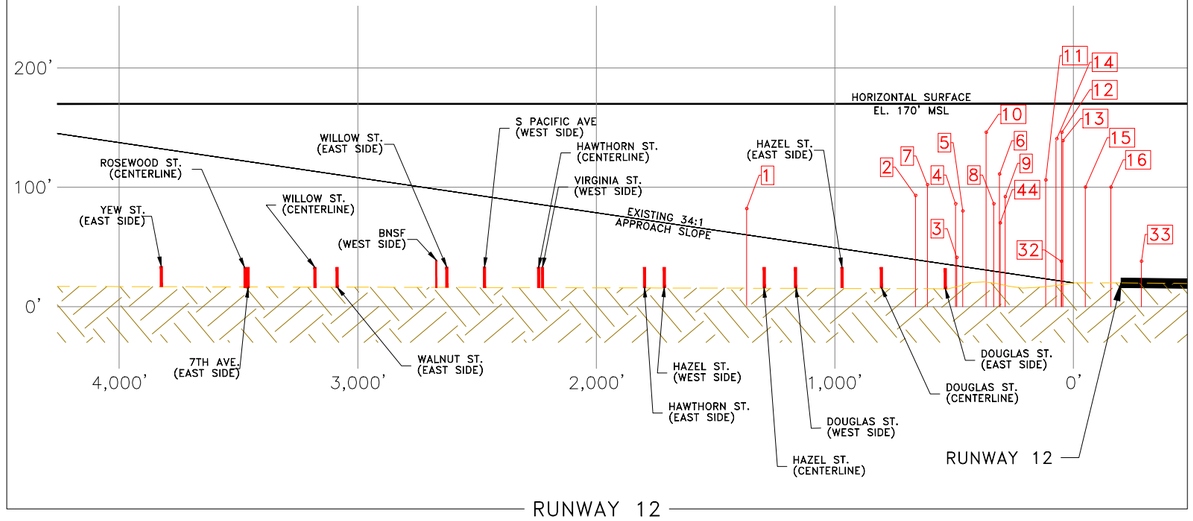
PROJECT MANAGER:	JJY
DESIGNED BY:	RLO
DRAWN BY:	RLO
CHECKED BY:	JJY

DATE: JUNE 2010
SHEET 3 of 8

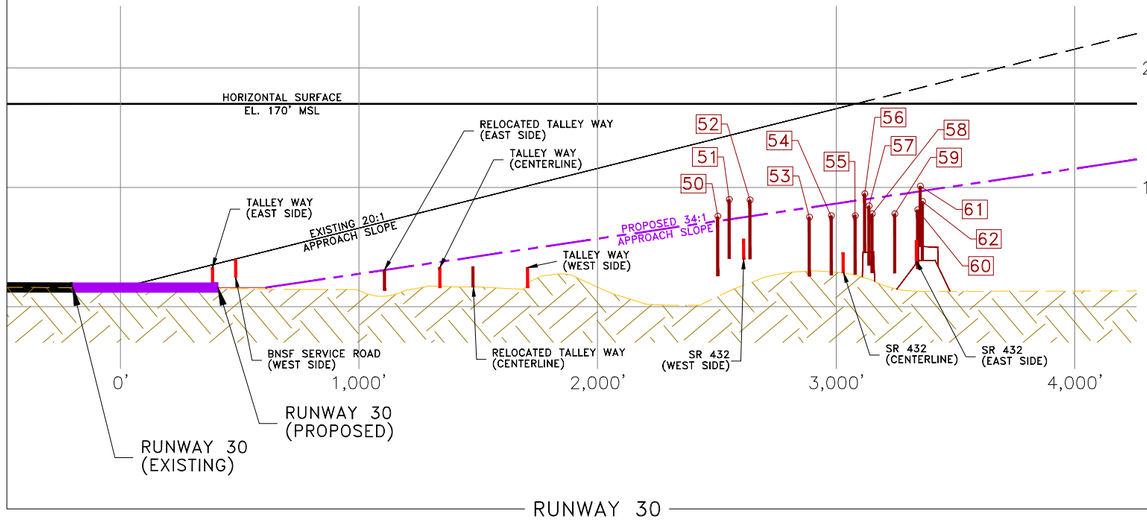


PLAN VIEW





PROFILE VIEW



RUNWAY 12 — RUNWAY 30

OBSTRUCTION DATA TABLE*

#	ITEM	EL	PNTR	SURFACE	CORRECTIVE ACTION
1	POLE	82'	0'	TRANSITIONAL	NO ACTION
2	TREE	93'	42'	TRANSITIONAL	REMOVE
3	POLE	41'	0'	TRANSITIONAL	REMOVE
4	TREE	85'	18'	TRANSITIONAL	REMOVE
5	TREE	80'	16'	TRANSITIONAL	REMOVE
6	TREE	111'	40'	TRANSITIONAL	REMOVE
7	TREES (2)	102'	20'	TRANSITIONAL	REMOVE
8	TREE	86'	2'	TRANSITIONAL	REMOVE
9	TREE	92'	8'	TRANSITIONAL	REMOVE
10	TREE	146'	50'	TRANSITIONAL	REMOVE
11	TREE	106'	39'	TRANSITIONAL	REMOVE
12	CLUMP OF TREES	146'	86'	TRANSITIONAL	REMOVE
13	TREE	139'	96'	TRANSITIONAL	REMOVE
14	TREE	139'	100'	TRANSITIONAL	REMOVE
15	POLE	50'	13'	TRANSITIONAL	REMOVE
16	POLE	50'	25'	TRANSITIONAL	REMOVE
32	BUILDING	38'	4'	TRANSITIONAL	REMOVE
33	BUILDING	40'	6'	TRANSITIONAL	REMOVE
44	AIRPORT BEACON	70'	24'	TRANSITIONAL	NO ACTION

* OBSTRUCTIONS LISTED ARE ESTIMATES ONLY. FURTHER FIELD SURVEYS ARE REQUIRED TO IDENTIFY ALL OBSTRUCTIONS.

Δ WSDOT I-5/SR432 TALLEY WAY INTERCHANGES PROJECT PENETRATIONS WILL REQUIRE FURTHER DEFINITION ONCE CONSTRUCTION IS COMPLETE.

PROPOSED OBSTRUCTIONS DATA TABLE*

#	ITEM	EL	PNTR	SURFACE	CORRECTIVE ACTION
50	50' LUMINAIRE (WSDOT)	76.0'	Δ	APPROACH	YET TO BE BUILT
51	50' LUMINAIRE (WSDOT)	90.4'	Δ	TRANSITIONAL	YET TO BE BUILT
52	50' LUMINAIRE (WSDOT)	89.8'	Δ	TRANSITIONAL	YET TO BE BUILT
53	50' LUMINAIRE (WSDOT)	76.2'	Δ	APPROACH	YET TO BE BUILT
54	50' LUMINAIRE (WSDOT)	77.1'	Δ	APPROACH	YET TO BE BUILT
55	50' LUMINAIRE (WSDOT)	77.7'	Δ	APPROACH	YET TO BE BUILT
56	50' LUMINAIRE (WSDOT)	55.0'	Δ	APPROACH	YET TO BE BUILT
57	50' LUMINAIRE (WSDOT)	76.8'	Δ	APPROACH	YET TO BE BUILT
58	50' LUMINAIRE (WSDOT)	93.5'	Δ	TRANSITIONAL	YET TO BE BUILT
59	50' LUMINAIRE (WSDOT)	84.7'	Δ	TRANSITIONAL	YET TO BE BUILT
60	50' LUMINAIRE (WSDOT)	82.1'	Δ	APPROACH	YET TO BE BUILT
61	50' LUMINAIRE (WSDOT)	87.7'	Δ	APPROACH	YET TO BE BUILT
62	50' LUMINAIRE (WSDOT)	99.4'	Δ	APPROACH	YET TO BE BUILT

DATA SOURCE: AIRPORT MASTER PLAN DATED OCTOBER 2000, WSDOT I-5/SR432 TALLEY WAY INTERCHANGES PROJECT

EL = ELEVATION
PNTR = AMOUNT OF OBJECT PENETRATION INTO PART 77 SURFACE

NOTES

1. ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL) AT TOP OF OBJECT. THIS VALUE INCLUDES 15 FEET ADDED TO NON-INTERSTATE ROADWAYS, 17 FEET ADDED TO INTERSTATE HIGHWAYS, AND 23 FEET ADDED TO RAILROADS.
2. US GEOLOGICAL SURVEY (USGS) DIGITAL RASTER GRAPHIC (DRG) PROJECTED IN UTM NAD 27, 7.5 MINUTE QUAD. USGS MAPS DATED 1994.
3. BUILDING ELEVATIONS ARE PER 1990-2010 MASTER PLAN. ALL OTHER OBSTRUCTION ELEVATIONS ARE PER 1998 CITY OF KELSO SURVEY.

AIRPORT PROPERTY LINE

PROPOSED AIRPORT PROPERTY LINE

URS
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101
PHONE: (206) 438-2700

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150 0 150 300
HORIZONTAL SCALE IN FEET
30 0 30 60
VERTICAL SCALE IN FEET

MAGNETIC DECLINATION 16° 45' E

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE

KELSO, WASHINGTON

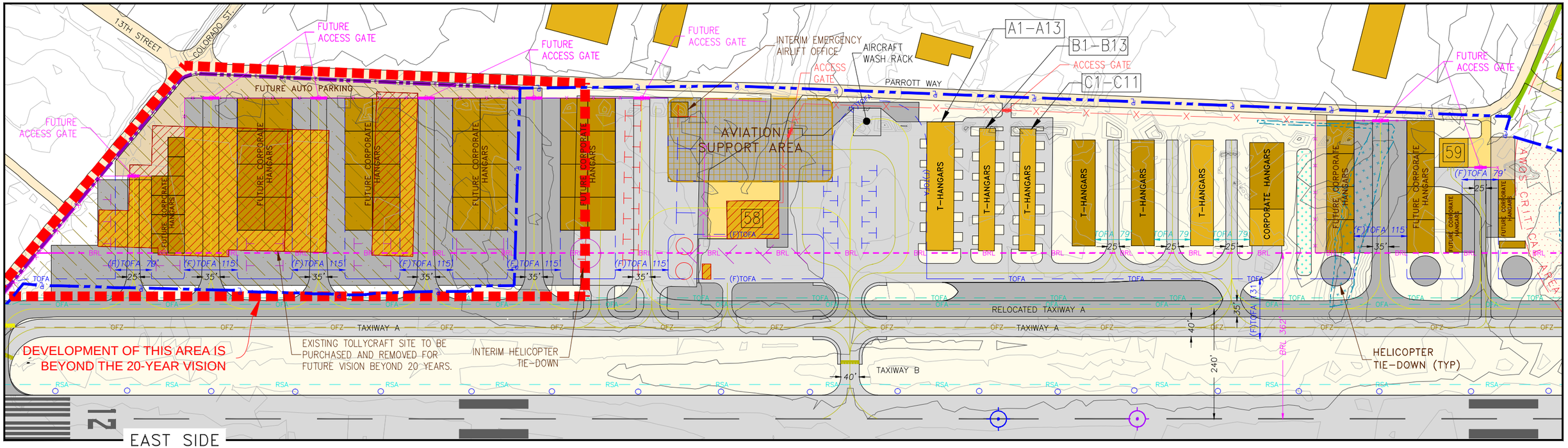
SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN

INNER APPROACH SURFACES RUNWAY 12-30

PROJECT MANAGER:	JJY
DESIGNED BY:	RLO
DRAWN BY:	RLO
CHECKED BY:	JJY

DATE: JUNE 2010

SHEET 4 of 8



LEGEND

DESCRIPTION	EXISTING	PROPOSED
AIRCRAFT TIEDOWN POSITION	T	T TBR* T
AIRFIELD PAVEMENT		
AIRPORT PROPERTY		
AIRPORT REFERENCE POINT (ARP)		
AVIATION SUPPORT AREA	NA	
AVIGATION EASEMENT		
AWOS CRITICAL AREA		NO CHANGE
BNSF MAINTENANCE AREA		NO CHANGE
BUILDING		
BUILDING RESTRICTION LINE (BRL)		NO CHANGE
TO BE REMOVED	NA	
FENCE		
PRECISION APPROACH PATH INDICATOR (PAPI)		
ROADWAY		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
RUNWAY OBJECT FREE AREA (OFA)		
RUNWAY OBJECT FREE ZONE (OFZ)		
RUNWAY PROTECTION ZONE (RPZ)		
RUNWAY SAFETY AREA (RSA)		
TAXIWAY OBJECT FREE AREA (TOFA)		
TOPOGRAPHIC CONTOUR		NO CHANGE
WETLAND		CONDUCT ENV. STUDY
WIND SOCK		NO CHANGE

*TBR = TO BE REMOVED

NOTES

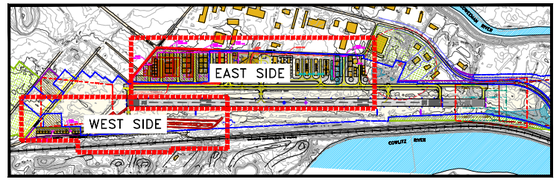
1. BUILDING HEIGHTS ARE IN FEET ABOVE MEAN SEA LEVEL (MSL) AS PROVIDED BY THE CITY OF KELSO AND ROUNDED TO THE NEAREST FOOT.
2. ALL BUILDINGS SCHEDULED FOR REMOVAL HAVE BEEN IDENTIFIED AS OBSTRUCTIONS TO THE FAR PART 77 TRANSITIONAL SURFACES. HANGARS REMOVED WILL BE REPLACED.
3. MOST BUILDING ON THE WEST SIDE WILL EVENTUALLY BE RECONSTRUCTED DUE TO BUILDING CONDITION.
4. WEST SIDE BUILDINGS 35-39, 41-45, 54, AND 55 DO NOT ENCROACH INTO THE PART 77 AIRSPACE. PENDING SATISFACTORY STRUCTURAL INTEGRITY DETERMINATION, THESE BUILDINGS MAY REMAIN UNTIL SUCH TIME THAT LEASES EXPIRE AND/OR UNTIL FUTURE REPLACEMENT HANGARS ARE AVAILABLE PER THE WEST SIDE PHASING PLAN.
5. WEST SIDE BUILDINGS 40, 46-53, AND 56 ENCROACH INTO THE PART 77 AIRSPACE. UPON EXPIRATION OF ANY LEASE AGREEMENTS AND PENDING SATISFACTORY STRUCTURAL INTEGRITY DETERMINATION, AND IN CONJUNCTION WITH THE WEST SIDE PHASING PLAN, THESE BUILDINGS WILL EITHER BE REMOVED OR REMODELED FOR PART 77 COMPLIANCE.
6. TAXILANES BETWEEN HANGARS A1-A13, B1-B13, AND C1-C11 HAVE NON-STANDARD OBJECT FREE AREA (TOFA) WIDTHS OF 50' (STANDARD - 65.5'). HANGARS ARE TO REMAIN.

AIRPORT FACILITIES

BLDG	DESCRIPTION	HEIGHT	DISPOSITION
A1-13	T-HANGARS	–	–
B1-13	T-HANGARS	–	–
C1-11	T-HANGARS	–	–
15-17	SULLIVAN HANGARS	30'	TO BE REMOVED
18-22	SULLIVAN HANGARS	29'	TO BE REMOVED
23	SULLIVAN HANGAR	34'	TO BE REMOVED
24,25	SULLIVAN HANGARS	30'	TO BE REMOVED
26,27	SULLIVAN HANGARS	30'	TO BE REMOVED
28-32	SULLIVAN HANGARS	29'	TO BE REMOVED
33	SULLIVAN HANGARS	30'	TO BE REMOVED
35	HANGAR	32'	–
36	HANGAR	35'	–
37	HANGAR	36'	–
38	HANGAR	36'	–
39	HANGAR	32'	–

AIRPORT FACILITIES

BLDG	DESCRIPTION	HEIGHT	DISPOSITION
40	CAP HANGAR	38'	TO BE REMOVED OR REMODELED
41	HANGAR	35'	–
42,43	T-HANGARS	31'	–
44,45	T-HANGARS	34'	–
46,47	T-HANGARS	37'	TO BE REMOVED
48,49	T-HANGARS	39'	TO BE REMOVED
50,51	T-HANGARS	38'	TO BE REMOVED
52,53	T-HANGARS	32'	TO BE REMOVED
54,55	T-HANGARS	30'	–
56	HANGAR	36'	TO BE REMOVED
57	SULLIVAN HANGAR	30'	TO BE REMOVED
58	FBO HANGAR	41'	–
59	CORPORATE HANGAR	–	–



URS
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50 0 50 100
SCALE IN FEET

MAGNETIC (G.A.) NORTH 16° E

REVISIONS				
NO.	DESCRIPTION	BY	APP.	DATE

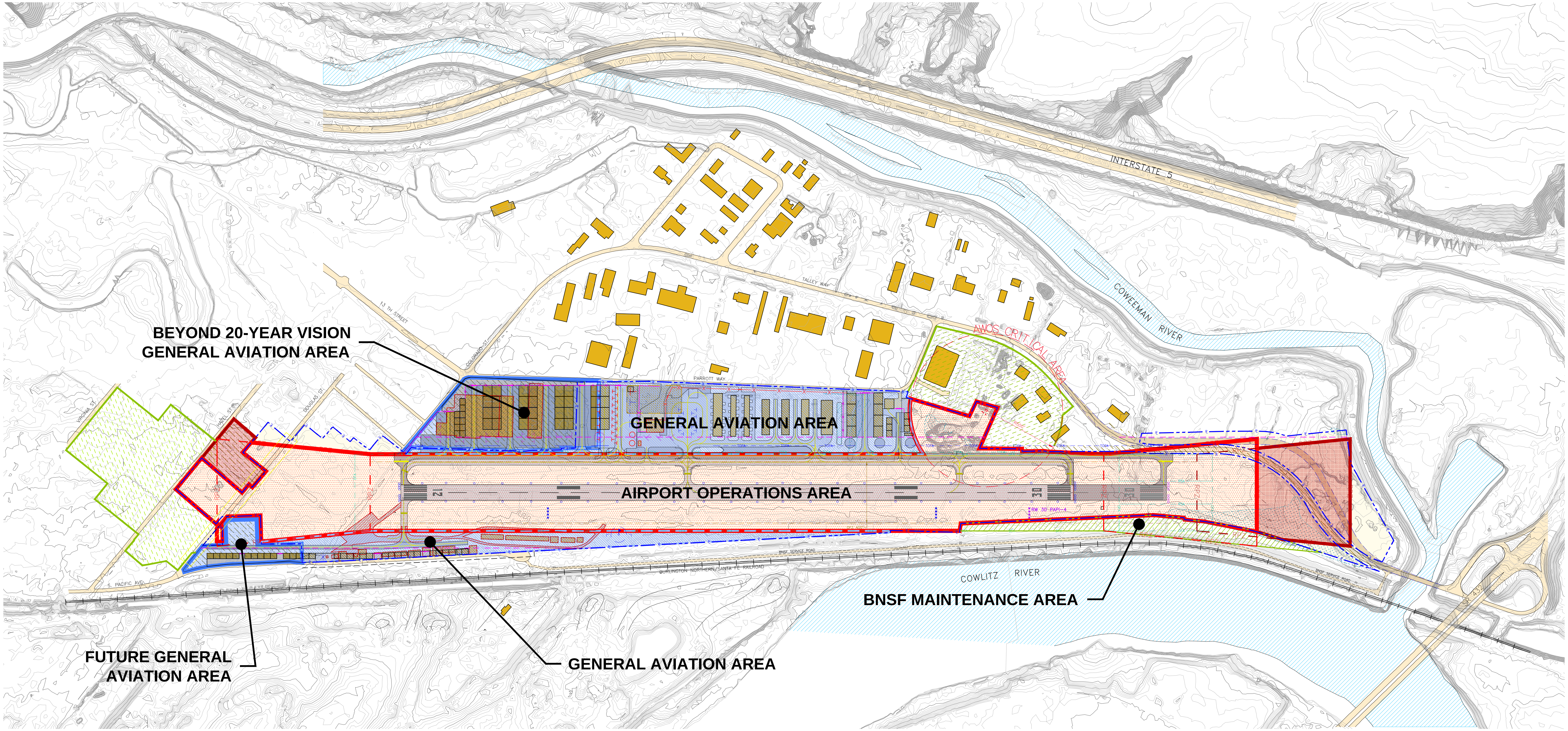
KELSO, WASHINGTON

SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN

GENERAL AVIATION PLAN

PROJECT MANAGER:	JJY
DESIGNED BY:	RLO
DRAWN BY:	RLO
CHECKED BY:	JJY

DATE: JUNE 2010
SHEET 5 of 8



LEGEND

DESCRIPTION	EXISTING	PROPOSED
AIRCRAFT TIEDOWN POSITION		TBR*
AIRFIELD PAVEMENT		
AIRPORT PROPERTY		
AIRPORT REFERENCE POINT (ARP)		
AVIATION SUPPORT AREA	NA	
AVIGATION EASEMENT		
AWOS CRITICAL AREA		NO CHANGE
BNSF MAINTENANCE AREA		NO CHANGE
BUILDING		
BUILDING RESTRICTION LINE (BRL)	BRL	NO CHANGE
BUILDINGS TO BE REMOVED	NA	
FENCE		
PRECISION APPROACH PATH INDICATOR (PAPI)		
ROADWAY		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
RUNWAY OBJECT FREE AREA (OFA)	OFA	OFA
RUNWAY OBJECT FREE ZONE (OFZ)	OFZ	(F)OFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ	RPZ
RUNWAY SAFETY AREA (RSA)	RSA	RSA
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA	TOFA
TOPOGRAPHIC CONTOUR	10	NO CHANGE
WETLAND		NO CHANGE
WIND SOCK		NO CHANGE

*TBR = TO BE REMOVED

LAND USE

AIRPORT OPERATIONS AREA	
FUTURE AIRPORT OPERATIONS AREA	
GENERAL AVIATION AREA	
FUTURE GENERAL AVIATION AREA	
BNSF MAINTENANCE AREA	

NOTES

1. SEE SHEET 7 OF 8 FOR OFF–AIRPORT LAND USE DETAILS

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150 0 150 300
SCALE IN FEET

MAGNETIC 16°46' E
ANNUAL CHANGE: 0'9' W
MARCH 2009

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE

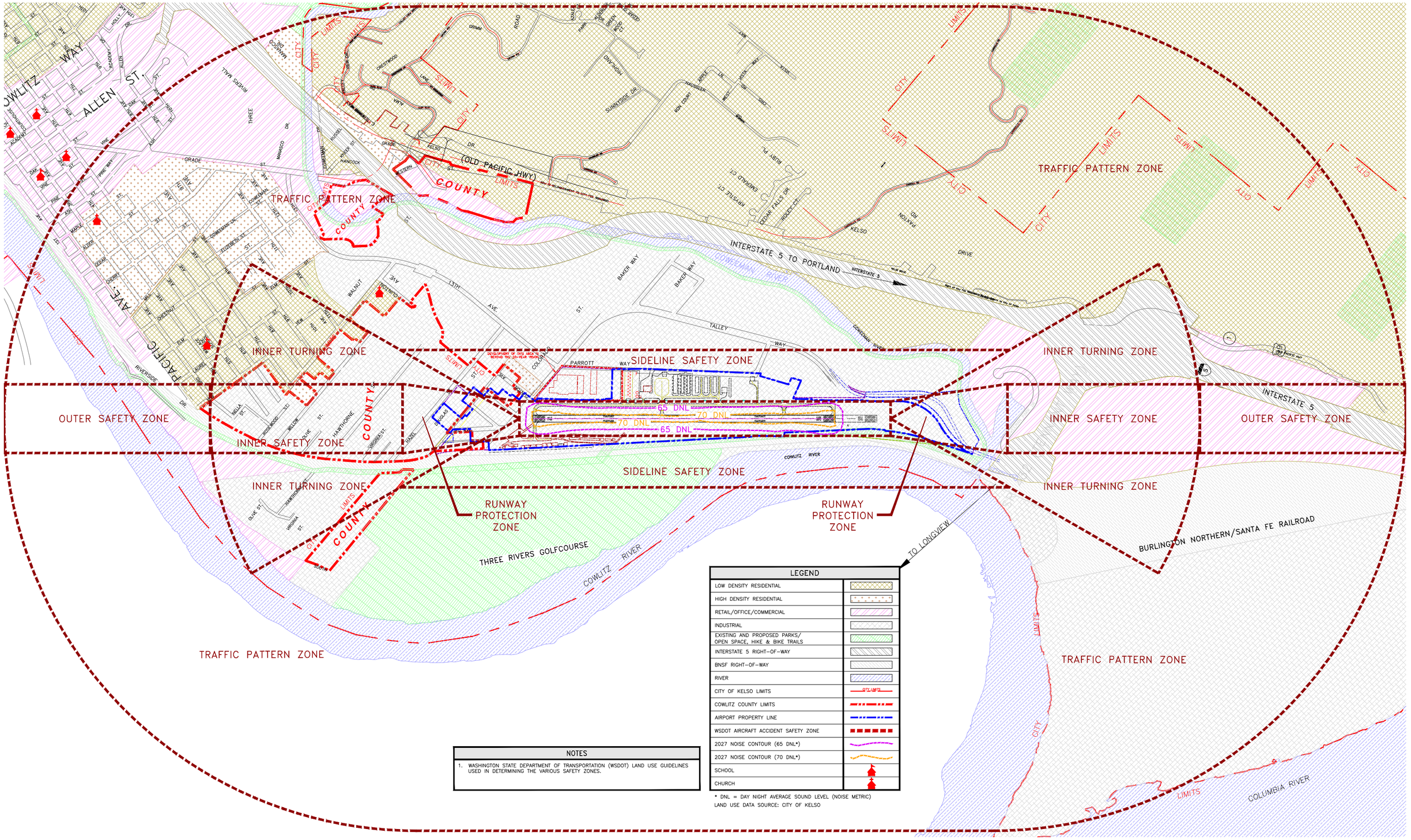
KELSO, WASHINGTON

SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN

ON-AIRPORT LAND USE PLAN

PROJECT MANAGER:	JJY
DESIGNED BY:	RLO
DRAWN BY:	RLO
CHECKED BY:	JJY

DATE: JUNE 2010



LEGEND	
LOW DENSITY RESIDENTIAL	
HIGH DENSITY RESIDENTIAL	
RETAIL/OFFICE/COMMERCIAL	
INDUSTRIAL	
EXISTING AND PROPOSED PARKS/ OPEN SPACE, HIKE & BIKE TRAILS	
INTERSTATE 5 RIGHT-OF-WAY	
BNSF RIGHT-OF-WAY	
RIVER	
CITY OF KELSO LIMITS	
COWLITZ COUNTY LIMITS	
AIRPORT PROPERTY LINE	
WSDOT AIRCRAFT ACCIDENT SAFETY ZONE	
2027 NOISE CONTOUR (65 DNL*)	
2027 NOISE CONTOUR (70 DNL*)	
SCHOOL	
CHURCH	

* DNL = DAY NIGHT AVERAGE SOUND LEVEL (NOISE METRIC)

LAND USE DATA SOURCE: CITY OF KELSO

NOTES

1. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) LAND USE GUIDELINES USED IN DETERMINING THE VARIOUS SAFETY ZONES.

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300 0 300 600
SCALE IN FEET

MAGNETIC VARIATION 16°45' E (2010)

REVISIONS				
NO.	DESCRIPTION	BY	APP.	DATE

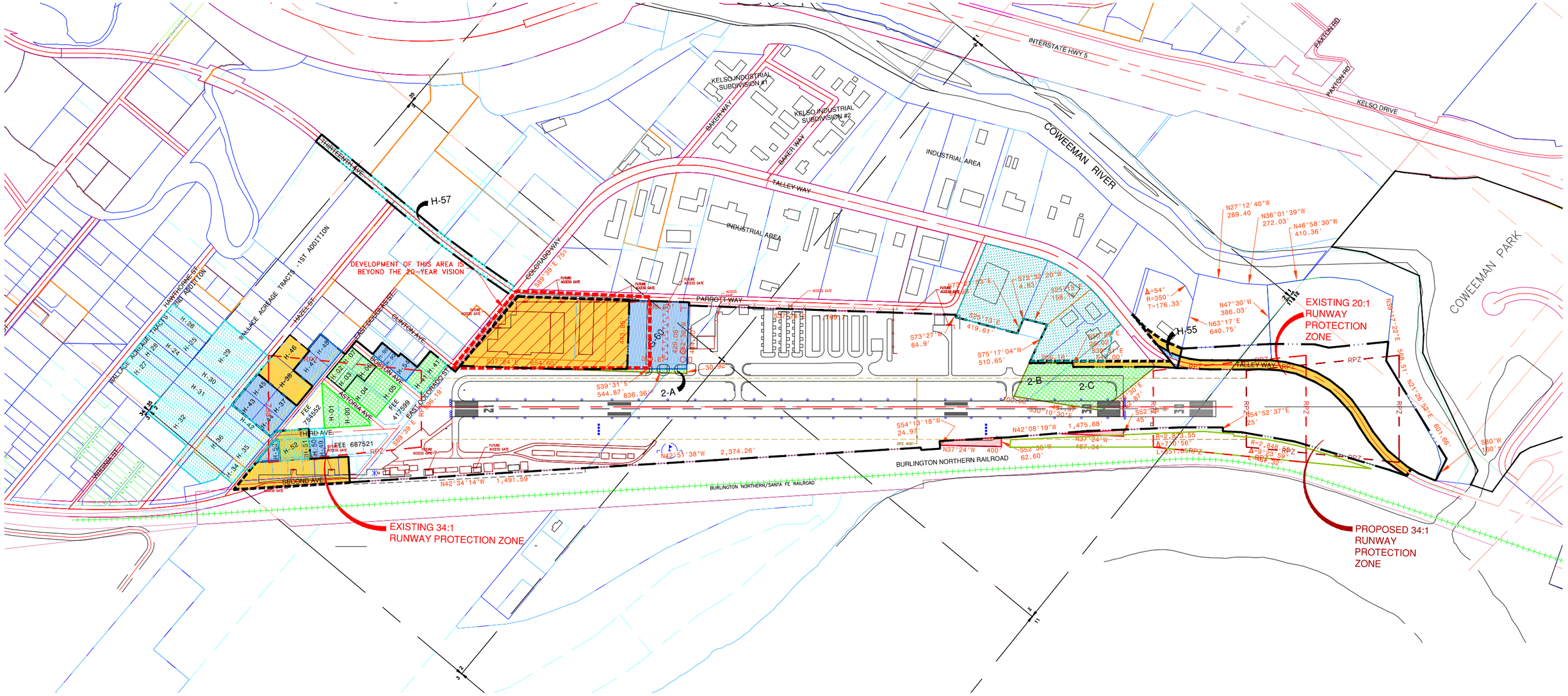
KELSO, WASHINGTON

SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN

COMMUNITY LAND USE PLAN

PROJECT MANAGER:	JJY
DESIGNED BY:	RLO
DRAWN BY:	RLO
CHECKED BY:	JJY

DATE: JUNE 2010



LEGEND

PROPERTY ACQUIRED UNDER ADAP DEED	
AVIGATION EASEMENT	
AIP – EASEMENTS	
RECOMMENDED EASEMENTS	
AIP – DEED	
RECOMMENDED ACQUISITION	
ACQUISITION BEYOND 20–YEAR PERIOD	
EXISTING RUNWAY PROTECTION ZONE	
FUTURE RUNWAY PROTECTION ZONE	
EXISTING AIRPORT PROPERTY LINE	
FUTURE AIRPORT PROPERTY LINE	
SECTION CORNER	

AIRPORT PROPERTY ACQUISITION

AQ*	DATE	FEDERAL GRANT NO.	PARCEL NO.	GRANTOR	GRANTEE	COUNTY AUDITOR'S FEE NO.		AREA (ACRES)
AP	11/18/1977	ADAP 5-53-0034-01	H-00	CURTIS S. DRYER	CITY OF KELSO	823311	DEED	0.50±
AP	11/18/1977	ADAP 5-53-0034-01	H-01	HAZEL McCOY	CITY OF KELSO	823308	DEED	0.60±
AP	11/14/1987	ADAP 5-53-0034-01	H-03	HARLIN ATKINS **	CITY OF KELSO	823310	DEED	0.30±
AP	11/18/1977	ADAP 5-53-0034-01	H-04	WILLIAM N. DRYER	CITY OF KELSO	823309	DEED	0.70±
AP	11/18/1977	ADAP 5-53-0034-01	H-05	CLIFFORD SMITH	CITY OF KELSO	823307	DEED	0.60±
AP	6/29/1978	ADAP 5-53-0034-02	H-02	LUCILLE MELZER	CITY OF KELSO	835622	DEED	0.20±
AP	12/29/1971	ADAP 5-53-0034-03	H-41	HATTIE S. MORGAN	CITY OF KELSO	846164	DEED	0.80±
D	1/7/1980	ADAP 5-53-0034-04	2-A	TOLLYCRAFT	CITY OF KELSO	800107027	DEED	0.30±
D	1/7/1980	ADAP 5-53-0034-04	2-B	CHARLES WILLOUGHBY **	CITY OF KELSO	800107026	DEED	1.03±
D	7/31/1980	ADAP 5-53-0034-04	2-C	WATKINS TRACTOR	CITY OF KELSO	800731004	DEED	3.20±
AP	3/18/1988	AIP 3-53-0034-02	H-24	LEEROY H. PARCELL	CITY OF KELSO	880318053	ESMT	0.50±
AP	3/18/1988	AIP 3-53-0034-02	H-25	CHARLES L. MOYER	CITY OF KELSO	880318051	ESMT	1.00±
AP	9/19/1985	AIP 3-53-0034-02	H-26	JEANETTE F. McCONNELL	CITY OF KELSO	850919003	ESMT	0.50±
AP	9/19/1985	AIP 3-53-0034-02	H-27	TROY MOSTELLER	CITY OF KELSO	850919001	ESMT	1
AP	3/18/1988	AIP 3-53-0034-02	H-28	JOSIE STRANGE	CITY OF KELSO	880318052	ESMT	1
AP	12/27/1989	AIP 3-53-0034-02	H-29	REAGOR – TROTTER	CITY OF KELSO	891227079	ESMT	2.5
AP	2/23/1989	AIP 3-53-0034-02	H-30	WILLIAM H. SEARCY	CITY OF KELSO	890223040	ESMT	0.5
AP	3/20/1986	AIP 3-53-0034-02	H-31	MILDRED M. BRANNIN	CITY OF KELSO	860320032	ESMT	1
AP	9/19/1985	AIP 3-53-0034-02	H-32	NEEL MOSTELLER	CITY OF KELSO	850919002	ESMT	2
AP	10/11/1988	AIP 3-53-0034-02	H-34	THOMAS – SHELTON	CITY OF KELSO	881011060	ESMT	0.3
AP	1/24/1986	AIP 3-53-0034-02	H-35	CASCADE NATURAL GAS	CITY OF KELSO	860124048	ESMT	0.75
AP	5/22/1986	AIP 3-53-0034-02	H-36	DAVIDSON – HERDT	CITY OF KELSO	860522033	ESMT	2.07
AP	3/20/1986	AIP 3-53-0034-02	H-37	THOMAS W. FOWLER	CITY OF KELSO	860320034	DEED	0.5
AP	3/20/1986	AIP 3-53-0034-02	H-42	JEWELL BRUNER	CITY OF KELSO	860320033	ESMT	0.5
AP	8/19/1988	AIP 3-53-0034-02	H-43	STEVEN D. WIRTZ	CITY OF KELSO	880819038	DEED	0.5
AP	2/21/1986	AIP 3-53-0034-02	H-44	CLARENCE E. DOLAN	CITY OF KELSO	860221011	DEED	0.5

AIRPORT PROPERTY ACQUISITION

AQ*	DATE	FEDERAL GRANT NO.	PARCEL NO.	GRANTOR	GRANTEE	COUNTY AUDITOR'S FEE NO.		AREA (ACRES)
AP	9/22/1986	AIP 3-53-0034-02	H-46	BONNIE SMITH	CITY OF KELSO	860922011	ESMT	0.625
AP	1/27/1986	AIP 3-53-0034-02	H-47	ALONZO E. BRUCE	CITY OF KELSO	860127044	DEED	0.625
AP	5/29/1986	AIP 3-53-0034-02	H-48	MARTIN J. ROTH	CITY OF KELSO	860529046	DEED	0.25
AP	5/5/1986	AIP 3-53-0034-02	H-49	ANGES I. HAJEK	CITY OF KELSO	860505046	DEED	0.14
AP	2/20/1986	AIP 3-53-0034-02	H-50	ARTHUR D. DEMAREST	CITY OF KELSO	860220042	DEED	0.14
AP	8/7/1987	AIP 3-53-0034-02	H-51	WILLIAMS – WELDON	CITY OF KELSO	870807029	ESMT	0.14
AP	1/24/1986	AIP 3-53-0034-02	H-52	JOHN VOSSEN	CITY OF KELSO	860124047	ESMT	0.42
AP	3/24/1986	AIP 3-53-0034-02	H-53	DENNIS L. DOUGLAS	CITY OF KELSO	860324032	DEED	0.25
AP	12/20/1985	AIP 3-53-0034-02	H-54	MARJORIE F. REED	CITY OF KELSO	851220032	DEED	0.39
AP	11/25/1985	AIP 3-53-0034-02	H-55	SILVER EAGLE CO.	CITY OF KELSO	851125030	DEED	0.75±
AP	11/25/1985	AIP 3-53-0034-02	H-57	ROBERT HYDE (ETAL)	CITY OF KELSO	851121028	DEED	2.77±
AP	10/17/1985	AIP 3-53-0034-02	H-98	SAMUAL E. TIFT	CITY OF KELSO	851017035	DEED	0.18±
AP	11/22/1985	AIP 3-53-0034-02	H-99	JAMES J. SMITH	CITY OF KELSO	851122011	DEED	0.13±
AP	6/27/1991	AIP 3-53-0034-04	H-38	LEONARD L. COOK	CITY OF KELSO	910627046	ESMT	0.625
AP	6/27/1991	AIP 3-53-0034-04	H-38	MARGARET R. COOK	CITY OF KELSO	910627048	ESMT	0.625
AP	10/21/1988	AIP 3-53-0034-04	H-45	WILFRED E. OSBORN	CITY OF KELSO	881021036	DEED	0.5
D	9/3/1993	AIP 3-53-0034-06	G-60	TOLLYCRAFT YACHTS CORP.	CITY OF KELSO	930903092	DEED	4
AP	12/11/1973	NO FEDERAL GRANT	23170 /23171	G.N. & ELAINE REEVES	CITY OF KELSO	754552	FEE TITLE	0.85
AP	05/02/1960	NO FEDERAL GRANT	23162 /23163 /23164	COWLITZ COUNTY	CITY OF KELSO	687521	FEE TITLE	1.05
AP	05/20/1954	NO FEDERAL GRANT	417599	JAY & ROBERTA THOMPSON	CITY OF KELSO	4417599	FEE TITLE	0.74

* AQ = ACQUISITION
AP = APPROACH PROTECTION
D = DEVELOPMENT

PORTION OF SECTIONS 1, 2, 3 & 11, TOWNSHIP 7 NORTH, RANGE 2 WEST, W.M. AND
PORTION OF SECTIONS 34 & 35, TOWNSHIP 8 NORTH, RANGE 2 WEST, W.M.
COWLITZ COUNTY, WASHINGTON

INCLUDES PROPERTY PURCHASED BY:
ADAP 5-53-0034-01 AIP 3-53-0034-02
ADAP 5-53-0034-02 AIP 3-53-0034-04
ADAP 5-53-0034-03 AIP 3-53-0034-06
ADAP 5-53-0034-04

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150 0 150 300
SCALE IN FEET

MAGNETIC BEARING AND DISTANCE TO VOR

REVISIONS

NO.	DESCRIPTION	BY	APP.	DATE

KELSO, WASHINGTON

SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN

AIRPORT PROPERTY MAP (EXHIBIT 'A')

PROJECT MANAGER:	JJY
DESIGNED BY:	RLO
DRAWN BY:	RLO
CHECKED BY:	JJY
DATE:	JUNE 2010
SHEET	8 of 8

Contents

CHAPTER – FINANCIAL AND IMPLEMENTATION PLAN

7.1 INTRODUCTION

In this chapter the projects and facility improvements recommended in the preceding analyses have been compiled and organized into an overall Capital Improvement Program (CIP) for the Southwest Washington Regional Airport (KLS). The implementation schedule was developed in an iterative process that balanced the needs for capital improvement projects against the competing and sometimes conflicting financial priorities represented by annual airport operating and maintenance costs. The implementation period for the CIP covers the three phases of development through the year 2027, including:

- Phase I: Encompasses the short-term 5-year period extending from 2007 to 2012 (adjusted to 2010 to 2014 to account for the time elapsed between preparation of the forecast and completion of the development analysis). Projects assigned to Phase I are shown on a year-by-year basis, consistent with the FAA's Capital Improvement Program (CIP) format.
- Phase II: Encompasses the mid-term 5-year period from 2015 through 2020. Projects are again allocated to specific years during Phase II.
- Phase III: Encompasses the long-term 7-year period from 2021 through 2027. These projects are grouped together.

Projects are assigned to a time phase based on the anticipated timing of their anticipated need or because they are necessary precursors to achieving long term development goals. Estimates of probable project costs were developed for each individual project to serve as the basis for financial planning. These estimates were prepared using planning level information regarding the location and scope of the project coupled with unit costs for construction derived from recently completed airport projects in Western Washington. Probable construction costs are based on 2008 dollars. Although actual project costs may vary from the figures shown, the overall cost of each development phase should not change significantly. In any event, detailed cost estimates should be prepared and the Implementation Program costs updated as projects become more specifically defined and the City gets closer to implementation.

7.2 ESTIMATES OF PROBABLE COST

As the first step in preparing a financial plan for the airport, an estimate of the probable cost of each recommended project was prepared. These estimates were prepared at planning level detail with quantities estimated by scaling the depictions from the Airport

Layout Plan or, where appropriate, from the data presented in the Facility Requirements chapter. These estimated quantities were then multiplied by a unit cost based on either data contained in the R.S Means Cost Estimating Guides or from actual contractor's bids for similar projects in Western Washington. All costs are based on 2008 prices.

The cost estimates shown in Exhibit 7-1 summarize total project costs and including sales taxes (7.9 percent), professional service fees including design, project management, construction management and others (20%) and contingencies (15 percent of construction cost) for all projects identified as required during the 20-year period covered in this master plan. Updated estimates will need to be prepared for each project as a more detailed level definition becomes available through detailed design efforts. Certainly ongoing coordination will be needed with the Federal Aviation Administration (FAA) and the State of Washington (WSDOT Aviation) to determine the extent and timing of funding of all proposed projects.

Exhibit 7-1: Estimated Cost of Capital Improvement Projects

	Units	No. Of Units	Cost per Unit	Project Cost	Taxes	Professional Service Fees	Contingencies	Total
Administrative Projects								
Establish Governing Body	**No AIP cost**							
- Hire Airport Staff	**No AIP cost**							
Initiate Airport Business Plan	**No AIP cost**							
Continue talks with BNSF	**No AIP cost**							
Realign Taxiway A								
Environmental Analysis	LS	1	$105,000	$105,000	$8,295	$21,000	$15,750	$150,045
Purchase Land	LS	1	$500,000	$500,000	$39,500	$100,000	$75,000	$714,500
Remove Old Pavement	SY	19,500	$25	$487,500	$38,513	$97,500	$73,125	$696,638
Construct New Taxiway	SY	19,500	$35	$682,500	$53,918	$136,500	$102,375	$975,293
New Taxiway Lights	LF	4,400	$25	$110,000	$8,690	$22,000	$16,500	$157,190
Total				$1,885,000	$148,915	$377,000	$282,750	$2,693,665
Remove FAR Part 77 Obstructions - West Side								
Clear Sullivan Hangars	LS	1	$50,000	$50,000	$3,950	$10,000	$7,500	$71,450
Remove Trees, Poles and Other Part 77 Obstructions	LS	1	$100,000	$100,000	$7,900	$20,000	$15,000	$142,900
Total				$150,000	$11,850	$30,000	$22,500	$214,350
Runway Extension								
PHASE I Construct Stopway								
Environmental Studies for Stopway	LS	1	$200,000	$200,000	$15,800	$40,000	$30,000	$285,800
Earthwork	CY	3,180	$5	$15,900	$1,256	$3,180	$2,385	$22,721
Stopway Pavement	SY	4,051	$45	$182,295	$14,401	$36,459	$27,344	$260,500
Pavement Marking	LF	605	$10	$6,050	$478	$1,210	$908	$8,645
Lighting	LF	605	$25	$15,125	$1,195	$3,025	$2,269	$21,614
Total				$419,370	$33,130	$83,874	$62,906	$599,280
PHASE II Extend Runway								
Runway Extension Environmental Analysis (Phase II)	LS	1	$100,000	$100,000	$7,900	$20,000	$15,000	$142,900
Talley Way Road Relocation	LF	1,700	$150	$255,000	$20,145	$51,000	$38,250	$364,395
Bridge Replacement	LS	1	$4,200,000	$4,200,000	$331,800	$840,000	$630,000	$6,001,800
Overlay Existing Pavement	SY	48,833	$20	$976,660	$77,156	$195,332	$146,499	$1,395,647
Taxiway Pavement	SY	3,130	$35	$109,550	$8,654	$21,910	$16,433	$156,547
NAVAID Relocation	LS	1	$30,000	$30,000	$2,370	$6,000	$4,500	$42,870
Lighting	LF	605	$25	$15,125	$1,195	$3,025	$2,269	$21,614
Marking	LF	605	$10	$6,050	$478	$1,210	$908	$8,645
Total				$5,692,385	$449,698	$1,138,477	$853,858	$8,134,418

Note: The cost of constructing the stopway is considered an interim step toward the ultimate extension of the runway. As the demand increases and a full runway extension is justified, these costs may be reimbursed.
All Values shown reflect 2009 dollars with no adjustment for inflation.

Exhibit 7-1: Estimated Cost of Capital Improvement Projects (Continued)

	Units	No. Of Units	Cost per Unit	Project Cost	Taxes	Professional Service Fees	Contingencies	Total
Other Projects								
Environmental Assessment for West Side Development	LS	1.00	$200,000	$200,000	$15,800	$40,000	$30,000	$285,800
Land Acquisition - East Side	ACRES	0.20	$175,000	$35,000	$2,765	$7,000	$5,250	$50,015
Land Acquisition - West Side	ACRES	1.77	$360,000	$637,200	$50,339	$127,440	$95,580	$910,559
Land Acquisition - Approach	ACRES	4.53	$175,000	$792,750	$62,627	$158,550	$118,913	$1,132,840
Site Preparation and Clean Up - West Side Development	LS	1.00	$35,000	$35,000	$2,765	$7,000	$5,250	$50,015
Master Plan Update Study	LS	1.00	$110,000	$110,000	$8,690	$22,000	$16,500	$157,190
Replace Runway Lights (MIRL)	LF	4,350.00	$37	$160,950	$12,715	$32,190	$24,143	$229,998
Drainage/Stormwater Improvements	LS	1.00	$1,000,000	$1,000,000	$79,000	$200,000	$150,000	$1,429,000
Hangar Taxiways Phase I	SY	7,290	$45	$328,050	$25,916	$65,610	$49,208	$468,783
Develop Apron as Taxiway - North Apron	LS	1	$175,000	$175,000	$13,825	$35,000	$26,250	$250,075
Hangar Taxiways Phase II	SY	10,500	$45	$472,500	$37,328	$94,500	$70,875	$675,203
Hangar Taxiways Phase III	SY	3,670	$45	$165,150	$13,047	$33,030	$24,773	$235,999
Land Acquisition for AWOS Protection	ACRE	9	$60,000	$540,000	$42,660	$108,000	$81,000	$771,660
Extend Perimeter Fencing	LS	1	$42,000	$42,000	$3,318	$8,400	$6,300	$60,018
Maintenance and SRE Equipment Purchase	LS	1	$53,000	$53,000	$4,187	$10,600	$7,950	$75,737
Airport Drainage Study	LS	1	$150,000	$150,000	$11,850	$30,000	$22,500	$214,350
Replace Rotating Beacon	LS	1	$80,000	$80,000	$6,320	$16,000	$12,000	$114,320
Rehabilitate Access Road Pavements	LS	1	$32,000	$32,000	$2,528	$6,400	$4,800	$45,728
Purchase 16 KW Emergency Generators	LS	2	$4,000	$8,000	$632	$1,600	$1,200	$11,432
Wetland Delineation Study	LS	1	$30,000	$30,000	$2,370	$6,000	$4,500	$42,870
Wetland Mitigation Study	LS	1	$38,000	$38,000	$3,002	$7,600	$5,700	$54,302
Wildlife Management Plan	LS	1	$18,000	$18,000	$1,422	$3,600	$2,700	$25,722
Total				$5,102,600	$403,105	$1,020,520	$765,390	$7,291,615
Private Projects								
Economy Hangars West Side	UNIT	30	$12,000	$360,000	$28,440	$72,000	$54,000	$514,440
T-Hangars Phase II	UNIT	22	$12,000	$264,000	$20,856	$52,800	$39,600	$377,256
T-Hangars Phase III	UNIT	19	$12,000	$228,000	$18,012	$45,600	$34,200	$325,812
Corporate Hangars Phase I	UNIT	2	$50,000	$100,000	$7,900	$20,000	$15,000	$142,900
Corporate Hangars Phase II	UNIT	3	$50,000	$150,000	$11,850	$30,000	$22,500	$214,350
Corporate Hangars Phase III	UNIT	7	$50,000	$350,000	$27,650	$70,000	$52,500	$500,150
Construct FBO Hangar	SF	30,000	$200	$6,000,000	$474,000	$1,200,000	$900,000	$8,574,000
Total				$7,452,000	$588,708	$1,490,400	$1,117,800	$10,648,908
Total Cost				**$20,701,355**	**$1,635,407**	**$4,140,271**	**$3,105,203**	**$29,582,236**

Note: All Values shown reflect 2009 dollars with no adjustment for inflation.

In addition to these projects, that have been generated as part of the master planning process, City staff have identified additional reoccurring projects that need to be accomplished in order to assure that KLS continues to operate safely and efficiently or that must be done to maintain the integrity of the airport's facilities. A list of these projects is shown in Exhibit 7-2. The project and cost associated with it were developed by City of Kelso personnel in 2008.

Exhibit 7-2: Reoccurring Projects (Non-AIP)

Project	Estimated Cost	Timing
Fix runway "dip" problem	$9,400	One Time Cost
Security Program	$40,000	One Time Cost
Grade rough sites	$2,500	One Time Cost
Improve FBO Facilities	$127,200	One Time Cost
Tree clearing	$15,000	One Time Cost
Fix T-Hangar roof leaks – 2013	$12,000	One Time Cost
Replace fuel tanks	$15,000	One Time Cost
Crack sealing	$5,000	Annual Cost
Hangar maintenance	$4,000	Annual Cost
Snow and ice program	$4,000	Annual Cost
Spray program	$4,000	Annual Cost
Drainage maintenance	$5,000	Annual Cost
Brushing and Weed control	$5,500	Annual Cost
Mowing	$8,000	Annual Cost
Building sinking fund	$8,000	Annual Cost
Wildlife Management Plan Administration and Maintenance	$5,000	Annual Cost
Security admin and maintenance	$2,500	Annual Cost
Runway Sod Removal	$1,000	Every 2 years
Paving front, back and side of 2222 S. Pacific	$13,000	Every 10 years
Overlay FBO East Parking lot	$30,000	Every 15 years
Rotating beacon paint and maintenance	$10,000	Every 10 years
Repaint airfield markings 2012	$8,000	Every 10 years

7.3 CAPITAL FUNDING SOURCES

As shown in the preceding, the cost of the improvements required at the airport will exceed $23 million over the 20 year period through 2027. To fund these projects, a combination of Federal Aviation Administration (FAA) Airport Improvement Program (AIP) state entitlement and discretionary grants, WSDOT Aviation Division grants, private third party financing and continuing financial support from the governing body (City of Kelso, City of Longview, Port of Longview, and Cowlitz County) will be

needed. The funding sources that will serve as the Airport's primary means to finance the Master Plan Capital Improvement Program (CIP) are discussed in the following.

7.3.1 AIP NON-PRIMARY AIRPORT AIP STATE ENTITLEMENT GRANTS

The FAA classifies certain general aviation, reliever and commercial service airports, including KLS as Non-Primary Airports for funding purposes. Under the AIP, Non-Primary Airports receive an entitlement grant equal to 20% of the eligible costs of their five-year capital improvement program up to a maximum of $150,000 per year. This entitlement is available in the year granted and can be carried over for two additional years. The entitlement is contingent upon a $3.2 billion funding appropriation for AIP from Congress during each year of the CIP. This analysis assumes that KLS will receive the $150,000 (approximately) maximum annual entitlement throughout the planning period.

7.3.2 AIP DISCRETIONARY GRANTS

The Airport is also eligible to receive AIP discretionary grants from FAA. The approval of AIP discretionary funding for a project is dependent on an eligibility ranking method the FAA uses to award grants, at their discretion, based on a project's priority and importance to the national airport and airway system. It is reasonable to assume that KLS will receive some discretionary funding during the planning period for high priority, eligible projects, such as the relocation of Taxiway A, the extension of the runway, and perhaps other projects that are intended to help the airport meet B-II standards where the cost of such projects exceed the City's capability to fund. If the projected discretionary grants are not provided by the FAA, these projects will need to be delayed or substantially reduced in scope.

7.3.3 WASHINGTON DEPARTMENT OF TRANSPORTATION STATE AVIATION GRANTS

The Washington State Department of Transportation/Aviation Division (WSDOT Aviation) provides grants for projects at general aviation airports including pavement maintenance, safety improvements and others that the state deems to be priority projects for the preservation of the airport. The Master Plan CIP includes many projects that will be eligible for partial funding through state aviation grants. In the case of our analysis it is assumed that WSDOT Grants would be used to pay ½ of the local share of all AIP eligible projects (this equals roughly 2.5 percent of the total project costs).

During the recent Long-term Air Transportation Study (LATS), WSDOT spent some effort reevaluating their financial support programs and determined that additional funds would be required if the State was to actively participate in maintaining the aviation system. One of the areas where a change in policy may be needed was in the State's ability to participate not only in the physical improvement of Regional Service Airports but also to take a role in their management. As a result of these analyses, the state may authorize more of the revenues generated in the state by airlines, airport owners, etc. to be dedicated to airport Capital Improvement and management and maintenance programs. As a designated Regional Service Airport, KLS would be eligible for this increased money.

7.3.4 **PRIVATE THIRD PARTY FINANCING**

Many airports use private third party financing to fund improvements that are primarily used by a private business or otherwise could be seen as potentially profitable business investment. Projects of this kind typically include aircraft hangars, FBO facilities, cargo facilities, exclusive aircraft parking aprons, non-aviation commercial areas and various other projects. Such projects are not eligible for federal funding under the AIP. The implementation analysis assumes that a private third party will provide funding for development of aircraft hangars and other improvements needed to support hangar development. These improvements will be done on airport property and the City will receive annual revenue through land leases. Additionally, any private development will include provisions that ownership of the facility will revert to the City after an appropriate amortization period (generally 30-years). Should the City decide to construct this itself, it is assumed that they will lease them to aircraft owners at a rate that amortizes the cost of construction as well as the cost of borrowed money. In this case they're neutral to the CIP generating neither expense nor income.

7.3.5 LOCAL CONTRIBUTIONS

Another potential source of capital improvement funds is the annual intergovernmental contribution provided by Cowlitz County, the City of Longview, The Port of Longview, as well as the City of Kelso. In 2009 these contributions were $20,000 each. It is recommended that these contributions be adjusted annually to match the needs of both the Capital Improvement Program and the Operation and Maintenance budget.

Using this information and the eligibility requirements of the various programs cited, the capital improvement projects identified in Exhibit 7-1 can be expected to be funded as shown in Exhibit 7-3.

Exhibit 7-3: Capital Improvement Projects – Probable Funding Sources

	Total Cost	Source of Funds			
		Federal	WSDOT	Local	Private
Administrative Projects					
Establish Governing Body	**No AIP cost**				
- Hire Airport Staff	**No AIP cost**				
Initiate Business Plan	**No AIP cost**				
Continue talks with BNSF	**No AIP cost**				
Realign Taxiway A					
Environmental Approvals	$150,045	$142,543	$3,751	$3,751	$0
Purchase Land	$714,500	$678,775	$17,863	$17,863	$0
Remove Old Pavement	$696,638	$661,806	$17,416	$17,416	$0
Construct New Taxiway	$975,293	$926,528	$24,382	$24,382	$0
New Taxiway Lights	$157,190	$149,331	$3,930	$3,930	$0
Total	$2,693,665	$2,558,982	$67,342	$67,342	$0
Remove FAR Part 77 Obstructions - West Side					
Clear Sullivan Hangars	$71,450	$67,878	$1,786	$1,786	$0
Remove Trees, Poles and Other Part 77 Obstructions	$142,900	$135,755	$3,573	$3,573	$0
Total	$214,350	$203,633	$5,359	$5,359	$0
Runway Extension					
PHASE I Construct Stopway					
Runway Extension Environmental Analysis (Phase I)	$285,800	$0	$0	$285,800	$0
Earthwork	$22,721	$0	$0	$22,721	$0
Stopway Pavement	$260,500	$0	$0	$260,500	$0
Pavement Marking	$8,645	$0	$0	$8,645	$0
Lighting	$21,614	$0	$0	$21,614	$0
Total	$599,280	$0	$0	$599,280	$0
PHASE II Extend Runway					
Runway Extension Environmental Analysis (Phase II)	$142,900	$135,755	$3,573	$3,573	$0
Talley Way Road Relocation	$364,395	$346,175	$9,110	$9,110	$0
Bridge Replacement	$6,001,800	$5,701,710	$150,045	$150,045	$0
Rehabilitate Existing Pavement	$1,395,647	$1,325,865	$34,891	$34,891	$0
Taxiway Pavement	$156,547	$148,720	$3,914	$3,914	$0
NAVAID Relocation	$42,870	$40,727	$1,072	$1,072	$0
Lighting	$21,614	$20,533	$540	$540	$0
Marking	$8,645	$8,213	$216	$216	$0
Total	$8,134,418	$7,727,697	$203,360	$203,360	$0

Note: The cost of constructing the stopway is considered an interim step toward the ultimate extension of the runway. As the demand increases and a full runway extension is justified, these costs may be reimbursed.

All Values shown in 2009 dollars with no adjustment for inflation

Exhibit 7-3: Capital Improvement Projects – Probable Funding Sources (Continued)

	Total Cost	Source of Funds			
		Federal	WSDOT	Local	Private
Other Projects					
Environmental Assessment for West Side Development (Study)	$285,800	$271,510	$7,145	$7,145	$0
Land Acquisition - East Side	$50,015	$47,514	$1,250	$1,250	$0
Land Acquisition - West Side	$910,559	$865,031	$22,764	$22,764	$0
Land Acquisition - Approach	$1,132,840	$1,076,198	$28,321	$28,321	$0
Site Preparation and Clean Up - West Side Development	$50,015	$47,514	$1,250	$1,250	$0
Master Plan Update (Study)	$157,190	$149,331	$3,930	$3,930	$0
Replace Runway Lights (MIRL)	$229,998	$218,498	$5,750	$5,750	$0
Drainage/Stormwater Improvements	$1,429,000	$1,357,550	$35,725	$35,725	$0
Hangar Taxiways Phase I	$468,783	$445,344	$11,720	$11,720	$0
Develop Apron as Taxiway - North Apron	$250,075	$237,571	$6,252	$6,252	$0
Hangar Taxiways Phase II	$675,203	$641,442	$16,880	$16,880	$0
Hangar Taxiways Phase III	$235,999	$224,199	$5,900	$5,900	$0
AWOS Protection Easements	$771,660	$733,077	$19,292	$19,292	$0
Extend Perimeter Fencing	$60,018	$57,017	$1,500	$1,500	$0
Maintenance and SRE Equipment Purchase	$75,737	$71,950	$1,893	$1,893	$0
Airport Drainage Study	$214,350	$203,633	$5,359	$5,359	$0
Replace Rotating Beacon	$114,320	$108,604	$2,858	$2,858	$0
Rehabilitate Access Road Pavements	$45,728	$43,442	$1,143	$1,143	$0
Purchase 16 KW Emergency Generators	$11,432	$10,860	$286	$286	$0
Wetland Delineation (Study)	$42,870	$40,727	$1,072	$1,072	$0
Wetland Mitigation (Study)	$54,302	$51,587	$1,358	$1,358	$0
Implement Wildlife Management Plan	$25,722	$24,436	$643	$643	$0
Total	$7,291,615	$6,927,035	$182,290	$182,290	$0
Private Projects					
Affordable Hangars Phase I	$514,440	$0	$0	$0	$514,440
T-Hangars Phase II	$377,256	$0	$0	$0	$377,256
T-Hangars Phase III	$325,812	$0	$0	$0	$325,812
Corporate Hangars Phase I	$142,900	$0	$0	$0	$142,900
Corporate Hangars Phase II	$214,350	$0	$0	$0	$214,350
Corporate Hangars Phase III	$500,150	$0	$0	$0	$500,150
Construct FBO Hangar	$8,574,000	$0	$0	$0	$8,574,000
Total	$10,648,908	$0	$0	$0	$10,648,908
Total Cost	**$29,582,236**	**$17,417,346**	**$458,351**	**$1,057,631**	**$10,648,908**

Note: All Values shown in 2009 dollars with no adjustment for inflation

7.4 IMPLEMENTATION PLAN

The plan presented in the following section represents the phased development of the capital projects in order to meet the needs at KLS. While a reasonable degree of certainty is involved in creating the project schedule, various factors can be expected to cause schedule changes in the plan over time, including:

- Financial Feasibility: The financial feasibility of projects may change due to changes in project costs, shifting of FAA or State priorities, or changes in the levels of state or FAA funding.

- Activity Levels: Activity levels trigger the need for all demand-driven improvements such as the runway extension and new hangar construction. Although the CIP attaches time frames to these developments for scheduling purposes, they should not be constructed until demand materializes. Thus, depending on how a particular segment of activity is tracking with the forecast, certain improvements may be accelerated or delayed.

- Changing Priorities: Over time, changes in Airport business and strategic plans are likely to occur in response to the dynamic nature of the aviation industry as well as in the direction and policies of the airport's sponsoring body. Such changes are likely to trigger revisions to or adjustments of the existing Capital Improvement Program (CIP.)

The information shown on the Phased Capital Improvement Plan includes all of the projects identified as required in this study as well as four projects that have been identified as being necessary for the city to be in a position to implement the plan. These four items, called administrative projects, include;

1. Settle the issue of airport governance for the long-term. This is necessary if the local commitment to airport improvement is to be realistic.

    a. Once the Airport's Governing body is in place, hire a dedicated airport staff. Improving the level of service for the Southwest Washington Regional Airport will require that dedicated personnel be assigned to the airport on a full time basis. By having dedicated staff, City resources aren't diverted from their primary tasks and professional management can be in place to help implement the visions, tasks and goals for the airport. Some airport related projects such as the adoption and implementation of the Wildlife Management Plan and Security Plan are not recommended unless sufficient personnel can be dedicated to these plans. The airport owner only becomes more liable with the adoption of management and security plans and with insufficient funding for personnel to implement the plan objectives accepting this liability is not advised.

2. Initiate a new airport business plan. Under any new plan, airport generated revenues could be improved, enabling the airport's governing body to be better able to maintain financial viability and thus more readily implement the plan's recommendations.

Although no costs are given for these actions as part of the Airport's Capital Improvement Plan, they will be vital to the implementation planning efforts by the City. Section 7.3 will examine them in more detail as part of the airport's overall business plan.

Exhibit 7-4 shows the scheduled implementation schedule for the Capital Improvement Projects. The exhibit also shows the annual maintenance costs identified by the City as well as the non-eligible City projects. Graphic Exhibit 7-5 depicts the location of each project for the respective implementation phases. The Airport Layout Plan, presented in Chapter 6, Airport Plans, incorporates the projects reflected in the recommended Implementation Plan through the end of 2027.

Exhibit 7-4: Project Implementation Plan Phase 1

	Project		Short Term 2010	2011	2012	2013	2014
AIP Eligible Projects							
1	Environmental Assessment for West Side Development (Study)	$285,800		$285,800			
2	Purch. Prprty West Side Safety / Hangars	$910,559			$910,559		
3	Site Demo and Clean-up	$50,015				$50,015	
4	Construct New Hangar Taxiways (West Side)	$468,783				$468,783	
5	Clear Sullivan Hangars	$71,450				$71,450	
6	Remove Other Part 77 Obstructions	$142,900					$142,900
7	Rehabilitate Runway Pavement	$1,395,647					$1,395,647
8	Replace MIRLs	$229,998					$229,998
9	Purchase 16 KW Emergency Generators	$11,432					$11,432
10	Airport Drainage Study	$214,350		$214,350			
11	Replace Rotating Beacon	$114,320		$114,320			
12	Rehabilitate Pavement - Access Roads	$45,728		$45,728			
13	Purchase SRE	$75,737		$75,737			
14	Extend Perimeter Fencing	$60,018			$60,018		
15	Wetland Delineation Study	$42,870		$42,870			
16	Wetland Mitigation Study	$54,302				$54,302	
17	Implement Wildlife Management Plan	$25,722		$25,722			
Total AIP		$4,199,631		$804,527	$970,577	$644,550	$1,779,977
Non AIP Projects							
18	Construct New Affordable Hangars (West Side)	$514,440				$514,440	
19	Construct New Corporate Hangars	$142,900				$142,900	
20	Environmental Studies for Stopway	$285,800		$285,800			
21	Construct Stopway	$313,480			$313,480		
22	Fix Runway “dip” problem	$9,400	$9,400				
23	Overlay FBO East Parking lot	$30,000			$30,000		
24	T-Hangar roof leaks	$12,000	$12,000				
25	Grade rough sites	$2,500		$2,500			
26	Improve FBO Facilities	$127,200		$7,000		$120,200	
27	Tree Clearing	$15,000				$15,000	
28	Security Program	$40,000					$40,000
Total Non-AIP Projects		$1,492,720	$21,400	$295,300	$343,480	$792,540	$40,000

Note: All Values shown in 2009 dollars with no adjustment for inflation

Project		Short Term				
		2010	2011	2012	2013	2014
Annual Requirements (Non-AIP)						
Crack Sealing	$25,000	$5,000	$5,000	$5,000	$5,000	$5,000
Hangar Maintenance	$20,000	$4,000	$4,000	$4,000	$4,000	$4,000
Snow and Ice Program	$20,000	$4,000	$4,000	$4,000	$4,000	$4,000
Spray program	$20,000	$4,000	$4,000	$4,000	$4,000	$4,000
Drainage maintenance	$25,000	$5,000	$5,000	$5,000	$5,000	$5,000
Runway sod removal	$5,000	$1,000	$1,000	$1,000	$1,000	$1,000
Brushing and Weed Control	$27,500	$5,500	$5,500	$5,500	$5,500	$5,500
Mowing	$40,000	$8,000	$8,000	$8,000	$8,000	$8,000
Building Sinking Fund	$20,000	$4,000	$4,000	$4,000	$4,000	$4,000
Wildlife Management Plan Admin and Maintenance	$25,000	$5,000	$5,000	$5,000	$5,000	$5,000
Security Admin and Maintenance	$12,500	$2,500	$2,500	$2,500	$2,500	$2,500
Total Annual Requirements	$240,000	$48,000	$48,000	$48,000	$48,000	$48,000
Total All Projects	$5,932,351	$69,400	$1,147,827	$1,362,057	$1,627,990	$1,725,077

Note: All Values shown in 2009 dollars with no adjustment for inflation

Exhibit 7-5: Project Implementation Plan Phase 2

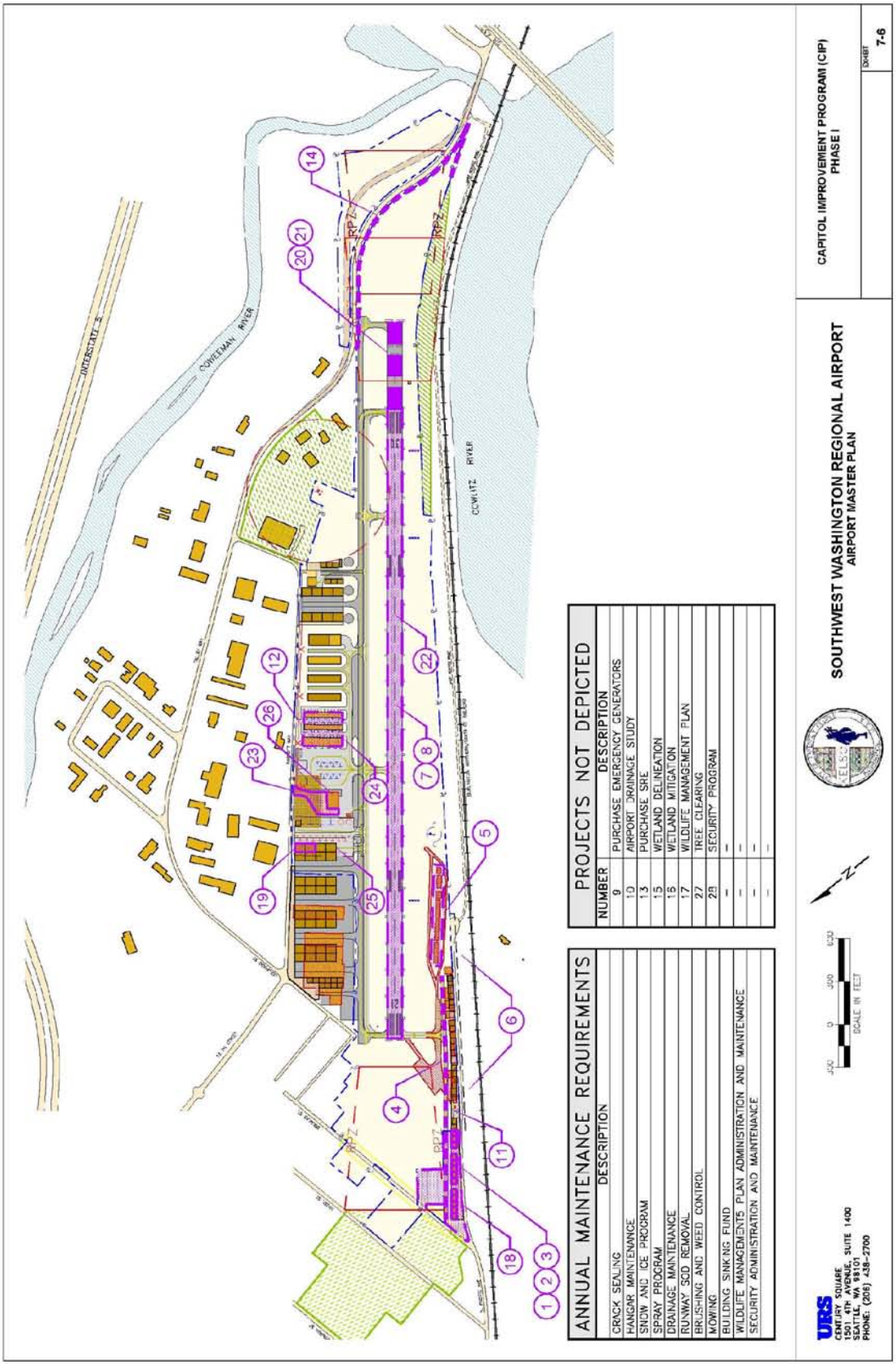
	Project		Intermediate Term					Long Term
			2015	2016	2017	2018	2019	2020 thru 2027
AIP Eligible Projects								
29	Environmental Analysis for Taxiway Relocation	$150,045	$150,045					
30	Relocate Taxiway A	$2,543,620		$2,543,620				
31	Purchase Property in RW 12 RPZ NE Corner	$362,609					$362,609	
32	Master Plan Update	$157,190					$157,190	
33	Develop North Apron For Use as Hangar Taxiway	$250,075			$250,075			
34	AWOS Land Purchase (Fee or Easement)	$771,660			$771,660			
Total AIP		$4,235,199	$150,045	$2,543,620	$1,021,735	$0	$519,799	
Non-AIP Projects								
35	Construct New T-Hangars	$377,256				$282,942	$94,314	
36	Construct New Corporate Hangars	$142,900				$71,450	$71,450	
Total Non-AIP Projects		$520,156				$354,392	$165,764	
Annual Requirements								
	Crack Sealing	$25,000	$5,000	$5,000	$5,000	$5,000	$5,000	
	Hangar Maintenance	$20,000	$4,000	$4,000	$4,000	$4,000	$4,000	
	Snow and Ice Program	$20,000	$4,000	$4,000	$4,000	$4,000	$4,000	
	Spray program	$20,000	$4,000	$4,000	$4,000	$4,000	$4,000	
	Drainage maintenance	$25,000	$5,000	$5,000	$5,000	$5,000	$5,000	
	Runway sod removal	$5,000	$1,000	$1,000	$1,000	$1,000	$1,000	
	Brushing and Weed Control	$27,500	$5,500	$5,500	$5,500	$5,500	$5,500	
	Mowing	$40,000	$8,000	$8,000	$8,000	$8,000	$8,000	
	Wildlife Management Plan Admin and Maintenance	$25,000	$5,000	$5,000	$5,000	$5,000	$5,000	
	Building Sinking Fund	$20,000	$4,000	$4,000	$4,000	$4,000	$4,000	
	Security Admin and Maintenance	$12,500	$2,500	$2,500	$2,500	$2,500	$2,500	
Total Annual requirements		$240,000	$48,000	$48,000	$48,000	$48,000	$48,000	
Total All Projects		$4,995,355	$198,045	$2,591,620	$1,069,735	$402,392	$733,563	

Note: All Values shown in 2009 dollars with no adjustment for inflation

Exhibit 7-5: Project Implementation Plan Phase 3

Project			Intermediate Term					Long Term
			2015	2016	2017	2018	2019	2020 thru 2027
AIP Eligible Projects								
37	Extend Runway	$8,134,418						$8,134,418
38	Construct New Hangar Taxiways	$675,203						$675,203
Total AIP		$8,809,621						$8,809,621
Non-AIP Projects								
39	Construct New T-Hangars	$325,812						$325,812
40	Construct New Corporate Hangars	$500,150						$500,150
41	Expansion of FBO Facilities	$8,574,000						$8,574,000
42	Replace Runway Lights	$124,323						$124,323
43	Drainage/Stormwater Improvements	$1,429,000						$1,429,000
44	Airfield markings	$8,000						$8,000
45	Rotating Beacon Paint and Maintenance	$10,000						$10,000
Total Non-AIP Projects		$10,971,285						$10,971,285
Annual Requirements								
	Crack Sealing	$35,000						$35,000
	Hangar Maintenance	$28,000						$28,000
	Snow and Ice Program	$28,000						$28,000
	Spray program	$28,000						$28,000
	Drainage maintenance	$35,000						$35,000
	Runway sod removal	$7,000						$7,000
	Brushing and Weed Control	$38,500						$38,500
	Mowing	$56,000						$56,000
	Wildlife Management Plan Admin and Maintenance	$35,000						$35,000
	Building Sinking Fund	$28,000						$28,000
	Security Admin and Maintenance	$17,500						$17,500
Total Annual Requirements		$336,000						$336,000
Total All Projects		$20,116,906						$20,116,906

Note: All Values shown in 2009 dollars with no adjustment for inflation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ANNUAL MAINTENANCE REQUIREMENTS
DESCRIPTION
CRACK SEALING
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SNOW AND ICE PROGRAM
SPRAY PROGRAM
DRAINAGE MAINTENANCE
RUNWAY SOD REMOVAL
BRUSHING AND WEED CONTROL
MOWING
BUILDING SINKING FUND
WILDLIFE MANAGEMENTS PLAN ADMINISTRATION AND MAINTENANCE
SECURITY ADMINISTRATION AND MAINTENANCE
PROJECTS NOT DEPICTED
NUMBER
DESCRIPTION
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PURCHASE EMERGENCY GENERATORS
10
AIRPORT DRAINAGE STUDY
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WETLAND DELINEATION
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WETLAND MITIGATION
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WILDLIFE MANAGEMENT PLAN
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TREE CLEARING
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SECURITY PROGRAM
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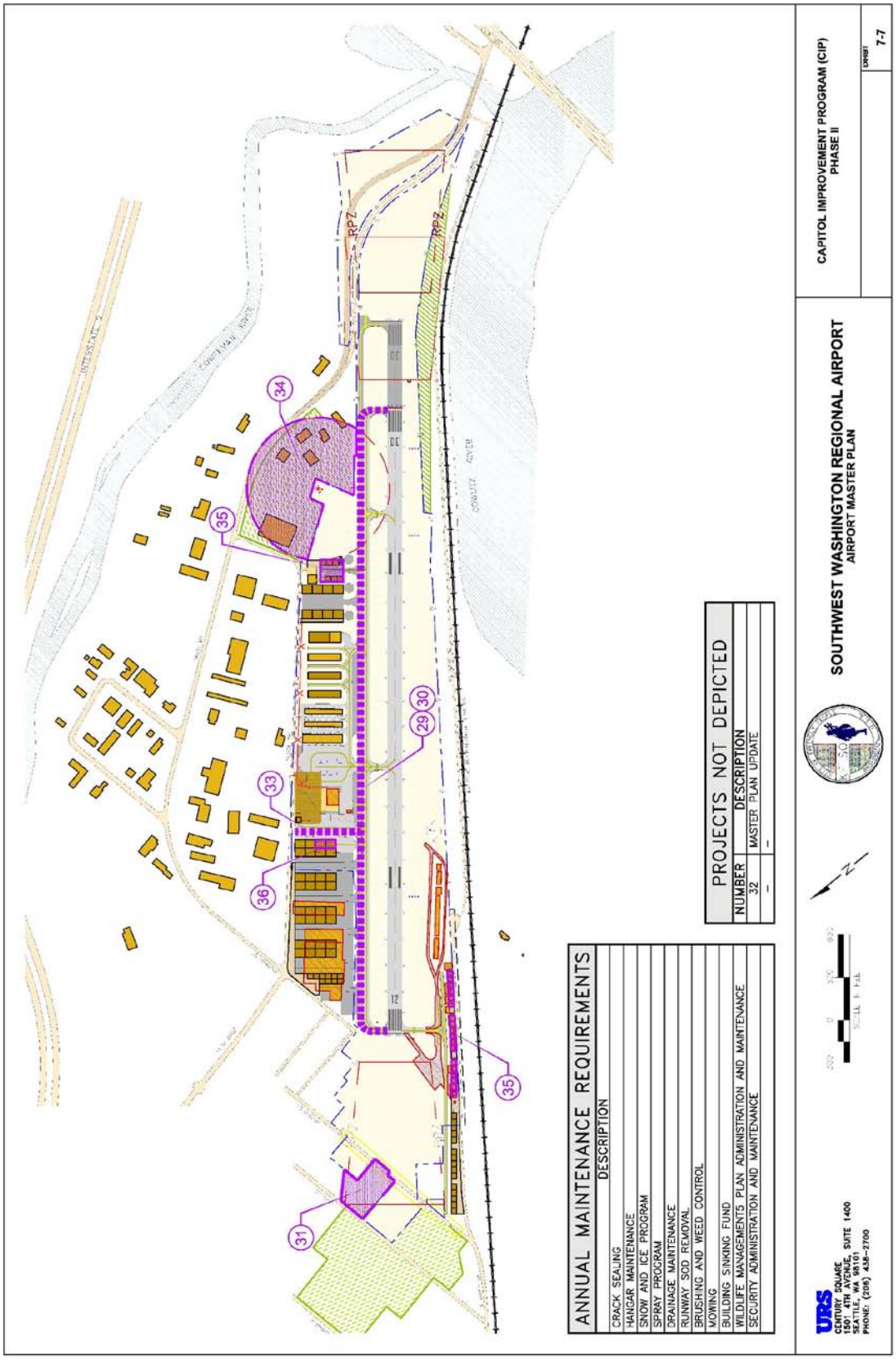
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SPRAY PROGRAM
DRAINAGE MAINTENANCE
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BRUSHING AND WEED CONTROL
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BUILDING SINKING FUND
WILDLIFE MANAGEMENT5 PLAN ADMINISTRATION AND MAINTENANCE
SECURITY ADMINISTRATION AND MAINTENANCE
PROJECTS NOT DEPICTED
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DESCRIPTION
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MASTER PLAN UPDATE
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SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN
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URS
CENTURY SQUARE
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101
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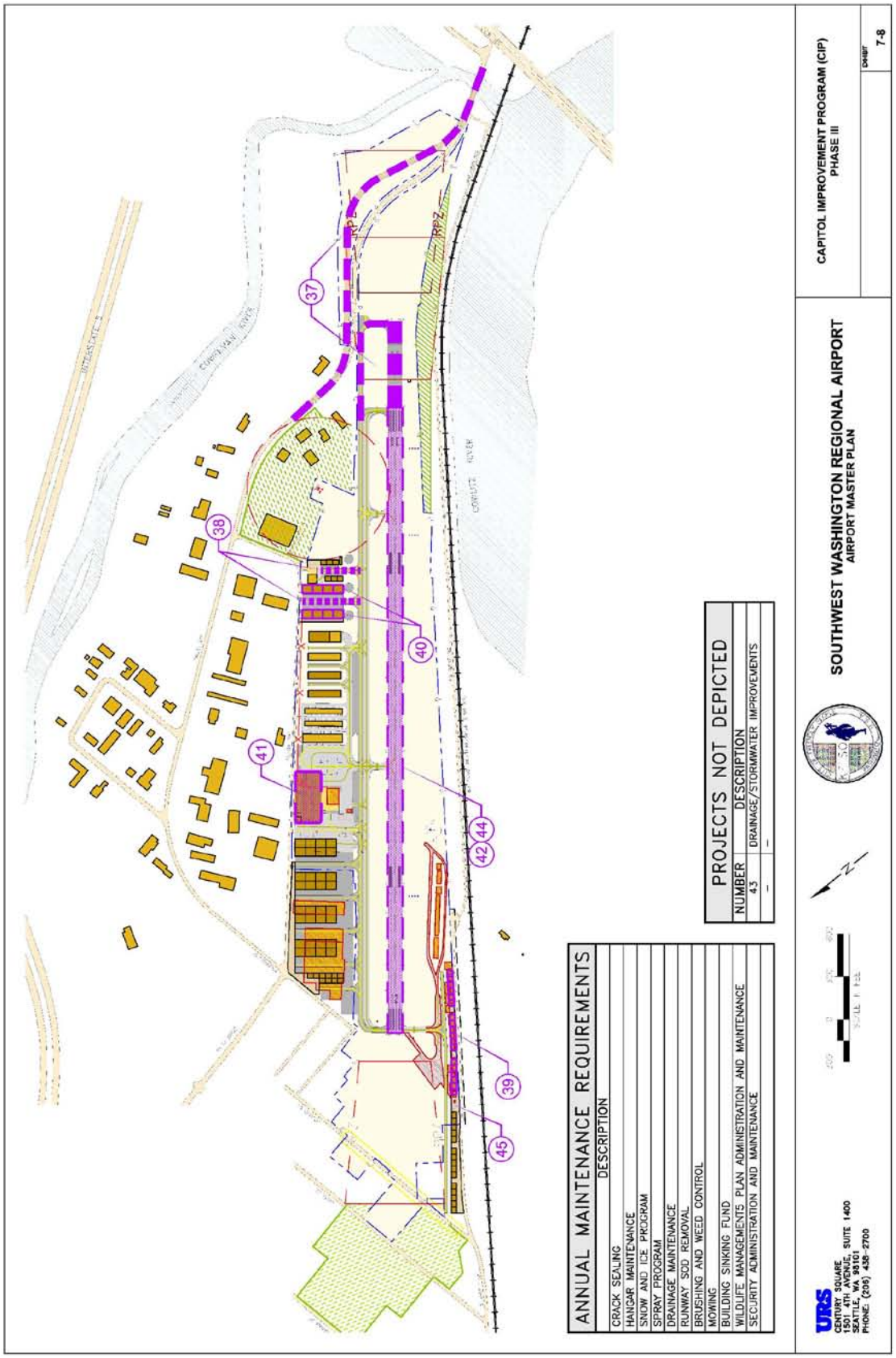
ANNUAL MAINTENANCE REQUIREMENTS
DESCRIPTION
CRACK SEALING
HANGAR MAINTENANCE
SNOW AND ICE PROGRAM
SPRAY PROGRAM
DRAINAGE MAINTENANCE
RUNWAY SOD REMOVAL
BRUSHING AND WEED CONTROL
MOWING
BUILDING SINKING FUND
WILDLIFE MANAGEMENT
PLAN ADMINISTRATION AND MAINTENANCE
SECURITY ADMINISTRATION AND MAINTENANCE
PROJECTS NOT DEPICTED
NUMBER
DESCRIPTION
43
DRAINAGE/STORMWATER IMPROVEMENTS
–
–
37
38
40
41
42
44
39
45
RPZ
SOUTHWEST WASHINGTON REGIONAL AIRPORT
AIRPORT MASTER PLAN
CAPITOL IMPROVEMENT PROGRAM (CIP)
PHASE III
7-8
URS
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1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101
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7.5 BUSINESS PLAN

The preceding section presented the Capital needs of the airport this section will evaluate the capability of the City of Kelso (or an alternative governing body) to fund both the Capital Improvement Program (CIP) and airport operations and maintenance throughout the Phase I, Phase II and Phase III planning periods. The analysis examines the annual revenues and expenditures at the airport to determine whether operations result in an annual surplus or deficit for the City. Once this factor is determined, the financial commitment associated with the adopted CIP is added to project the City's total commitment to the airport on an annual basis.

7.5.1 **OVERALL APPROACH**

The overall approach for conducting the Business Plan included the following steps:

- Gathering and reviewing key City documents related to historical financial results, capital improvement plans, operating budgets, regulatory requirements, Airport policies, lease and other operating agreements with Airport users. These record documents were received for the years 2002 through 2009.

- Interviewing key City officials to gain an understanding of the existing operating and financial environment, relationships with tenants and overall management philosophy.

- Analyzing historical operations and maintenance expenses, developing operations and maintenance expense assumptions and projecting future operations and maintenance expenses for the planning period

- Analyzing historical revenue sources, developing revenue growth assumptions, reviewing assumptions with the City and projecting future operating revenues for the planning period

- Completing results of the review in a Financial Analysis Summary that evaluates the financial reasonableness of the Capital Improvement Program

The City of Kelso currently carries the primary financial responsibility for the maintenance, operation and capital improvements at the airport. Annual contributions to airport operating expenses are made by Cowlitz County, the City of Longview, the Port of Longview and the City of Kelso. In 2009, these intergovernmental operational contributions totaled $80,000.

Airport finances are managed through the Airport Fund. Under Kelso Municipal Code Section 3.60.340, Airport Fund #420 was established to capture all revenues, grants and other funds received by the airport since August 31, 1997. The fund "shall be used to defray the cost of operation, maintenance and capital improvements of the airport and for no other purpose." The financial management of the airport is discussed in more detail below.

7.5.2 Airport Revenue

Airport revenue sources range from the direct such as fuel taxes, aircraft storage fees and other fees assessed for facility usage to the indirect such as contributions from area governmental entities. Operating revenues are those directly attributable to operation of the airport as a business enterprise. These can be expected to vary over time as changes in the level of activity at the airport and the general aviation industry as a whole have influence over the types of activity from which the revenues are generated.

The other source of revenue at the airport comes from grants, primarily from the FAA and WSDOT that must be applied toward specific projects and capital improvements. These have been accounted for under the CIP discussion. The amount of grant funds received in any given year tends to vary slightly based on airport project needs and available appropriations and allocations at the federal and state levels.

The following categories have been identified to distinguish the various revenue sources from one another.

Direct Operating Revenue

As noted above, Direct Operating Revenue is derived directly from business activity at the airport and is dependent, in part, on the level of aviation activity. The degree of sensitivity that the sources of revenue have to changing market conditions varies from line item to line item. The specific sources of direct operating revenue for the airport include the following:

- **Fuel Tax**: This revenue is derived from a tax levied on the sale of aviation fuels at KLS. Over the years the amount of revenue generated has fluctuated relative to the amount of activity registered at the airport. The growth of this revenue can be expected to increase over time at the same rate as overall airport operations.

- **Aircraft Parking**: This category includes the revenue generated through fees collected for parking transient and based aircraft on the tiedown aprons. The fee for parking based aircraft is $30 per month for single-engine aircraft and $35 for

multi-engine aircraft. The daily parking rate for transient aircraft is $5 for single-engine and $6 for multi-engines. In examining the rates being charged at comparable airports in the region it was determined that the fees at KLS were in line with the market. In fact, while Thun Field and Toledo-Winlock had lower fess both Tacoma Narrows and Olympia charged the same fees. Therefore, increases to this revenue source have been limited to the increase in the number of spaces available, as determined in the facility requirements.

Hangar Leases: The City generates revenue through the rental of hangar space that the City owns to aircraft owners. On January 1, 2010 City Resolution 09-1003 was enacted that set the rates for hangars. These rates generally standardize the cost per square foot at $0.22 per square foot per month but can vary depending on the age, condition and location of the hangar and range from $106 per month for the Sullivan Hangars (which are scheduled for removal) $209 per month for hangars B and C, and $329 for the larger units of hangar A. Presently the smaller privately constructed hangars on the airport are renting for approximately $285/month. At Pearson Airpark in Vancouver the rental rates range from $275 to $400 per month and at Olympia the range is $220 to $550. Naturally the type of hangars available is critical in determining the monthly rentals. In the cases cited the lower fees are charged for the T-Hangar units with doors less than 50 feet wide and the higher rates are for individual or corporate hangars. Nonetheless, it appears that there is some flexibility in the monthly rates charged at KLS. It is assumed that over the next five years monthly charges will be raised to be in line with other airports. It should be noted that this increase may be partially offset by the loss of the Sullivan hangars and several of the older hangars on the Westside. If replacement units for these hangars are constructed and operated by private businesses then the income will transfer from the City to these businesses. In this analysis it will be assumed that hangars will be constructed as demand arises and that a combination of City and private investment will be used to finance construction, depending on the financial resource of the City at the time demand arises. In the future, when a unified, regional governing entity assumes control of the airport it may be possible for the hangars to be approached as an investment in airport financial viability with the governing body financing their construction if it justifies the return to the airport.

Given that the least expensive of the hangars are scheduled to be removed to eliminate FAR Part 77 Obstructions and that replacements may be privately constructed and rented, the monthly fees can be expected to increase over their current rates. Although if not done to proper market rates this could reduce the

amount of money available to the City in two ways; 1) the increase in fees could drive many aircraft owners to relocate to other airports where hangars may be available for a lower rent and 2) those who stay will likely rent hangars from private vendors and not directly from the City. Therefore, when projecting the potential revenue from this source it is recognized that market studies will be required. The City, or eventual governing body, should also address the issue of affordable hangars by constructing some of the new hangars spaces on the west side as open-bayed aircraft shelters that could be offered at low cost to these users.

- **Land Leases**: Certain parcels on the airport are leased for privately developed facilities including the FBO, private T-hangars and corporate hangars. The land is leased for $0.33 per square foot per year with built in escalation provisions and rate adjustments based on the performance of the Consumer Price Index. This rate is comparable to other local airports and no elasticity in this rate appears to exist. Therefore this revenue source will increase as the amount of land leased increases over time as set forth in the facility requirements discussion and when the programmed increases in the annual rate per square foot become valid.

- **Fixed Base Operator (FBO) Agreement**: Kelso Aviation, the Fixed Base Operator, pays an annual fee to operate its business at the airport. This fee is based on a percentage of the gross income generated by the business. This revenue source has historically been very low due to the low activity levels at KLS. In the future, if activity increases, it can be anticipated that business at the FBO will rise to levels that enable it to earn sufficient revenues for the annual payment to the City. In this analysis the annual rental rate has been increased at a rate matching the growth in overall annual airport activity.

- **Building/Apartment Rentals**: Revenue from building rentals includes structures other than aircraft hangars, such as the old FBO facility in the northwest corner of the airfield. As the Westside hangars are reconstructed and greater demand is placed on the eastside facilities this revenue source will decrease if not restored or reconstructed.

Tax Revenue:

Tax revenue is derived from the Washington State leasehold excise taxes collected on the airport. As the leaseholds increase it is expected that this revenue source will increase accordingly.

Intergovernmental Contributions and Transfers

Another significant and consistent source of revenue for KLS has been the annual intergovernmental contribution provided by Cowlitz County, the City of Longview, the Port of Longview, and the City of Kelso for airport operation and maintenance. This source does not include the funds received from these same entities through grants and contributions intended to support the Capital Improvement Program. In 2009 these contributions were $20,000. These governmental entities have indicated that the presence of KLS is important to their economic development efforts through their continued support of the airport. WSDOT is currently assessing the economic impact of the airport but the importance of an airport within a community continues to be recognized as a vital contributor to local growth.

For the future it is anticipated that these contributions will be based on the annual needs at the airport. This assumption reflects the fact that the airport is used by numerous local businesses that provide regional jobs and economic activity and are therefore beneficial to all of the region's governmental entities.

Other Revenue

This revenue category includes miscellaneous revenue from interest income and other sources. Revenues in this category are generally minor amounts, highly variable from year to year, and are not directly related to or affected by the level of aviation activity at the airport.

7.5.3 Airport Expenses

The expenses recorded at KLS are generally categorized as those directly related to the day-to-day operation and maintenance of the airport, capital projects needed to maintain and/or expand airport facilities, indirect costs associated with allocation of City overhead, debt service on long-term loans and governmental fess and assessments. Capital costs have been discussed in a preceding section, all others are addressed herein.

Operating Expenses

Unlike operating revenues which vary based on the level of aviation activity at the airport, operating expenses are more consistent. For example, airport grass needs to be mowed and buildings maintained regardless of how many aircraft operations occur in any given year. In that respect, expenses tend to be more fixed and, absent inflation, could remain constant over time. There are some expenses that will increase if the airport's Level of Service is improved and these are noted in the following breakdown of KLS' operating expenses and the factors and assumptions that were used in developing them.

Administrative and Overhead Expenses

Expenses assigned to this category are shared City of Kelso costs including a percentage of the Public Works director's salary and benefits, shared costs for the City Attorney, City Finance Department software, and airport property insurance.

The city of Kelso currently owns and operates KLS using a part time, contract airport manager and public works and administrative personnel on an as-available basis. If the airport transitions to a fully realized regional airport, it will require dedicated personnel to manage, administer and operate. To adequately assess the recommended future financial situation for the airport, the number of full time employees (FTEs) that are required to run the facility must be estimated and the cost of those employees calculated. Rather than estimate the number of FTEs based on a theoretical workload, the estimate being used is based on the experience at comparable airports. For this analysis we identified the following three factors as being relevant to the definition of comparable airport;

1. The airport should be in Western Washington. The climate and seasonal changes on the west side are distinct from those found on the east affecting things such as mowing, snow removal and maintenance schedules.

2. The size of the site should be similar, as should the number of runways, hangars, and other city owned facilities in order to adequately represent the maintenance needs of the airport.

3. The number of based aircraft should be similar.

The following airports were identified to study.

- The Jefferson County International Airport in Port Townsend, Washington. This airport employs a manager that has other duties with the non-aviation side of the port. Port employees conduct all maintenance activity. Interviewees estimated that the airport consumed approximately 2 FTE positions.

- Auburn Municipal Airport in Auburn, Washington. Owned by the City of Auburn. The city employs a contract airport manager and all maintenance activities are conducted by city employees but consume approximately 2 FTEs each year.

- Pearson Airpark in Vancouver, Washington. The city has assigned the airport management task to the director of parks who manages on a part-time basis. Maintenance is carried out by city employees. No estimate of the number of

FTEs was available as the city assigns city personnel to the airport on an as-needed basis.

- Tacoma Narrows Airport, Gig Harbor, Washington. The Tacoma Narrows Airport is managed by contract employees. The contract provides for all management and administrative duties. Facility maintenance is done by County employees on an as-needed basis. No estimate of the number of FTEs was available.

The consensus of opinion that was drawn from the interviews and analyses is that most airports are professionally managed as well as operated and maintained. At most facilities both an airport manager and a maintenance and operations person are based at the airport and permanently assigned to the operation and maintenance of the facility. Other services such as Human Resources, attorneys, computer, finance janitorial and other services are provided by the governing body on an as-needed basis. Roughly, the duties of the airport manager and the operations and maintenance person are as follows;

Airport Manager

The airport manager is responsible for the following general activities;

- Project Planning
- Airport Marketing
- Facility Leasing
- Preparing Annual Airport Budgets
- Implementing the Capital Improvement Program (CIP)
- Serving as the interface with local and regional governing authorities
- Seeking and Managing Grants – State (WSDOT Aviation) and Federal (FAA)
- Monitoring and Maintaining FAA Safety Standards at the Airport
- Assuring Adherence to Federal Security Regulations
- Personnel Training and
- Public Outreach

In addition to these "management" tasks, the airport manager also needs to direct staff in the operation and maintenance of the airport.

Operations and Maintenance:

Typically the airport operations and maintenance staff conducts tasks that include the following;

- Airfield And Building Maintenance
- Hangar Inspections
- Wild Life Management
- Field Inspections And NOTAM's
- Herbicide Programs
- Equipment Maintenance And Inventory
- Provide Field Escorts
- Lawn Mowing
- Preventative Maintenance

Administrative:

The final person needed at most airports is for administrative services. Airport owners generally choose to assign these tasks to other employees as part of their overall duties and most airports rely on part time administrative help from the airport's governing body. This assistance normally includes project management and office support staff.

For purposes of this analysis it is assumed that the airport will have a full-time airport manager, a full-time operation and maintenance employee and at least a part-time administrative staff. The expenses incurred for these personnel and services have not previously been assigned to the airport's budget. For the future the wages and benefits have been added to the pro forma statement.

Professional Services

Past budgets have included line items for professional services including consulting engineers, accounting, and legal services. Although the fees for the engineering services for future projects is included in the estimated cost for those projects included in the CIP, the airport will still need the surveying, inspection, accounting and legal services.

Office Supplies and Telephone/Postage

The cost for these items has been held constant throughout the planning period.

Conferences/Seminars/Travel

To maintain a professional staff that can function efficiently requires participation in professional organizations, conferences and training sessions and/or seminars. The current budget allocates $500 annually for this category. We have doubled this cost for future years to account for the addition of full time staff.

Membership Dues and Fees

This expense category includes dues and fees associated with membership in professional organizations meant to further the interests of the City, the airport and the employee. It is assumed that $600 dollars, the historical figure, will be sufficient in the future.

Software maintenance

A $1,500 assessment has been charged to the airport for this purpose in the past. This amount has been held steady through the planning period.

Vehicle Maintenance

An annual repair charge of $2,000 has been budgeted in this category representing an annual average over the historical period. No increases are seen for this category.

Advertisement/Promotion

A $500 annual charge has been maintained for this category.

Operating Supplies, Fuel, Tools and Equipment, Insurance, Utilities, and Airport Fly-In

The amount set aside for each of these categories was determined using an average of historical amounts. Each has been carried forward with an increase applied to account for the increased need for supplies that will result from having a full-time staff.

A pro forma statement for the airport for the future years 2010 through 2027 that reflects the assumptions detailed in the preceding is shown in exhibit 7-9. The exhibit provides a comparison of airport revenue and expenses.

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Exhibit 7-9: Airport Pro Forma Statement: 2010 through 2027

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As seen from the exhibit the annual revenue from airport operations are not expected to equal the expenses over the long term. This leads to an increase in the current intergovernmental contribution of approximately $63,000 dollars in 2011 with a gradual decrease through 2027 when the required amount will equal approximately $53,800 per year. It is anticipated that contributions may level off, but it is not foreseen that the airport will ever break even or be self-sustaining.

Exhibit 7-10 shows financial commitments beyond the annual operations and maintenance that are required to keep the airport functional. This exhibit shows the commitment that local governmental entities need to make to keep the CIP on schedule as well as to accommodate the annualized debt service requirements. Combined, these show the total commitments that are required at the airport to maintain and improve the level of service. It should be noted that this level of commitment is in addition to the intergovernmental contributions that have been shown in Exhibit 7.9.

Exhibit 7 -10: Additional Local Financial Need (Beyond Operations and Staffing)

Year	AIP Local Share	Non-AIP Projects	Maintenance Projects	Debt Service	Total
2007	$0	$0	$0	$18,400	$18,400
2008	$0	$0	$0	$22,800	$22,800
2009	$0	$0	$0	$21,900	$21,900
2010	$0	$69,400	$48,000	$21,000	$138,400
2011	$40,226	$383,526	$48,000	$20,100	$491,852
2012	$48,529	$391,480	$48,000	$19,200	$507,209
2013	$39,373	$183,200	$48,000	$18,300	$288,873
2014	$81,854	$88,000	$48,000	$22,400	$240,254
2015	$7,502	$0	$48,000	$21,200	$76,702
2016	$127,181	$0	$48,000	$0	$175,181
2017	$51,087	$0	$48,000	$0	$99,087
2018	$0	$0	$48,000	$0	$48,000
2019	$25,990	$0	$48,000	$0	$73,990
2020	$44,048	$219,782	$48,000	$0	$311,830
2021	$44,048	$219,782	$48,000	$0	$311,830
2022	$44,048	$219,782	$48,000	$0	$311,830
2023	$44,048	$219,782	$48,000	$0	$311,830
2024	$44,048	$219,782	$48,000	$0	$311,830
2025	$44,048	$219,782	$48,000	$0	$311,830
2026	$44,048	$219,782	$48,000	$0	$311,830
2027	$44,048	$219,782	$48,000	$0	$311,830

Note: Prices shown are in 2009 dollars with no adjustments for inflation

To cover these deficits there are three alternatives

1. Increase airport fees. The calculations done assume that the base fees being charged for items such as hangars, tiedowns and land leases would remain as set forth in the latest rate resolution that went into effect on January 1, 2010 with the only increases coming from increases in demand. This was partially based on a review of fees being charged by other airports in the region and partially on the types of users that comprise the aircraft fleet and users of KLS. There is a strong opinion that raising monthly use fees at the airport would not only suppress demand in the future, it could also serve to drive away current users. It is recommended that the City take steps to provide low-cost aircraft storage options such as open-sided hangars to assure that the current users were not "priced out" of the airport.

   Secondly, if the hangar rates were increased to bridge the gap in operational requirements, there would need to be an increase of more than 50% over current rates. While airports in more densely populated areas (from Olympia north) generally have fees that are in this range, those airports closest to KLS do not. This further supports the idea that fee increases could serve to exceed demand.

2. Require that the four contributing entities raise their annual contribution to cover the amount. This would require raising the annual fee to cover the CIP and O&M needs of KLS.

3. Receive O&M funding from the State through the Washington Department of Transportation Aviation Division. The state has indicated, during the LATS process that it is in their best interests to assure a healthy aviation system within the state. A key to this is the operation and maintenance of regional airports that allow for business jets. Should the legislature agree to expand WSDOT's authority to this area, and authorize that the agency retain a higher percentage of the tax revenues generated by aviation within the state to fund this program, the additional funds could substantially change the airport's financial position.

Recommended Action

The governing agency that is responsible for KLS in the future will need to make sure that the airport is able to remain functionally and financially stable. This requires that the four governmental agencies that currently share the financial responsibility for the airport formally agree to continue their participation through a formal Joint Operating agreement. In addition, the governing agency should petition the State of Washington, through the Washington State Department of Transportation Aviation Division for financial support for operation and maintenance as well as capital costs necessary to transition KLS to a full service regional airport.

Exhibit 7-9: Airport O&M Pro Forma Statement: 2007 through 2027

Item	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Revenues																					
Direct Revenues																					
Fuel Tax	$2,107	$1,048	$1,076	$1,093	$1,111	$1,128	$1,147	$1,165	$1,184	$1,202	$1,222	$1,241	$1,261	$1,281	$1,302	$1,323	$1,344	$1,365	$1,387	$1,409	$1,432
Aircraft Parking Fees	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hangar Leases	$84,070	$89,874	$95,990	$98,360	$99,545	$101,915	$103,100	$105,470	$107,841	$109,026	$111,396	$112,581	$113,766	$116,136	$117,321	$119,691	$122,061	$123,246	$125,617	$126,802	$129,172
Land Leases	$8,956	$10,002	$12,153	$12,453	$12,603	$12,903	$13,053	$13,353	$13,653	$13,803	$14,103	$14,254	$14,404	$14,704	$14,854	$15,154	$15,454	$15,604	$15,904	$16,054	$16,354
FBO Agreement	$3,722	$3,722	$3,722	$3,782	$3,842	$3,904	$3,966	$4,029	$4,094	$4,159	$4,226	$4,294	$4,362	$4,432	$4,503	$4,575	$4,648	$4,723	$4,798	$4,875	$4,953
Other Building Rental	$6,000	$6,781	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987	$6,987
Misc Income	$2,500	$802	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Total Direct Revenues	***$104,855***	***$111,427***	***$119,928***	***$122,675***	***$124,088***	***$126,837***	***$128,253***	***$131,005***	***$133,758***	***$135,178***	***$137,934***	***$139,356***	***$140,780***	***$143,540***	***$144,967***	***$147,730***	***$150,494***	***$151,925***	***$154,693***	***$156,127***	***$158,898***
Leasehold Tax Revenue	***$4,214***	***$4,332***	***$3,495***	***$4,526***	***$4,627***	***$4,732***	***$4,838***	***$4,943***	***$5,053***	***$5,166***	***$5,280***	***$5,394***	***$5,508***	***$5,621***	***$5,735***	***$5,849***	***$5,963***	***$6,077***	***$6,190***	***$6,304***	***$6,418***
Intergovernmental Contributions	***$76,000***	***$76,000***	***$80,000***	***$80,000***	***$251,733***	***$248,878***	***$247,357***	***$244,500***	***$241,637***	***$240,104***	***$237,234***	***$235,698***	***$234,160***	***$231,286***	***$229,746***	***$226,869***	***$223,991***	***$222,446***	***$219,565***	***$218,017***	***$215,133***
Total Revenue	***$185,069***	***$191,759***	***$203,423***	***$207,201***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***
Expenditures																					
Direct Operating Expense																					
Wages																					
- Administrative	$13,000	$25,000	$25,000	$25,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
- Airport Manager	$0	$25,000	$25,000	$25,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
- Airport Project Manager	$0	$0	$0	$0	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000
- Airport Maintenance	$0	$0	$0	$0	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
- Maintenance Tech	$0	$0	$0	$0	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000	$47,000
Employee Benefits	$0	$0	$0	$0	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600	$63,600
Professional Services	$53,195	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598	$26,598
Office Supplies	$200	$200	$250	$250	$700	$700	$700	$700	$700	$700	$700	$700	$700	$700	$700	$700	$700	$700	$700	$700	$700
Telephone/Postage	$350	$350	$350	$350	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
Conferences/Seminars/ Travel	$500	$500	$500	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Membership Dues and Fees	$600	$600	$375	$375	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050	$1,050
Software Maintenance	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Vehicle Maintenance	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
Adverisement/Promotion	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Operating Supplies	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
Fuel	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Tools and equipment	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Insurance	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000	$24,000
Utilities	$7,900	$7,900	$30,600	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Total Direct Operating Expenses	***$108,245***	***$118,648***	***$141,173***	***$151,073***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***
Total Revenue	***$185,069***	***$191,759***	***$203,423***	***$207,201***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***
Total Expenses	***$108,245***	***$118,648***	***$141,173***	***$151,073***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***	***$380,448***
Operating Surplus/Deficit	***$76,824***	***$73,111***	***$62,250***	***$56,128***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***

Appendix A – Glossary Of Terms

Abbreviations

AC - Advisory Circular
ACIP - Airport Capital Improvement Program
ADF - Automatic Direction Finder
ADPM - Average Day of the Peak Month
AGL - Above Ground Level
AIP - Airport Improvement Program
ALP - Airport Layout Plan
ALS - Approach Lighting System
ARC - Airport Reference Code
ARFF - Airport Rescue and Fire Fighting
ARP - Airport Reference Point
ARTCC - Air Route Traffic Control Center
ASDA - Accelerate-Stop Distance Available
ASR - Airport Surveillance Radar
ASV - Annual Service Volume
ATC - Air Traffic Control
ATCT - Airport Traffic Control Tower
AVGAS - Aviation Gasoline
CBP - Customs and Border Patrol
CIP - Capital Improvement Program
CL - Centerline
CWCOG - Cowlitz-Wahkiakum Council of Governments
dBA - A-weighted Decibels
DH - Decision Height
DME - Distance Measuring Equipment
DNL - Day-Night Sound Levels
EA - Environmental Assessment
EIS - Environmental Impact Statement
EPA - The United States Environmental Protection Agency
FAA - Federal Aviation Administration
FAR - Federal Aviation Regulation
FBO - Fixed Based Operator
FSS - Flight Service Station
GA - General Aviation
GPS - Global Positioning System

IFR - Instrument Flight Rules
ILS - Instrument Landing System
INM - Integrated Noise Model
KLS - Southwest Washington Regional Airport
LATS - Washington State Department of Transportation – Aviation Division's Long-term Air Transportation Study.
LDA - Landing Distance Available
LIRL - Low-Intensity Runway Lights
LPV - Lateral Precision with Vertical Guidance
LNAV - Lateral Navigation
MALS - Medium-Intensity Approach Light System
MALSF - Medium-Intensity Approach Light System with sequence flashing lights
MALSR - Medium-Intensity Approach Lighting System with Runway Alignment Indicators
MGW - Maximum Gross Weight
MIRL - Medium-Intensity Runway Lights
MLS - Microwave Landing System
MSL - Mean Sea Level
NAVAID - Air Navigation Facility/Aid
NEXTGEN - Next Generation air Transportation System
NDB - Non-Directional Beacon
NPIAS - National Plan of Integrated Airport Systems
OFA - Object-Free Area
OFZ - Obstacle-Free Zone
PAPI - Precision Approach Path Indicator
RAIL - Runway Alignment Indicator Lights
REIL - Runway End Identifier Lights
RNAV - Area Navigation
RSA - Runway Safety Area
RPZ - Runway Protection Zone
TAF - FAA Terminal Area Forecasts
TODA - Take-Off Distance Available
TORA - Take-Off Run Available
UHF - Ultra High Frequency
VASI - Visual Approach Slope Indicator
VFR - Visual Flight Rules
VHF - Very High Frequency
WSDOT - Washington State Department of Transportation

Definitions

Active Aircraft - Aircraft registered with the FAA and reported to have flown during the preceding calendar year.

Activity - Used in aviation to refer to any kind of movement; e.g., cargo flights, passenger flights, or passenger enplanements. Without clarification, it has no particular meaning.

ADF - Automatic Direction Finder.

Advisory Circular (AC) - A series of Federal Aviation Administration (FAA) publications providing guidance and standards for the design, operation, and performance of aircraft and airport facilities.

AGL - Above Ground Level.

Airport Improvement Program (AIP) - A congressionally mandated program through which the FAA provides funding assistance for the development and enhancement of airport facilities.

Air Cargo - Commercial freight, including express packages and mail, transported by passenger or all-cargo airlines.

Air Carrier - An airline providing scheduled air service for the commercial transport of passengers or cargo.

Air Navigation Facility (NAVAID) - Although generally referring to electronic radio wave transmitters (VOR, NDB, and ILS), it also includes any structure or mechanism designed to guide or control aircraft involved in flight operations.

Air Route Traffic Control Center (ARTCC) - FAA-manned facility established to provide air traffic control services to aircraft operating in controlled airspace, en route between terminal areas. Although designed to handle aircraft operating under IFR conditions, some advisory services are provided to participating VFR aircraft when controller work loads permit.

Air Taxi - An air carrier certificated in accordance with FAR Part 135 and authorized to provide, on demand, public transportation of persons and property by aircraft. Air taxi operators generally operate small aircraft "for hire" for specific trips.

Aircraft Approach Category - A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight. The aircraft approach categories are:

Category A - Speed less than 91 knots;
Category B - Speed 91 knots or more but less than 121 knots;
Category C - Speed 121 knots or more but less than 141 knots;
Category D - Speed 141 knots or more but less than 166 knots; and
Category E - Speed 166 knots or more.

Aircraft Mix - The classification of aircraft into groups that are similar in size, noise, and operational characteristics.

Aircraft Operations - The airborne movement of aircraft. There are two types of operations, local and itinerant, defined as follows:

1. Local Operations are performed by aircraft that:
   (a) Operate in the local traffic pattern or within sight of the airport;
   (b) Are known to be departing for or arriving from a local practice area.

2. Itinerant operations are all others.

Airfield - A defined area on land or water including any buildings, installations, and equipment intended to be used either wholly or in part for the arrival, departure, or movement of aircraft.

Airplane Design Group - A grouping of airplanes based on wingspan. The groups are:

Group I:	Up to, but not including, 49 feet
Group II:	49 feet up to, but not including, 79 feet
Group III:	79 feet up to, but not including, 118 feet
Group IV:	118 feet up to, but not including, 171 feet
Group V:	171 feet up to, but not including, 214 feet
Group VI:	214 feet up to, but not including, 262 feet

Airport Layout Plan (ALP) - An FAA required map of an airport depicting existing and proposed facilities and uses, with clearance and dimensional information showing compliance with applicable standards.

Airport Reference Code (ARC) - A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. It is a combination of the aircraft approach category and the airplane design group.

Airport Reference Point (ARP) - The location at which the designated latitude and longitude for an airport are measured.

Airport Service Area - The geographic area that generates demand for aviation services at an airport.

Airport Traffic Area - Unless otherwise specifically designated, that airspace with a horizontal radius of five statute miles from the geographic center of any airport at which a control tower is operating, extending from the surface up to, but not including, 3,000 feet above the surface.

Airside - That portion of the airport facility where aircraft movements take place, airline operations areas, and areas that directly serve the aircraft (taxiway, runway, maintenance, and fueling areas). Also called the airport operations area.

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

Ambient Noise Level - Background noise level, exclusive of the contribution made by aircraft.

Annual Service Volume (ASV) - A reasonable estimate of an airport's annual capacity. It accounts for differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year's time.

Approach End of Runway - The near end of the runway as viewed from the cockpit of a landing aircraft.

Approach Surface - An imaginary surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of the runway based upon the planned approach. The inner edge of the approach surface is the same width as the primary surface and expands uniformly depending upon the planned approach.

Approved Instrument Approach - Instrument approach meeting the design requirements, equipment specifications, and accuracies, as determined by periodic FAA flight checks, and which are approved for general use and publication by the FAA.

Apron - A defined area where aircraft are maneuvered and parked and where activities associated with the handling of flights can be carried out.

ARFF - Aircraft Rescue and Fire Fighting.

ATC - Air Traffic Control.

ATCT - Airport Traffic Control Tower.

AVGAS - Aviation gasoline. Fuel used in reciprocating (piston) aircraft engines. Avgas is manufactured in the following grades; 80/87, 100LL, 100/130, and 115/145.

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

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

BRL - Building Restriction Line.

Capacity - (Throughput capacity). A measure of the maximum number of aircraft operations that can be accommodated on the airport component in an hour.

Capital Improvement Program (CIP) - A scheduled of planned projects and costs, often prepared and adopted by public agencies.

CAT I (one) - Category I Instrument Landing System that provides for approach to a height above touchdown of not less than 200 feet and with Runway Visual Range of not less than 1,800 feet.

CAT II (two) - Category II ILS approach procedure that provides for approach to a height above touchdown of not less than 100 feet and a RVR of not less than 1,200 feet.

CAT III (three) - Category III ILS approach that provides for an approach with no decision height and a RVR of not less than 700 feet.

Ceiling - The height above the ground of the base of the lowest layer of clouds or obscuring phenomena aloft that is reported as broken or overcast and not classified as scattered, thin, or partial. Ceiling figures in aviation weather reports may be determined as measured, estimated, or indefinite.

Circling Approach - An instrument approach procedure in which an aircraft executes the published instrument approach to one runway, the maneuvers visually to land on a different runway. Circling approaches are also used at airports that have published instrument approaches with a final approach course that is not aligned within 30 degrees of any runway.

Clear Zone - See Runway Protection Zone

Clearway - A clearway is an area available for the continuation of the take-off operation that is above a clearly defined area connected to and extending beyond the end of the runway. The area over which the clearway lies need not be suitable for stopping aircraft in the event of an aborted take-off. Clearways are applicable only in the take-off operations of turbine-engined aircraft.

Condemnation - Proceedings under which a property interest may be forcibly acquired. The government may condemn land through the power of eminent domain. An individual may then apply inverse condemnation to obtain just compensation for a property interest taken by the government without prior agreement.

Conical Surface - An imaginary surface extending outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

Control Areas - These consist of the airspace designated as Federal Airways, additional Control Areas, and Control Area Extensions, but do not include the Continental Control Areas.

Control Tower - A central operations facility in the terminal air traffic control system consisting of a tower cab structure using air/ground communications and/or radar, visual signaling, and other devices to provide safe and expeditious movement of air traffic.

Control Zones - Areas of controlled airspace that extend upward from the surface and terminate at the base of the continental control area. Control zones that do not underlie the continental control area have no upper limit. A control zone may include one or more airports and is normally a circular area with a radius of five statute miles and any extensions necessary to include instrument departure and arrival paths.

Controlled Airspace - Airspace designated as continental control area, control area, control zone, or transition area within which some or all aircraft may be subject to air traffic control.

Critical Aircraft - The aircraft which controls one or more design items based on wingspan, approach speed, and/or maximum certificated take off weight. The same aircraft may not be critical to all design items.

Crosswind - When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft.

dBA - Decibels measured on the A-weighted scale to factor out anomalies.

Decision Height (DH) - During a precision approach, the height (or altitude) at which a decision must be made to either continue the approach or execute a missed approach.

Declared Distances - The distances the airport owner declares available and suitable for satisfying an airplane's take-off distance, accelerated-stop distance, and landing distance requirements. The distances are:

> **Take-off run available (TORA)** - The runway length declared available and suitable for the ground run of an airplane taking off.
>
> **Take-off distance available (TODA)** - The TORA plus the length of any remaining runway and/or clearway (CWY) beyond the far end of the TORA.
>
> **Accelerate-stop distance available (ASDA)** - The runway plus stopway (SWY) length declared available and suitable for the acceleration and deceleration of an airplane aborting take-off.

Landing distance available (LDA) - The runway length declared available and suitable for a landing airplane.

Design Hour - The design hour is an hour close to the peak but not the absolute peak, which is used for airport planning and design purposes. It is usually the peak hour of the average day of the peak month.

Displaced Threshold - Actual touchdown point on specific runways designated due to obstructions that make it impossible to use the actual physical runway end.

Distance Measuring Equipment (DME) - An airborne instrument that indicates the distance the aircraft is from a fixed point, usually a VOR station.

DOT – U. S. Department of Transportation.

Effective Runway Gradient - The maximum difference between runway centerline elevations divided by the runway length, expressed as a percentage.

Eminent Domain - Right of the government to take property from the owner, upon compensation, for public facilities or other purposes in the public interest.

Environmental Assessment (EA) - A report prepared under the National Environmental Policy Act (NEPA), analyzing the potential environmental impacts of a federally funded project.

Environmental Impact Statement (EIS) - A report prepared under NEPA, fully analyzing the potential significant environmental impacts of a federally funded project.

EPA - The United States Environmental Protection Agency.

FAR Part 77 - Federal Aviation Regulations that establish standards for determining obstructions in navigable airspace.

Federal Aviation Administration (FAA) - A branch of the U.S. Department of Transportation responsible for the regulation of all civil aviation activities.

Fixed Base Operator (FBO) - An individual or company located at an airport providing commercial general aviation services.

Final Approach - The flight path of an aircraft that is inbound to the airport on an approved final instrument approach course, beginning at the point of interception of that course and extending to the airport or the point where circling for landing or missed approach is executed.

Fixed Wing - For the purposes of this report, any aircraft not considered rotorcraft.

Flight Plan - A description or outline of a planned flight that a pilot submits to the FAA, usually through a Flight Service Station.

Flight Service Station (FSS) - Air traffic facility operated by the FAA to provide flight service assistance such as pilot briefing, en route communications, search and rescue assistance, and weather information.

General Aviation - All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire.

Global Positioning System (GPS) - GPS uses a group of many satellites orbiting the earth to determine the position of users on or above the earth's surface. This system will provide at least non-precision approach capability to any airport having published instrument approach procedures.

HIRL – High-Intensity Runway Lights.

Horizontal Surface - A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs with a radius of 5,000 feet for all runways designated as utility or general; and 10,000 feet for all other runways from the center of each end of the primary surface and connecting the adjacent arc by tangent lines.

Instrument Flight Rules (IFR) - These rules govern the procedures for conducting instrument flight. Pilots are required to follow these rules when operating in controlled airspace with visibility of less than three miles and/or ceiling lower than 1,000 feet.

Instrument Landing System (ILS) - ILS is designed to provide an exact approach path for alignment and descent of aircraft. Generally consists of a localizer, glide slope, outer

marker, middle marker, and approach lights. This type of precision instrument system is being replaced by Microwave Landing Systems (MLS).

Instrument Runway - A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minimums has been approved.

Itinerant Operation - All aircraft operations at an airport other than local.

Local Operation - Aircraft operation in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.

LIRL – Low-Intensity Runway Lights.

Mean Sea Level (MSL) - Elevation above Mean Sea Level.

Medium-Intensity Approach Lighting (MALSR) - This system includes runway alignment indicator lights. An airport lighting facility that provides visual guidance to landing aircraft.

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

MIRL - Medium-Intensity Runway Lights.

Movement Area - The runways, taxiways, and other areas of the airport used for taxiing, takeoff and landing of aircraft, exclusive of loading ramps and parking areas.

Navigational Aid (NAVAID) - Any visual or electronic device, airborne or on the surface that provides point-to-point guidance information or position data to aircraft in flight.

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

Non-Precision Instrument Approach - An instrument approach procedure with only horizontal guidance or area-type navigational guidance for straight-in approaches.

Object Free Area (OFA) - A two-dimensional ground area surrounding runways, taxiways, and taxilanes that is clear of objects except those whose location is fixed by function.

Object Free Zone (OFZ) - The airspace defined by the runway OFZ and, as appropriate, the inner-approach OFZ and the inner-transitional OFZ, which is clear of object penetrations other than frangible NAVAIDS.

Runway OFZ - The airspace above a surface centered runway centerline.

Inner-approach OFZ - The airspace above a surface centered on the extended runway centerline. It applies to runways with an approach lighting system.

Inner-transitional OFZ - The airspace above the surfaces located on the outer edges of the runway OFZ and the inner-approach OFZ. It applies to precision instrument runways.

Obstruction - An object that penetrates an imaginary surface described in FAR Part 77.

Peaking Factor - The factor applied to the annual operations to determine the peak-hour activity.

Precision Approach Path Indicator (PAPI) - Provides visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity focused light beams.

Precision Instrument Approach - An instrument approach procedure in which electronic vertical and horizontal guidance is provided; e.g. ILS and MLS.

Primary Surface - A surface longitudinally centered on the runway, extending 200 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.

Rotorcraft (e.g. Helicopter) - A heavier-than-air aircraft supported in flight by the reactions of the air on one or more power-driven rotors on substantially vertical axis.

Runway End Identifier Lights (REIL) - These lights aid in early identification of the approach end of the runway.

Runway Protection Zone (RPZ) - The ground area under the approach surface which extends from the primary surface to a point where the approach surface is fifty feet above the ground. This was formerly known as the clear zone.

Runway Safety Area (RSA) - A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

Segmented Circle - A system of visual indicators designed to provide traffic pattern information at airports without operating control towers.

Touch and Go Operation - Practice flight performed by a landing touch down and continuous take off without stopping or exiting the runway.

Transitional Surfaces - These surfaces extend outward and upward at right angles to the runway centerline and the extended runway centerline at a slope of 7:1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of a precision approach surface which project through and beyond the limits of the conical surface extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

VASI - Visual Approach Slope Indicator. See definition of PAPI.

Visual Flight Rules (VFR) - Flight rules by which aircraft are operated by visual reference to the ground. Weather conditions for flying under these rules must include a ceiling greater than 1,000 feet, three-miles visibility, and standard cloud clearance.

Wind Coverage - Wind coverage is the percent of time for which aeronautical operations are considered safe due to acceptable crosswind components.

Wind Rose - A scaled graphical presentation of wind information.

Appendix B

Kelso Municipal Code Title 13, Chapter 13.12
Kelso Airport

CHAPTER 13.12
KELSO AIRPORT*

Sections:

Article IV. Minimum Standards for Fixed Base Operators and Airport Tenants

Article V. Penalties

*Prior history: Prior code Chs. 14.04 and 14.08.

Article I. General Provisions

13.12.010 DEFINITIONS.

As used in this chapter, unless the context requires otherwise:

A. “Air operations area” means any area of the airport used or intended to be used for landing, takeoff or surface maneuvering of aircraft.

B. “Airport” means the Kelso Airport owned or operated by the city, including facilities located at such airport.

C. “Airport manager” means the person to whom the city has delegated authority and responsibility for airport operations.

D. “Airport road” means those roads at an airport designed for vehicular use and intended for use by the general public.

E. “Areas designated for specific use” means those areas open to a segment of the general public for use for particular purposes, including but not limited to restaurants, retail stores and related facilities, and similar areas.

F. “City” means the city of Kelso.

G. “Official traffic sign” means all signs, signals, markings and devices placed or erected by the city for the purpose of guiding, directing, warning or regulating vehicular traffic.

H. “Operate an aircraft” includes taxiing, takeoff, flight or landing an aircraft.

I. “Public area” means those areas of an airport intended for use by the general public and not designated for a specific use or posted as a restricted area.

J. “Restricted areas” means any portion of the airport not intended for use by the general public posted by the city.

K. “Special aviation event” means any operation of aircraft at an airport for any purpose other than normal and customary use of the airport and its facilities.

L. “Vehicle” means every self-propelled vehicle capable of being used on a street or roadway.

M. “Vehicular parking and storage area” means those portions of the airport designated for the parking or storage of vehicles. (Ord. 3047 § 1, 1986)

13.12.020 AUTHORITY OF AIRPORT MANAGER.

A. With prior approval of the city council, the city manager or his or her designee shall have the authority to appoint and supervise an airport manager or enter into a contract with an independent contractor for those services otherwise provided by an airport manager. The city manager may delegate to the airport manager authority and responsibility of the city for the airport operations. These responsibilities may include enforcement of the rules and regulations set forth in this chapter or any other responsibilities as may be assigned or modified by the city manager or his designee.

B. At the discretion and supervision of the city manager or his designee, the airport manager shall at all times have authority to take such action as may be necessary to safeguard the public in attendance at the airport. All persons employed on or using the airport shall cooperate with the airport manager to enforce these rules and to see that all persons upon the premises use care and caution to prevent injury to persons or damage to property. (Ord. 3535 § 1, 2004; Ord. 3047 § 2.1, 1986)

13.12.030 OBSTRUCTION OF AIRPORT USE.

No person shall obstruct, impair or unreasonably interfere with the use of the airport by any other person, or obstruct, impair or unreasonably interfere with the passage or safe, orderly and efficient use of the airport by any other person, vehicle or aircraft. (Ord. 3047 § 2.4, 1986)

13.12.040 RESTRICTED AREAS.

No person shall enter any portion of the airport designated a “Restricted Area” unless authorized to do so by the airport manager. (Ord. 3047 § 2.8, 1986)

13.12.050 COMMERCIAL ACTIVITY.

No person shall engage in any public business or commercial activity at the airport without the prior written permission of the city. “Public business or commercial activity” includes but is not limited to any solicitation of data or statistical information, any advertisement or promotion of goods or services, any offer to sell, rent or lease goods or services or any offer to buy, rent or lease goods or services directed to the public, whether by a profitable, nonprofit or charitable organization. (Ord. 3047 § 2.2, 1986)

13.12.060 SOLICITATION OF CONTRIBUTIONS.

No person shall solicit the contribution of funds, goods or services at the airport for any purpose, whether charitable, nonprofit or otherwise. (Ord. 3047 § 2.3, 1986)

13.12.070 NOTICE OF NONBUSINESS OR NONCOMMERCIAL ACTIVITY.

No person shall distribute or display literature, picket, demonstrate or otherwise communicate views to the public at the airport without giving written notice of the intent to do so to the airport manager not less than one business day prior to engaging in such nonbusiness or noncommercial activity. Written notice may be on forms supplied by the airport manager and shall include:

A. The name, address and telephone number of the person sponsoring, promoting or otherwise organizing the activity;

B. A copy of the literature to be displayed or distributed and the text of any signs or other visual displays;

C. A description of the nature of the proposed activity;

D. The number of persons expected to participate and the date, hour, location, and anticipated duration of the proposed activity;

E. A statement that the person named under subsection A of this section has received, read and understands Sections 13.12.030 through 13.12.130 of this article. (Ord. 3047 § 2.5, 1986)

13.12.080 LIMITATIONS ON NONBUSINESS ACTIVITY.

No person, while engaging in an activity referred to in Section 13.12.070 of this article, shall:

A. Intrude upon any portion of the airport not open to the general public, or which is designated for a specific use;

B. Use sound or voice amplification systems, or radio communication systems, in areas of the airport where such systems are prohibited by city ordinance or regulation;

C. Violate any provision of this chapter. (Ord. 3047 § 2.6, 1986)

13.12.090 ACCIDENT REPORTS.

No person involved in an accident at the airport which results in damage to persons or property shall fail to promptly report such occurrence to the airport manager. (Ord. 3047 § 2.7, 1986)

13.12.100 SANITATION.

No person shall dispose of garbage, papers, refuse or other material on airport property except in receptacles provided for that purpose. Sanitation companies providing services on the airport shall use only equipment having an enclosed body. (Ord. 3047 § 2.12, 1986)

13.12.110 ABANDONMENT OF PROPERTY.

No person shall abandon any property on the airport. (Ord. 3047 § 2.11, 1986)

13.12.120 ANIMALS.

No person shall bring any animal upon the airport except:

A. Persons entering the vehicular parking and storage areas, provided the animal is restrained by a leash or other suitable means;

B. Persons delivering or receiving animals, provided the animal is restrained by a leash or other suitable means;

C. Blind persons using seeing-eye dogs. (Ord. 3047 § 2.9, 1986)

13.12.130 FIREARMS OR DESTRUCTIVE DEVICES.

A. No person shall carry or possess a firearm or destructive device on the airport except:

1. Firearms in a motor vehicle while the motor vehicle is upon the airport streets and roads, or in the motor vehicle parking and storage area;

2. Firearms enclosed in a carrying case or other container for shipment by air;

3. Firearms carried by peace officers, government employees or members of the Armed Forces of the United States, when such person is on official duty which authorizes the possession of a firearm.

B. “Destructive device” means a projectile containing an explosive, incendiary material or other chemical substance, or a bomb, grenade, missile or any other device creating an unreasonable risk of harm to persons or property. (Ord. 3047 § 2.10, 1986)

13.12.140 FIRE REGULATIONS.

The airport shall be governed by the regulations of the Fire Protection District No. 2 within whose boundaries it lies save where specifically directed by these rules and regulations. (Ord. 3047 § 5, 1986)

Article II. Aeronautical Regulations

13.12.150 AIRPORT OPERATION.

The airport manager, or his delegate, may, in his sole discretion, suspend or restrict any or all operations without regard to weather conditions whenever such action is deemed necessary in the interest of safety. (Ord. 3047 § 3.1, 1986)

13.12.160 OPERATION OF AIRCRAFT—GENERAL.

A. No person shall operate, service, maintain or repair any aircraft at the airport except in compliance with the regulations of the Federal Aviation Administration, the regulations of the city, and the provisions of this chapter.

B. No person shall operate any aircraft at the airport contrary to the restrictions set forth in a Notice to Airmen (NOTAMS) duly issued by the airport manager. (Ord. 3047 § 3.2, 1986)

13.12.170 USE OF AIRPORTS.

No person shall organize, promote or participate in any special aviation event, including but not limited to formation landings and takeoffs, without the prior approval of the Federal Aviation Administration and the prior written approval of the airport manager. (Ord. 3047 § 3.3, 1986)

13.12.180 FUELING AND DEFUELING OF AIRCRAFT.

A. Persons engaged in the fueling and defueling of aircraft shall exercise care to prevent spillage of fuel. In the event of a fuel spill, the airport manager and fire department shall be notified immediately.

B. All fueling or defueling of aircraft shall be conducted at least fifty feet from any hangar or other building.

C. Fuel shall not be transferred from one fuel tank truck to another, within one hundred feet of any building open flame, sparking device, source of ignition or group of people.

D. No aircraft, except helicopters, shall be fueled or defueled while the engine is running, being warmed by applications of exterior heat or while such aircraft is in a hangar or enclosed space.

E. No person shall start the engine of any aircraft while there is any fuel or other flammable liquid material on the ground under the aircraft.

F. Matches, cigarette lighters and other similar devices shall not be permitted on persons engaged in fueling or defueling operations.

G. Aircraft ground power generators shall be located as far as practical from aircraft fueling points and tank vents.

H. Electric hand lamps used in the immediate proximity of the fueling operations shall be of the “Underwriters's Approved” type.

I. No photo flashbulbs, electric tools, drills, buffers or similar tools which produce sparks or arcs shall be used in the immediate vicinity of aircraft during fueling operations.

J. Fueling vehicles shall, upon completion of fueling operations, be returned to their respective parking areas which shall not be located within fifty feet of any building or aircraft parking position.

K. Smoking equipment such as cigarette lighters and ashtrays shall not be installed in refueling vehicles. If vehicles have such equipment when initially procured, it shall be removed or rendered inoperable. Approved ashtrays shall be provided for areas where smoking is permitted.

L. Under no circumstances shall a fueling vehicle be left unattended at a bulk plant during the loading or unloading process. Loading or unloading shall not be considered complete until the hose is detached from both vehicle and tanks.

M. Care shall be taken in filling tanks at bulk plant to ensure that they are not filled to the point where they will overflow from heat expansion.

N. All aircraft shall be positively grounded when being fueled. Refueling vehicles must also be positively grounded to the aircraft and to an appropriate ground.

O. All persons engaged in fueling or defueling of aircraft shall be properly trained prior to servicing aircraft. It is the responsibility of the company or persons authorized by the city to provide such service to ensure that all persons engaged in the refueling operation be properly trained in accordance with FAA policy and procedures. (Ord. 3047 § 3.13, 1986)

13.12.190 ENGINE START AND RUNUP.

A. Aircraft engines shall be warmed up or run-up only in the places designated for such purposes by the airport manager.

B. No aircraft engine shall be started or run unless a licensed pilot or mechanic is attending the controls. Unless the aircraft is equipped with adequate brakes, the main landing wheels shall be chocked before starting the engine or engines.

C. When hand cranking is necessary, a licensed pilot or mechanic shall be at the controls and the wheels shall be chocked or adequate brakes set. (Ord. 3047 § 3.12, 1986)

13.12.200 TAXIING OF AIRCRAFT.

A. No person shall taxi an aircraft until he has ascertained by visual inspection of the area that there will be no danger of collision with any person or object.

B. Aircraft shall not be taxied under power into or out of any hangar.

C. All aircraft shall be taxied at a safe and reasonable speed that will assure complete control at all times and with regard for other aircraft, vehicles, persons and property.

D. No aircraft exceeding a gross weight of twelve thousand five hundred pounds shall be permitted to make a one-hundred-eighty-degree turn on any runway, taxiway or other airport property unless required to do so due to an operational necessity.

E. Aircraft conducting engine run-ups or awaiting takeoff shall stop short of the painted holding lines and be in a position so as to have a direct view of aircraft approaching for landings.

F. All aircraft being taxied, towed or otherwise moved on the airport shall proceed with running lights on during the hours between sunset and sunrise or other periods of reduced visibility. (Ord. 3047 § 3.10, 1986)

13.12.210 LANDING, TAKEOFFS AND TRAFFIC PATTERNS.

A. Landings and takeoffs shall be made into the wind on that runway most nearly aligned with the wind as indicated by the airport wind sock or as instructed by the airport's Unicom radio located on the airport, provided exceptions may be made when authorized by the airport manager or when unusual local conditions make inadvisable takeoffs and landings in any such direction.

B. No landing or takeoff shall be made except at a safe distance from buildings and aircraft.

C. No aircraft shall land or takeoff nor continue its approach to the runway or runway safety areas thereto when vehicles, equipment or personnel are on the runway or when the airport manager has closed the runway by placing a white “X” above the runway numerals.

D. No turns shall be made after takeoff until the airport boundary has been reached and the pilot has attained an altitude of at least four hundred feet and has ascertained there will be no danger of collision with other aircraft.

E. Aircraft landing or takeoff shall conform to the air traffic patterns marked as Exhibit “A-l” attached to the ordinance codified in this chapter, which are made by this reference, a part of this chapter on file in the office of the clerk-treasurer.

F. The standard traffic pattern for Kelso Airport is eight hundred feet AGL, left-hand landing Runway 29 and right-hand landing Runway 1.

G. Designated calm wind to five miles per hour is Runway 29. (Ord. 3047 § 3.4, 1986)

13.12.220 AIRCRAFT APRONS.

A. No person shall park aircraft on the airport other than as prescribed by the airport manager.

B. Aircraft shall be properly secured by the owner or operator of the aircraft when parked on the airport. Owners of such aircraft shall be held responsible for any damage resulting from failure to comply with this rule.

C. When the U.S. Weather Bureau issues a severe weather warning that will subject the airport to high wind velocities, aircraft may be moved and secured by the airport manager at the owner's expense and without liability for damage which may result in the course of such action. This action may be taken by the airport manager if in his sole discretion it is deemed necessary to prevent injury or damage to persons or property, but it shall not be incumbent for him to do so. (Ord. 3047 § 3.11, 1986)

13.12.230 STUDENT PILOT TRAINING.

No person shall operate or knowingly permit the operation of an aircraft at the airport for the purpose of training student pilots, including training in the use of radio navigations aids, except under the supervision of an FAA licensed flight instructor; if for hire, he must be an employee of an appropriate FBO. (Ord. 3047 § 3.5, 1986)

13.12.240 MAINTENANCE, REPAIR AND SERVICE OF AIRCRAFT.

No person shall repair, service or perform maintenance on any aircraft at the airport except:

A. At a commercial facility holding a permit from the city;

B. Preventive maintenance performed by a pilot or owner as specified in the regulations of the Federal Aviation Administration; or

C. Emergency repairs, service or maintenance authorized by the airport manager. (Ord. 3047 § 3.6, 1986)

13.12.250 HAZARDS TO AVIATION.

A. No person shall operate or release any model aircraft, rocket, kite, balloon, parachute or other article or substance upon or over the boundaries of the airport without the prior approval of the airport manager, except:

1. Persons parachuting from an aircraft in an emergency situation;

2. Persons releasing seeds, sprays, dusts or similar substances for horticultural or agricultural purposes over farms adjacent to the airport.

B. No person shall operate an aircraft within the airport control zone except as required for normal, routine use of the airport and its facilities. (Ord. 3047 § 3.7, 1986)

13.12.260 DAMAGED OR DISABLED AIRCRAFT.

A. No owner or operator of a damaged aircraft shall refuse, fail or neglect to promptly remove the damaged aircraft when failure to do so would obstruct or unreasonably interfere with the safe, orderly and efficient operation of the airport and when directed to do so by the airport manager, unless removal is contrary to the procedures and requirements of the National Transportation Safety Board.

B. No person shall park or store a damaged or disabled aircraft at the airport for more than forty-five days except:

1. When undergoing or awaiting repairs at a commercial repair facility holding a permit from the city;

2. When specifically authorized by prior written permission of the airport manager.

C. Aircraft not removed when required by subsection A of this section, or parked or stored in violation of subsection B of this section, may be removed to a suitable storage area designated by the airport manager. The owner or person is entitled to possession upon payment of the actual costs incurred in removal of the aircraft and storage charges as specified in the current rate schedule of the city, and acceptance of service of citation in lieu of arrest for the violation, if any, of this chapter.

D. As used in this section, “aircraft” includes parts and components of aircraft. (Ord. § 3.8, 1986)

13.12.270 GLIDER OPERATION PROCEDURES.

A. General Requirements.

1. Aircraft and gliders shall not land or take off on a taxiway without receiving prior permission of airport manager.

2. The glider operator assumes the responsibility for the separation of gliders and glider tow aircraft while operating on and in the vicinity of the airport.

3. Discretion shall be used in conducting glider operations during periods of moderate to heavy airport traffic.

B. Arrivals.

1. Upon entering the traffic pattern, gliders are committed to land. Soaring or other irregular maneuvers are not permitted after entering the traffic pattern. Once in the traffic pattern, no further circling is permitted.

2. All flight maneuvers conducted within two miles of the airport below two thousand feet aboveground level shall be those associated with landing and takeoff.

C. Departures.

1. Gliders shall not be positioned on runway for tow until tow aircraft is available and ready for immediate hookup and departure.

2. When preparing for tow, glider and tow aircraft shall be positioned so that glider, tow aircraft or tow rope does not obstruct the use of the runway or taxiway by other aircraft.

D. Ground Operations.

1. As soon as possible after landing, pilot and ground crew are responsible for moving glider clear of runway or landing area.

2. Vehicular traffic proceeding to and from the glider operating area via taxiways and runway shall be held to the absolute minimum necessary for the operation of the glider and tow aircraft. Private automobiles are not permitted on the taxiways and runways.

3. Personnel in the glider operating area shall be limited to the minimum required for flight and ground handling of the gliders. Spectators will be limited to four persons and shall be restricted to a designated area at least one hundred feet from the nearest edge of the runway.

4. Only those aircraft and vehicles directly associated with the glider operations shall be permitted in or near the glider operating area.

5. Unless otherwise authorized by the airport manager, ground crews, vehicles, gliders and glider tow aircraft shall be positioned at least one hundred feet from the nearest edge of the runway to allow other aircraft to land and depart. (Ord. 3047 § 3.14, 1986)

13.12.280 ULTRALIGHTS.

A. General Requirements.

1. Ultralight aircraft shall use the airport's east side parallel taxiway for landings and takeoffs. Ultralights shall not use the runway without receiving prior permission from the airport manager.

2. Ultralights are only to use the section of the east side parallel taxiway from a point adjacent to the Columbia Air Conventional Hangar to the southern- most end of the parallel taxiway. Ultralights must always yield to all aircraft using this parallel taxiway and shall not land or take off from the parallel taxiway when other aircraft are using the same facility.

3. Ultralights may use the grassed area east of the runway and west of the parallel taxiway only when there are no aircraft landing or taking off from the active runway. Simultaneous takeoffs and landings are prohibited on the Kelso Airport.

4. All ultralight operations are prohibited off of or directly adjacent to the ends of the Kelso runway.

5. All ultralight operations must conform to present and future Federal Aviation Administration or state rules and regulations.

6. Ultralight operations shall notify Kelso Unicom prior to and at termination of, ultralight activity on airport frequency 122.8, or (206) 423-4902, or in person at Aero West.

7. Vehicles and pedestrians shall use designated access routes.

8. Ultralights shall utilize the airport runway environment strictly for takeoff and landing only. Sightseeing will be done away from the Kelso Airport.

9. Failure of ultralight pilot or ground support crew to comply with any Kelso Airport regulation governing ultralight operations may result in revoking the privilege of using airport facilities.

B. Traffic Pattern.

1. The special traffic pattern for all ultralight operations at the Kelso Airport is three hundred feet AGL, right-hand landing to the north (Runway 29) and a left-hand landing to the south (Runway 11).

2. Aircraft landing or taking off shall conform to the attached ultralight air traffic pattern as marked Exhibit “A-2” which are made by this reference a part thereof on file in the office of the clerk-treasurer. The special traffic pattern shall extend east of the east parallel taxiway between the Columbia Air Conventional Hangar and the southernmost end of the parallel taxiway.

3. Ultralight flight operations will not exceed three hundred feet AGL within three nautical miles of the airport. (Ord. 3047 § 3.15, 1986)

13.12.290 HANDLING AND STORAGE OF HAZARDOUS MATERIAL.

A. Except with the prior written permission of the airport manager, no person shall keep, transport, handle or store at the airport any hazardous material.

B. As used in this section, “hazardous material” means those materials and articles barred from loading in or transportation by civil aircraft in the United States by regulations of the Federal Aviation Administration. (Ord. 3047 § 3.9, 1986)

Article III. Motor Vehicles

13.12.300 DRIVING ON ROADS, STREETS AND PARKING AREAS.

No person shall drive a vehicle in any public area of the airport except upon designated airport roads, streets and vehicular parking areas without the prior approval of the airport manager. (Ord. 3047 § 4.4, 1986)

13.12.310 USE OF ROADS AND STREETS.

The right to use any and all of the roads, streets, parking area or lots within the airport is revocable at any time by the city. Any designation of roads, streets, parking area or lot and/or the use thereof shall not in any way be construed as a dedication thereof. (Ord. 3047 § 4.11, 1986)

13.12.320 RESTRICTED AREAS.

A. Vehicles with an axle load exceeding forty-two thousand five hundred pounds are not permitted upon aircraft parking areas, service or perimeter roads without approval of the airport manager.

B. No vehicle shall be operated in or adjacent to the air operations area, with the exception of areas designated by the airport manager.

C. Aircraft shall have the right-of-way over vehicular traffic at all times. All vehicles shall pass to the rear of taxiing aircraft.

D. No person shall operate a vehicle at a speed which is greater than will permit the operator to exercise proper control, but in no case is the speed on the apron areas to exceed fifteen miles per hour, unless posted otherwise.

E. No person shall operate a vehicle without exhausts protected by screens or baffles to prevent the escape of sparks or the propagation of flame in the restricted area. (Ord. 3047 § 4.12, 1986)

13.12.330 BASIC SPEED LIMITS.

A. No person shall drive a vehicle upon the airport at a speed greater than is reasonable and prudent having due regard to traffic, surface and width of the roadway, the hazard at intersections, pedestrian traffic and other conditions then existing; except as provided in Section 13.12.340 of this chapter, in no event shall any person drive a vehicle upon the airport at a speed greater than designated in this chapter.

B. The speeds designated in Section 13.12.340 of this chapter do not apply to authorized emergency vehicles. However, the driver or operator of an authorized emergency vehicle shall not drive without due regard for the safety of all persons using the airport roadways.

C. As used in this section, “authorized emergency vehicle” means vehicles of the fire department, fire patrol, police vehicles, emergency vehicles of municipal or public service corporations and ambulances, while being used for emergency purposes and displaying the required lights and sounding a siren or other audible warning. (Ord. 3047 § 4.1, 1986)

13.12.340 DESIGNATED SPEED LIMITS.

No person shall drive a vehicle upon the airport at a speed greater than that posted by the city and by an official traffic sign. (Ord. 3047 § 4.2, 1986)

13.12.350 TRAFFIC SIGNS AND SIGNALS.

No person shall drive a vehicle upon the airport contrary to the instructions of any official traffic sign or signal, unless otherwise directed by a police officer, or to disobey the direction of any police officer directing traffic. (Ord. 3047 § 4.9, 1986)

13.12.360 ABANDONED OR UNREASONABLY PARKED VEHICLES.

A. No person shall abandon any vehicle upon the airport.

B. Any vehicle abandoned upon the airport, or any vehicle parked or stored contrary to this chapter and which obstructs or unreasonably interferes with the safe, efficient and orderly operation of the airport may be towed to a vehicular storage area designated by the airport manager.

C. The legal owner, owner or person entitled to possession of a vehicle placed in the storage area may reclaim the vehicle upon presentation of satisfactory proof of ownership or right of possession, upon payment of the actual costs incurred in the removal, preservation and custody of the vehicle, including actual towing fees, together with storage charges and acceptance of service of citation in lieu of arrest for violation of this chapter, if any, arising from the abandonment, parking or storing of the vehicle.

D. At any time after the vehicle has remained unclaimed in the storage area for not less than five days, the sheriff of the county in which the airport is located shall be notified and the vehicle released to such official for disposition as provided by law. (Ord. 3047 § 4.7, 1986)

13.12.370 VEHICLES IN RESTRICTED AREAS.

No person shall drive, park or store a vehicle in any restricted area of the airport except with the prior approval of the airport manager and in compliance with the terms and conditions of such approval. (Ord. 3047 § 4.6, 1986)

13.12.380 PARKING AND STORAGE OF VEHICLES.

No person shall park or store a vehicle in any public area of the airport except in areas specifically posted and designated for such purposes and in accordance with the posted and designated rules regulating parking and storage of vehicles, without the prior approval of the airport manager. (Ord. 3047 § 4.5, 1986)

13.12.390 REPAIRS TO VEHICLES.

No person shall clean or make any repairs to vehicles anywhere on the airport other than in designated areas, except emergency repairs necessary to remove such vehicle from the airport. (Ord. 3047 § 4.10, 1986)

13.12.400 DRIVING RECKLESSLY OR WHILE INTOXICATED.

No person shall drive a vehicle upon the airport carelessly and heedlessly in wilful wanton disregard of the rights and safety of others, or while being under the influence of intoxicating liquor, dangerous drugs or narcotic drugs. (Ord. 3047 § 4.3, 1986)

13.12.410 PEDESTRIAN CROSSWALKS.

No person shall drive a vehicle through a designated pedestrian crosswalk without stopping if the crosswalk is occupied by a pedestrian. (Ord. 3047 § 4.8, 1986)

Article IV. Minimum Standards for Fixed Base Operators and Airport Tenants

13.12.420 GENERALLY.

A. The city as owner of the Kelso Airport shall be referred to in this article as owner, the airport authority or lessor as the context indicates.

B. The minimum standards and requirements for commercial aeronautical activities set forth in this article have been established in the public interest for the safe and efficient operation of the Kelso Airport; to enhance its orderly growth; to preclude the granting of an exclusive right to conduct an aeronautical activity in violation of Section 308(a) of the Federal Aviation Act of 1958; to conform to Title VI of the Civil Rights Act of 1964 and Part 21 of the Department of Transportation Regulations; and to assure to all lessees the availability of airport property on fair and reasonable terms and without unjust discrimination. (Ord. 2653 § 1, 1976)

13.12.430 FIXED BASE OPERATOR—DEFINED— GENERAL COMPLIANCE REQUIREMENT.

A fixed base operator is defined as any person, firm or corporation performing any of the functions or furnishing any of the services set out in this article for fixed base operators at the Kelso Airport. No person, firm or corporation shall engage in any commercial activity as a fixed base operator as defined in this article or other commercial activity unless the same is done in full compliance with the standards, rules and regulations set forth in this article. (Ord. 2653 § 1 (1), 1976)

13.12.440 AIRPORT TENANT—DEFINED—GENERAL COMPLIANCE REQUIREMENT.

An airport tenant is defined as any person, firm or corporation leasing property at the Kelso Airport who is not a fixed base operator. An airport tenant may hangar his aircraft on his own leased or purchased property subject to the provisions of Section 13.12.760 of this code. (Ord. 2653 § 1 (2), 1976)

13.12.450 INSURANCE REQUIREMENTS.

All fixed base operators and airport tenants shall protect the public generally, the customers or clients of such fixed base operators and the city from any and all damages, claims or liability and shall carry comprehensive general liability insurance in a company authorized to do business in the state with limits of not less than one hundred thousand dollars per person, three hundred thousand dollars for each occurrence for personal injury and one hundred thousand dollars property damage with the city named as an additional insured, which policies must be approved by the city manager and a certificate of insurance thereof furnished to the city. It is further

understood that as circumstances in the future dictate, the city may require an increase in bodily injury and property damage insurance and may require fire legal liability insurance. (Ord. 2653 § 1 (3), 1976)

13.12.460 FINANCIAL SOLVENCY AND BUSINESS ABILITY—FACILITIES AND HOURS OF OPERATION.

A. A fixed base operator shall satisfy the lessor that it is technically and financially able to perform the services of a fixed base operator. This shall include the responsibility for demonstrating continued financial solvency and business ability by the submitting of an annual balance sheet, credit references and any other proof that the lessor may require from time to time. In cases of doubt by the lessor of such ability of a fixed base operator, the lessor may conduct a hearing to determine appropriate action. In each instance, the lessor shall be the final judge as to the qualifications and financial ability of the lessee.

B. All operators at the airport shall be full-time, financially sound and progressive business enterprises, with adequately manned and equipped facilities, including ample office facilities, and who observe normal or specifically required business hours. (Ord. 2653 § 1 (4), (9), 1976)

13.12.470 ELIGIBILITY REQUIREMENTS—RESTRICTION TO DESIGNATED CATEGORIES.

Any person, firm or corporation capable of meeting the minimum standards set forth in this article for any of the stated categories is eligible to become a fixed base operator at the airport, subject to the execution of a written lease for not less than five years containing such terms and conditions as may be determined by the authority. A fixed base operator or airport tenant shall not engage in any business or activity on the airport other than that authorized under his particular category or categories. Any fixed base operator desiring to extend his operation into more than one category or to discontinue operations in a category, shall first apply in writing to the airport authority for permission to do so, setting forth in detail the reasons and conditions for the request. The airport authority shall then grant or deny the request on such terms and conditions as the authority deems to be prudent and proper under the circumstances. Each fixed base operator shall provide his own buildings, personnel and equipment, and other requirements as stated in this article upon land leased from the authority. Provided, however, agreements authorizing business or activity on the airport where no lease of airport property being requested may be granted for periods of lesser duration than five years with city council approval. (Ord. 2964 § 1, 1984; Ord. 2653 § 1 (5), 1976)

13.12.480 LOUNGE AND RESTROOM REQUIREMENTS.

All fixed base operators at the airport shall provide ample lounges and restrooms for their customers and shall make telephone service conveniently and readily available for public use. (Ord. 2653 § 1 (6), 1976)

13.12.490 DESIGN AND CONSTRUCTION STANDARDS—BOND REQUIREMENTS.

All construction required of such operators shall be in accordance with design and construction standards required or established by the authority for the facility or activity involved. Title to any and all buildings and appurtenances, which may be built on authority property, shall revert to the authority, when and if the subject lessee vacates the lease for any reason. All operators shall be required to furnish the authority payment and performance bonds commensurate with any construction required under the standards fixed in this article or under any contract or lease by and between such operator and the authority. (Ord. 2653 § 1 (7), 1976)

13.12.500 APPROVAL OF RATES AND CHARGES.

The rates or charges for any and all activities and services of such operators shall be determined by the operators, subject to the approval of the authority, and subject, further, to the requirement that all such rates or charges shall be reasonable and be equally and fairly applied to all users of the services. (Ord. 2653 § 1 (8), 1976)

13.12.510 PAYMENT OF TAXES AND ASSESSMENTS.

All fixed base operators shall, at their own expense, pay all taxes and assessments against any buildings or other structures placed on the premises by them, as well as all taxes and assessments against their activities or the personal property used by them in their operation. (Ord. 2653 § 1 (10), 1976)

13.12.520 COMPLIANCE WITH LAWS REQUIRED.

All operators shall abide by and comply with all state, county and city laws and ordinances, the rules and regulations of the authority, and the rules and regulations of the state and Federal Aviation Administration. (Ord. 2653 § 1 (11), 1976)

13.12.530 AUTHORITY INVESTMENT GUARANTEE.

In the event the authority constructs the physical plant facilities (hangars, etc.) for use by any operator under the provisions of any lease or other contract, such lease or contract with such operators shall be on such terms and conditions as to guarantee a full return of the investment within ten years, plus interest and reasonable rental for use during such period. (Ord. 2653 § 1 (12), 1976)

13.12.540 PAYMENT OF UTILITY CHARGES.

All operators shall provide and pay for all lights, gas, electrical current, water, sewer charges and garbage collection charges used or incurred anywhere in or about the leased premises, and shall pay the charges made therefor by the suppliers thereof promptly when due. (Ord. 2653 § 1 (13), 1976)

13.12.550 LEASES SUBORDINATE TO FEDERAL AGREEMENTS.

All contracts and leases between such operators and the authority shall be subordinate to the provisions of any existing or future agreement between the city and the United States, relative to

the operation or maintenance of the airport, the execution of which has been or may be required as a condition precedent to the expenditure of federal funds for the development of the airport properties. (Ord. 2653 § 1 (14), 1976)

13.12.560 SUBLEASING—APPROVAL REQUIRED.

No fixed base operators shall sublease or sublet any premises leased by such operator from the airport authority, or assign any such lease, without the prior written approval of the authority, and any such subletting or assignment shall be subject to all of the minimum standards set forth in this article. (Ord. 2653 § 1 (15), 1976)

13.12.570 SUBLEASING—ASSUMPTION OF OBLIGATIONS.

In the event the lessee sublets any portion of his lease, the sublessee must agree to assume the full obligations of the lease as set out in this article and must agree to fully cooperate with the authority in seeing that these standards are complied with. The sublessee shall immediately comply with any reasonable request or direction of the authority as it relates to the enforcement of these standards. (Ord. 2653 § 1 (16), 1976)

13.12.580 SUBLEASING—COMPLIANCE DEFAULT—LEASE TERMINATION.

In the event that the lessee or sublessee fails to comply fully with these standards or fails to comply with the reasonable request or direction of the authority as it relates to these standards, the lessee or sublessee shall be in default. If the default continues for more than three days after notice of the default, the authority may terminate the lease. The lessee is responsible for the performance of the sublessee. (Ord. 2653 § 1 (17), 1976)

13.12.590 USE OF COMMON AREAS AND FACILITIES.

Fixed base operators shall have the right in common with others authorized so to do, to use common areas of the airport, including runways, taxiways, aprons, roadways, floodlights, landing lights, signals and other conveniences for the takeoff, flying and landing of aircraft of lessees. (Ord. 2653 § 1 (18), 1976)

13.12.600 LEASES—TERM—REEVALUATION OF RENTS.

Beginning with the effective date of adoption of these minimum standards, leases to fixed base operators and airport tenants shall be limited to a maximum of thirty years. In addition, leases shall, at the discretion of the authority, be subject to review and reevaluation at the end of each five-year period thereof, in relation to the Consumer Price Index. In this regard, when at the end of each of the five-year periods the cost of living index is determined by the authority to be five or more percent higher than at the date the lease became effective, the rental terms thereof may be increased to such percentage of increase or of the cost of living index. If at the end of such five-year period the cost of living index has changed less than five percent, the authority shall take no action to review or reevaluate the lease. (Ord. 2701 § 1, 1977; Ord. 2653 § 1 (19), 1976)

13.12.610 MAINTENANCE OF SERVICE—RATE LEVELS.

Lessees will, at all times during the continuance of the term of the lease and any renewal or extension thereof, conduct, operate and maintain for the benefit of the public, the fixed base operation provided for and described therein, and all aspects and parts and services thereof as defined and set forth, and will make all such services available to the public and that it will devote its best efforts for the accomplishment of such purposes and that it will at all times make charges to patrons and customers for all merchandise or materials and services furnished or rendered, but that it will refrain from imposing or levying excessive or otherwise unreasonable charges or fees for any facilities or services. (Ord. 2653 § 1 (20), 1976)

13.12.620 LEASE NONEXCLUSIVE.

Notwithstanding anything contained in a lease that may be or appear to the contrary it is expressly understood and agreed that the rights granted thereunder are nonexclusive and the lessor reserves the right to grant similar privileges to another operator or operators on other parts of the airport when, in its sole discretion, the authority feels a need exists. (Ord. 2653 § 1 (20), 1976)

13.12.630 OBSTRUCTIONS AND HAZARDS.

The authority reserves the right to take any actions it considers necessary to protect the aerial approaches to the airport against obstructions, together with the right to prevent any fixed base operator from erecting, or permitting to be erected, any building, sign or other structure on the airport which, in the opinion of the authority, would limit the usefulness of the airport or constitute a hazard to aircraft. (Ord. 2653 § 1 (21), 1976)

13.12.640 WAR OR NATIONAL EMERGENCY.

All contracts and leases between such operators and the authority shall be subordinate to the right of the authority during time of war or national emergency to lease the landing area or any part thereof to the United States Government for military or naval use, and, if any such lease is so made, the provisions of any contracts or leases between the authority and lessees in conflict with the provisions of the lease to the government shall be suspended. (Ord. 2653 § 1 (22), 1976)

13.12.650 EXISTING LEASES PROTECTED.

The provisions of these standards shall in no way negate or cause to be null or void existing leases with fixed base operators or airport tenants at the airport. No new leases will be executed or extended with fixed base operators presently located at the airport on the effective date of these fixed base operator minimum standards, nor will amendments to existing leases be executed unless the present leases are made subject to the provisions of these standards. (Ord. 2653 § 1 (23), 1976)

13.12.660 MAINTENANCE OF PREMISES.

The lessee shall remove from the airport or otherwise dispose of in a manner approved by the authority, all garbage, debris and other waste material (whether solid or liquid) arising out of its occupancy of the premises or out of its operations. The lessee shall keep and maintain his leased premises in a neat and orderly manner, lessee shall keep the grass cut and the buildings painted. Any garbage, debris or waste which may be temporarily stored in the open shall be kept in suitable garbage or waste receptacles, the same to comply with other ordinances of the city and health department regulations. The lessee shall use extreme care when effecting removal of all such waste. (Ord. 2653 § 1 (24), 1976)

13.12.670 FURTHER DEVELOPMENT.

The authority reserves the right to further develop or improve all areas of the airport as it sees fit, regardless of the desires or views of any fixed base operators, and without interference or hindrance from any such fixed base operators. (Ord. 2653 § 1 (25), 1976)

13.12.680 ENFORCEMENT—RIGHT OF ENTRY FOR INSPECTION.

The authority reserves the right to enter upon any premises leased to fixed base operators at reasonable times for the purpose of making such inspections as it may deem expedient, to the proper enforcement of these minimum standards and for the proper enforcement of any covenant or condition of any fixed base operator's contract or lease agreement. (Ord. 2653 § 1 (26), 1976)

13.12.690 FIXED BASE OPERATOR CATEGORY A—FLIGHT INSTRUCTION AND AIRCRAFT RENTAL.

A fixed base operator in category A shall:

A. Have available on a full-time employment basis a minimum of one instructor pilot with appropriate and current Federal Aviation Administration pilot and medical certificates;

B. Provide and at all times maintain a minimum of two aircraft owned or leased by and under the exclusive control of this fixed base operator which are properly equipped and Federal Aviation Administration certificated for flight instruction and rental;

C. Lease from the authority a minimum of land on which will be located all required improvements and provide a minimum of one thousand square feet of classroom and/or office space, including restrooms and in addition, adequate parking space for customers;

D. Demonstrate the continuing ability to meet requirements for certification of night instructor personnel and aircraft by the Federal Aviation Administration;

E. Assure that personnel operating rental equipment obtained from the subject fixed base operator have appropriate and current Federal Aviation Administration pilot and approved medical certificates;

F. Operators may have available for lease or sale to his patrons, aircraft accessories and supplies personal to them. (Ord. 2670 § 1 (a), 1977; Ord. 2653 § 1, 1976)

13.12.700 FIXED BASE OPERATOR CATEGORY B— AIRCRAFT CHARTER, TAXI, AIR WATCH AND RELATED ACTIVITIES.

A fixed base operator in category B shall:

A. Have available on a full-time employment basis a minimum of one Federal Aviation Administration certificated pilot with current commercial and instrument ratings and approved medical certificate;

B. Lease from the airport authority or provide under terms agreeable to the city for his exclusive use a minimum of one thousand square feet in a building for passenger shelter, restrooms, telephone, and which may include food services to the public;

C. Provide satisfactory arrangements for the checking-in of passengers, handling of luggage, ticketing and ground transportation, etc.;

D. Provide and at all times maintain a minimum of two currently certified and continuously airworthy aircraft owned or leased by and under the exclusive control of this fixed base operator, properly certificated for air charter or air taxi service;

E. Lease from the airport authority a minimum of land on which will be located all required improvements. (Ord. 2670 § 1 (b), (c), 1977; Ord. 2653 § 1, 1976)

13.12.710 FIXED BASE OPERATOR CATEGORY C—CROP DUSTING, FIRE FIGHTING AND RELATED ACTIVITY.

A fixed base operator in category C shall:

A. Furnish suitable arrangements for the safe loading, unloading, storage and containment of noxious chemical materials;

B. Furnish a minimum of one aircraft with pilot. The aircraft will be suitably equipped for agricultural operations with adequate safeguard against spillage of chemical spray mixtures or materials on runways and taxiways or dispersal by wind force to other operational areas of the airport. The pilot will have appropriate and current Federal Aviation Administration pilot and approved medical certificates;

C. Lease from the authority a minimum of land on which will be located all required improvements and lease from the authority or provide under terms agreeable to the authority for his exclusive use a minimum of one thousand square feet of shop or storage space and vehicle parking. (Ord. 2653 § 1, 1976)

13.12.720 FIXED BASE OPERATOR CATEGORY D—AIRCRAFT SALES.

Fixed base operators in category D shall:

A. Have a sales or distributorship franchise from a recognized aircraft manufacturer;

B. Have available during normal working hours of 8 a.m. to 5 p.m. Federal Aviation Administration certificated and currently airworthy aircraft for sale;

C. Have a minimum of one fully qualified demonstrator pilot employed with current and appropriate Federal Aviation Administration pilot and approved medical certificates;

D. Lease from the authority a minimum of land on which will be located all required improvements and lease from the authority or provide under terms agreeable to the authority for his exclusive use a minimum of one thousand square feet of office space and customer parking. (Ord. 2653 § 1, 1976)

13.12.730 FIXED BASE OPERATOR CATEGORY E—AIRCRAFT, ENGINE, PROPELLER AND ACCESSORY MAINTENANCE.

Fixed base operators in category E shall:

A. Lease from the authority or provide under terms agreeable to the authority for his exclusive use a minimum of five thousand square feet of hangar, shop and storage space;

B. Furnish facilities and equipment for airframe and power plant repairs with at least one duly Federal Aviation Administration certified A & P mechanic and such other personnel as may be necessary. Such airframe and power plant repair shall include facilities for both major and minor repair of aircraft and engines used in private aviation in this area;

C. Demonstrate the ability to and assume responsibility for promptly removing from the public landing area as soon as permitted by cognizant Federal Aviation Administration and Civil Aeronautics Board authorities any disabled aircraft;

D. Lease from the authority a minimum of land on which will be located all required improvements;

E. A fixed base operator in category E may engage in the buying and selling of new and used aircraft, aircraft parts and equipment without meeting the requirements of category D. (Ord. 2653 § 1, 1976)

13.12.740 FIXED BASE OPERATOR CATEGORY F—RADIO AND INSTRUMENT.

Fixed base operators in category F shall:

A. Lease from the authority a minimum of land on which shall be located all required improvements; lease from the authority or provide under terms agreeable to the authority for his exclusive use a minimum of one thousand square feet of shop and storage space;

B. Have available on a full time basis Federal Aviation Administration certificated technicians in the field of aircraft electronics and/or aircraft instruments with proper Federal Communications Commission license to conduct complete aircraft transmitter, receiver and antennae repair;

C. Provide satisfactory arrangements for access to and storage of aircraft being worked on. (Ord. 2653 § 1, 1976)

13.12.750 FIXED BASE OPERATOR CATEGORY G—SALE OF AVIATION PETROLEUM PRODUCTS AND RAMP SERVICE.

A fixed base operator in category G shall:

A. Provide and maintain a minimum of two-thousand-gallon tank storage capacity below ground for each grade of aviation fuel usually required for aircraft using the airport;

B. Maintain separate pumping equipment for each grade of fuel meeting all applicable safety requirements with reliable metering devices subject to independent inspection and with a pumping efficiency capable of servicing all aircraft normally using the airport;

C. Provide and maintain metered filter-equipped dispensers fixed or mobile for dispensing each grade of aviation fuel usually required. Mobile dispensing truck(s) shall have a minimum of three-hundred-gallon capacity;

D. There shall be no fueling direct from a common carrier transport truck except into below-ground storage tanks;

E. Have personnel on full-time duty during normal business hours of 8 a.m. to 5 p.m. seven days a week;

F. Lease from the authority a minimum of land on which will be located all required improvements for aircraft parking and tie-down areas with adequate tie-down facilities including approved ropes and chocks, for a minimum of ten aircraft. Demonstrate capability to efficiently

and safely conduct or move aircraft to such areas and park them in compliance with all local regulations;

G. Be required to install at all fueling locations adequate grounding rods to reduce the hazards of static electricity and maintain adequate fire extinguishers;

H. Construct or have available a building with a minimum of eight hundred square feet conveniently located and comfortably heated with waiting room for passengers and crew of itinerant aircraft while being fueled, including sanitary restrooms and public telephone;

I. A fixed base operator in category G may engage in the buying and selling of new and used aircraft, aircraft parts and equipment without meeting the requirements of category D. (Ord. 2653 § 1, 1976)

13.12.760 FIXED BASE OPERATOR CATEGORY H—AIRPORT TENANT.

An airport tenant in category H shall:

A. Lease from the authority or provide under terms agreeable to the authority for his exclusive use land which shall be improved in accordance with applicable zoning and building codes pertaining to the airport;

B. Be prohibited from engaging in any of the activities of fixed base operators defined by category A through G, unless specifically approved by the authority in the lease agreement between the authority and the tenant;

C. Be responsible that aircraft owned by him or operated from the property leased or occupied by him are operated by personnel who hold appropriate and current Federal Aviation Administration pilot and approved medical certificates. (Ord. 2653 § 1, 1976)

13.12.770 FIXED BASE OPERATOR CATEGORY I—FLYING CLUBS.

A. The following requirements pertain to all flying clubs desiring to base their aircraft on the airport and be exempt from the minimum standards;

B. Each club must be a nonprofit corporation or partnership. Each member must be a bona fide owner of the aircraft or a stockholder in the corporation. The club may not derive greater revenue from the use of its aircraft than the amount necessary for the actual use of operation, maintenance and replacement of its aircraft. The club will file and keep current with the airport owner a complete list of the club's membership and investment share held by each member;

C. The club's aircraft will not be used by other than bona fide members for rental and by no one for commercial operations as defined by category A through G. Student instruction can be given in club aircraft to club members provided such instruction is given by a lessee based on the airport who provides flight training or by an instructor who shall not receive remuneration in any manner for such service;

D. In the event that the club fails to comply with these conditions the airport owner will notify the club in writing of such violations. If the club fails to correct the violations in fifteen days, the airport owner may take any action deemed advisable;

E. Each aircraft owned by the flying club must have aircraft liability insurance coverage for the following amounts:

Aircraft Liability	
Bodily injury	$100,000 each person
	$300,000 each accident
Property damage	$100,000 each accident

(Ord. 2653 § 1, 1976)

Article V. Penalties

13.12.780 VIOLATION—PENALTY.

Any person violating this chapter is guilty of a misdemeanor and upon conviction shall be punished by a fine of not more than five hundred dollars. (Ord. 3047 § 6.1, 1986)

13.12.790 ADDITIONAL PENALTIES.

In addition to prosecution under Section 13.12.420 of this chapter, any person violating this chapter may be ejected from the airport and may be deprived of the privilege to use the airport and its facilities. (Ord. 3047 § 6.2, 1986)

Airport Utilization

Southwest Washington Regional Airport
Base Case - Y2007

Total Annual Operations: 40,860

Departures: 20,430 *Calculated: (20,430)*

Local Operations: 19,912 = *INM TGO: (4,978)*

Runways

	End	-	End	Percent Use	Departures
1	12	-	30	100.0%	20,430
2		-		0.0%	-
3		-		0.0%	-
4		-		0.0%	-
5		-		0.0%	-
6		-		0.0%	-
7		-		0.0%	-
8		-		0.0%	-
Calculated Total:				100.0%	20,430

Runway Departure Utilization

Rwy End	Percent Use	Departures
12	50.0%	10,215
30	50.0%	10,215
-		-
-		-
-		-
-		-
-		-
-		-
-		-
-		-
-		-
-		-
-		-
-		-
Calculated Total:	100.0%	20,430

Notes:

AC 150/5070-6B

(incl. Chg. 1, 5/1/07)

Appendix D Airport Layout Plan Drawing Set

The following list provides general guidelines in preparing the Airport Layout Plan drawing set. The individual sheets that comprise the Airport Layout Plan drawing set will vary with each planning effort. During the project scoping activities, planners must determine which sheets will be necessary. Checklists from FAA Regional and District Offices and many state aviation offices may supplement the guidance provided in this Appendix. Since these checklists are comprehensive, not all items will be applicable to a specific project.

Drawing	Yes	No	N/A	Remarks
1. AIRPORT LAYOUT DRAWING				
a. Sheet size – Minimum 24" x 36"	X			
b. Scale –Within a range of 1" = 200' to 1" = 600'	X			
c. North Arrow				
1) True and Magnetic North	X			
2) Year of the magnetic declination	X			
3) Orient drawing so that north is to the top or left of the sheet	X			
d. Wind Rose				
1) Data source and the time period covered	X			
2) Include individual and combined coverage for:				
a) Runways with 10.5 knots crosswind	X			
b) Runways with 13 knots crosswind	X			
c) Runways with 16 knots crosswind	X			
d) Runways with 20 knots crosswind	X			
e. Airport Reference Point (ARP) – Existing and ultimate, with latitude and longitude to the nearest second based on NAD 83	X			
f. Ground contours at intervals of 2' to 10', lightly drawn	X			
g. Elevations (Existing and Ultimate to 1/10 of a foot)				
1) Runway	X			
2) Displaced thresholds		X		No displaced thresholds at KLS
3) Touchdown zones	X			
4) Intersections	X			
5) Runway high and low points	X			
6) Roadways where they intersect the RPZ edges and extended runway centerlines	X			

Drawing	Yes	No	N/A	Remarks
7) Structures on Airport--If a terminal area plan is not included, show structure top elevations on this sheet.	X			Included on the General Aviation Plan
h. Building limit lines – Show on both sides of the runways and extend to the airport property line or RPZ.	X			
i. Runway Details (Existing and Ultimate)				
1) Dimensions – length and width within the outline of the runway	X			
2) Orientation – Runway end numbers and true bearing to the nearest 0.01 degree	X			
3) Markings	X			
4) Lighting – Threshold lights only	X			
5) Runway Safety Areas--Dimensions may be included in the Runway Data Table	X			
6) End Coordinates – Note near end (existing and ultimate) of each runway end, to nearest 0.01 second	X			
7) Displaced threshold coordinates, to the nearest 0.01 second	X			
8) Declared Distances – For each runway direction if applicable. Identify any clearway/stopway portions in the declared distances		X		Declared distances are only applicable in the interim time period when the City constructs a stopway but does not recognize it as a full runway
j. Taxiway details (Existing and Ultimate)				
1) Taxiway widths and separations from the runway centerlines, parallel taxiway, aircraft parking, and objects	X			
k. RPZ Details (Existing and Ultimate)				
1) Dimensions	X			
2) Type of property acquisition (fee or easement)	X			
l. Approach slope ratio (20:1; 34:1; 50:1)	X			
m. Airport Data Table (Existing and Ultimate)				
1) Airport elevation (MSL)	X			
2) Airport Reference Point data	X			
3) Mean maximum temperature	X			
4) Airport Reference Code for each runway	X			
5) Design Aircraft for each runway or airfield component	X			
n. Runway Data Table (Existing and Ultimate)				
1) Percent effective gradient				

Drawing	Yes	No	N/A	Remarks
2) Percent wind coverage	X			
3) Maximum elevation above MSL	X			
4) Runway length and width	X			
5) Runway surface type	X			
6) Runway strength	X			
7) FAR Part 77 approach category	X			
8) Approach type	X			
9) Approach slope	X			
10) Runway lighting (HIRL, MIRL, LIRL)	X			
11) Runway marking	X			
12) Navigational and visual aids	X			
13) RSA dimensions	X			
o. Title and Revision Blocks				
1) Name and location of the airport	X			
2) Name of preparer	X			
3) Date of drawing	X			
4) Drawing title	X			
5) Revision block	X			
6) FAA disclaimer	X			
7) Approval block	X			
p. Other				
1) Standard legend	X			
2) Existing and Ultimate airport facility and building list	X			
3) Location map	X			
4) Vicinity map	X			
2. AIRPORT AIRSPACE DRAWING				
a. Plan view of all FAR Part 77 surfaces, based on ultimate runway lengths	X			
b. Small scale profile views of existing and ultimate approaches	X			
c. Obstruction data tables, as appropriate	X			
d. Sheet size – same as the airport layout drawing	X			
e. Scale – 1” = 2,000’ for the plan view; 1” = 1,000’ for approach profiles; and 1” = 100’ (vertical) for approach profiles	X			
f. Title and revision blocks - same as the airport layout drawing	X			

Drawing	Yes	No	N/A	Remarks
g. Approach Plan View Details				
1) USGS for base map	X			
2) Show runway end numbers	X			
3) Include 50’ elevation contours on all slopes	X			
4) Show the most demanding surfaces with solid lines and others with dashed lines	X			
5) Identify top elevations of objects that penetrate any of the surfaces. For objects in the inner approach, add note “See inner portion of the approach plan view for close-in obstructions.”	X			
6) For precision instrument runways, show balance of 40,000’ approach on a separate sheet.		X		No Precision approaches recommended
h. Approach Profile Details				
1) Depict the ground profile along the extended runway centerline representing the composite profile, based on the highest terrain across the width and along the length of the approach surface.	X			
2) Identify all significant objects (roads, rivers, and so forth) and top elevations within the approach surfaces, regardless of whether or not they are obstructions	X			
3) Show existing and ultimate runway ends and FAR Part 77 approach slopes.	X			
3. INNER PORTION OF THE APPROACH SURFACE DRAWING				
a. Large scale plan views of inner portions of approaches for each runway, usually limited to the RPZ areas	X			
b. Large scale projected profile views of inner portions of approaches for each runway, usually limited to the RPZ areas	X			
c. Interim stage RPZs when plans for interim runways extensions are firm and construction is expected in the near future		X		No interim Stages shown
d. Sheet size – Same as Airport Layout drawing				
e. Scale – Horizontal 1” = 200’; vertical 1” = 20’	X			
f. Title and revision blocks – Same as for Airport Layout drawing	X			
g. Plan View Details				
1) Aerial photos for base maps		X		Aerial photos not available
2) Numbering system to identify obstructions				

Drawing	Yes	No	N/A	Remarks
3) Depict property line	X			
4) Identify, by numbers, all traverse ways with elevations and computed vertical clearance in the approach	X			
5) Depict the existing and ultimate physical end of the runways. Note runway end number and elevation	X			
6) Show ground contours, lightly drawn	X			
h. Profile View Details				
1) Depict terrain and significant items (fences, roadways, and so forth)	X			
2) Identify obstructions with numbers on the plan view	X			
3) Show roads and railroads with dashed lines at edge of the approach	X			
i. Obstruction Table Details				
1) Depict terrain and significant items (fences, roadways, and so forth)	X			
2) Identify obstructions with numbers on the plan view	X			
3) Show roads and railroads with dashed lines at edge of the approach	X			
4) Prepare a separate table for each RPZ	X			
5) Include obstruction identification number and description, the amount of the approach surface penetration, and the proposed disposition of the obstructions	X			
4. TERMINAL AREA DRAWING				
The need for this drawing will be decided on a case-by-case basis. For small airports, where the Airport Layout drawing is prepared to a fairly large scale, a separate drawing for the terminal area may not be needed.				
a. Large scale plan view of the area or areas where aprons, buildings, hangars, and parking lots are located	X			
b. Sheet size – Same as Airport Layout drawing	X			
c. Scale – Range of 1” = 50’ to 1” = 100’	X			
d. Title and revision blocks – Same as for Airport Layout drawing	X			
e. Building Data Table – To list structures and show pertinent information about them. Include space and columns for:				
1) A numbering system to identify structures				

Drawing	Yes	No	N/A	Remarks
2) Top elevation of structures	X			
3) Existing and planned obstruction markings	X			
5. LAND USE DRAWING				
a. Include all land uses (industrial, residential, and so forth), on and off the airport, to at least the 65 DNL contour	X			
b. Sheet size – Same as Airport Layout drawing	X			
c. Scale – Same as the Airport Layout drawing	X			
d. Title and revision blocks – Same as for Airport Layout drawing	X			
e. Aerial base map	X			
f. Legend (symbols and land use descriptions)	X			
g. Identify public facilities (such as schools, parks, and other)	X			
h. Drawing details – Normally limited to existing and future airport features (i.e., runways, taxiways, aprons, RPZs, terminal buildings and navigational aids)	X			
6. RUNWAY DEPARTURE SURFACES DRAWING				
a. Large scale plan views of departure surfaces for each runway end that is designated primarily for instrument departures. The one-engine inoperative (OEI) obstacle identification surface (OIS) should be shown for any departure runway end supporting air carrier operations.	X			
b. Large scale projected profile views of departure surfaces for each runway that is designated primarily for instrument departures.	X			
c. Sheet size – Same as Airport Layout drawing	X			
d. Scale – Horizontal 1” = 1000’; vertical 1” = 100’ (runway departure surfaces); and Scale – Horizontal 1” = 2000’; vertical 1” = 100’ (OEI obstacle identification surfaces)	X			
e. Title and revision blocks – Same as for Airport Layout drawing	X			
f. Plan View Details				
1) Aerial photos for base maps		**X**		Aerial photos not available
2) Numbering system to identify obstructions	X			
3) Depict property line, including easements	X			
4) Identify, by numbers, all traverse ways with elevations and computed vertical clearance in the departure surface	X			

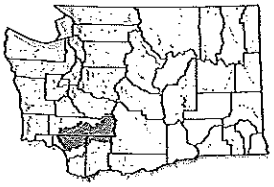
Drawing	Yes	No	N/A	Remarks
5) Depict the existing and ultimate physical end of the runways. Note runway end number and elevation	X			
6) Show ground contours, lightly drawn	X			
g. Profile View Details				
1) Depict terrain and significant objects, including fences, roadways, rivers, structures, and buildings.	X			
2) Identify obstructions with numbers on the plan view	X			
3) Show roads and railroads with dashed lines at edge of the departure surface	X			
h. Obstruction Table Details				
1) Depict terrain and significant objects, including fences, roadways, rivers, structures and buildings	X			
2) Identify obstructions with numbers on the plan view	X			
3) Show roads and railroads with dashed lines at edge of the approach	X			
4) Prepare a separate table for each departure surface	X			
5) Include obstruction identification number and description, the amount of the departure surface penetration, and the proposed disposition of the obstructions	X			
7. AIRPORT PROPERTY MAP				
a. Sheet size – Same as Airport Layout drawing	X			
b. Scale – Same as the Airport Layout drawing	X			
c. Title and revision blocks – Same as for Airport Layout drawing	X			
d. Legend	X			
e. Data Table				
1) A numbering or lettering system to identify tracts of land	X			
2) The date the property was acquired	X			
3) The Federal aid project number under which it was acquired	X			
4) Type of ownership (fee, easement, federal surplus, and others)	X			

f. Show existing and future airport features (i.e., runways, RPZs, navigational aids and so forth) that would indicate a future aeronautical need for airport property.				

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 · Olympia, Washington 98504-7775 · (360) 407-6300
711 for Washington Relay Service · Persons with a speech disability can call 877-833-6341

November 10, 2010

Nancy Malone, Assoicate Planner
City of Kelso
Community Development Department
203 South Avenue Suite 208
Kelso WA 98626



Your address is in the **Cowlitz** watershed

Dear Ms. Malone:

Thank you for the opportunity to comment on the determination of nonsignificance for the Southwest Washington Regional Airport Master Plan project (SEPA #10-012) as proposed by David Sypher, City of Kelso. The Department of Ecology (Ecology) reviewed the environmental checklist and has the following comment(s):

WASTE 2 RESOURCES: Mike Drumright (360) 407-6397

This is a planning document and therefore individual projects mentioned in the plan that may have an environmental impact will be dealt with in its own SEPA process as it relates to that specific project action.

Ecology's comments are based upon information provided by the lead agency. As such, they may not constitute an exhaustive list of the various authorizations that must be obtained or legal requirements that must be fulfilled in order to carry out the proposed action.

If you have any questions or would like to respond to these comments, please contact the appropriate reviewing staff listed above.

Department of Ecology
Southwest Regional Office

(SM: 10-5628)

cc: Mike Drumright, W2R
David Sypher, City of Kelso (Applicant/Contact)

NOTICE OF
DETERMINATION OF NONSIGNIFICANCE (DNS)
City of Kelso
Southwest Washington
Regional Airport
Master Plan
SEPA #10-012

Description of Proposal: A non-project legislative action to update the Southwest Washington Regional Airport Master Plan for 2010-2030 to include facility expansion, maintenance, enhancement, phasing, financing and construction of individual projects, i.e. runway extension and hangar development, etc.

Proponent(s): City of Kelso
P. O. Box 819
203 S. Pacific Ave. Ste. #208
Kelso, WA 98626

Location of proposal, including street address, if any: All areas within the boundaries of the Southwest Regional Airport, City of Kelso.

Lead Agency: The City of Kelso is the lead agency for this proposal. The city has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030 (2) (C). This determination was made after review of a completed environmental checklist and other information on file with the lead agency. An initial determination has been made that the project is consistent with applicable regulation and the Comprehensive Plan of the City of Kelso. The Lead Agency will not act on this proposal for fifteen (15) days from the date of issuance. You may submit comments on this proposal to the address below before 5 p.m. on November 10, 2010.

RESPONSIBLE OFFICIAL: Michael P. Kerins, Community Development Director
203 S. Pacific Ave. Ste#208
Kelso, WA 98626
(360) 423-9922

CONTACT PERSON: Nancy Malone, Associate Planner

Date 10/21/2010 Signature: _____
Michael Kerins

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1) Name of proposed project, if applicable:
Southwest Washington Regional Airport
Airport Master Plan

2) Name of applicant:
City of Kelso

3) Address and phone number of applicant and contact person:
Mr. David Sypher
Kelso Engineering Department
P.O. Box 819
Kelso, WA 98626
(360) 423-6590

4) Date checklist prepared:
06/01/2010

5) Agency requesting checklist:
City of Kelso; Federal Aviation Administration (FAA)

6) Proposed timing or schedule (including phasing, if applicable):
The Master Plan's recommended improvements are planned for three implementation phases. Phase 1 covers the short-term projects (2010-2013); Phase 2 covers the intermediate term (2013-2018); Phase 3 covers the long term plan (2019-2026).

7) Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.
Capital improvement projects recommended in the Master Plan will be built during the phases noted in the preceding answer.

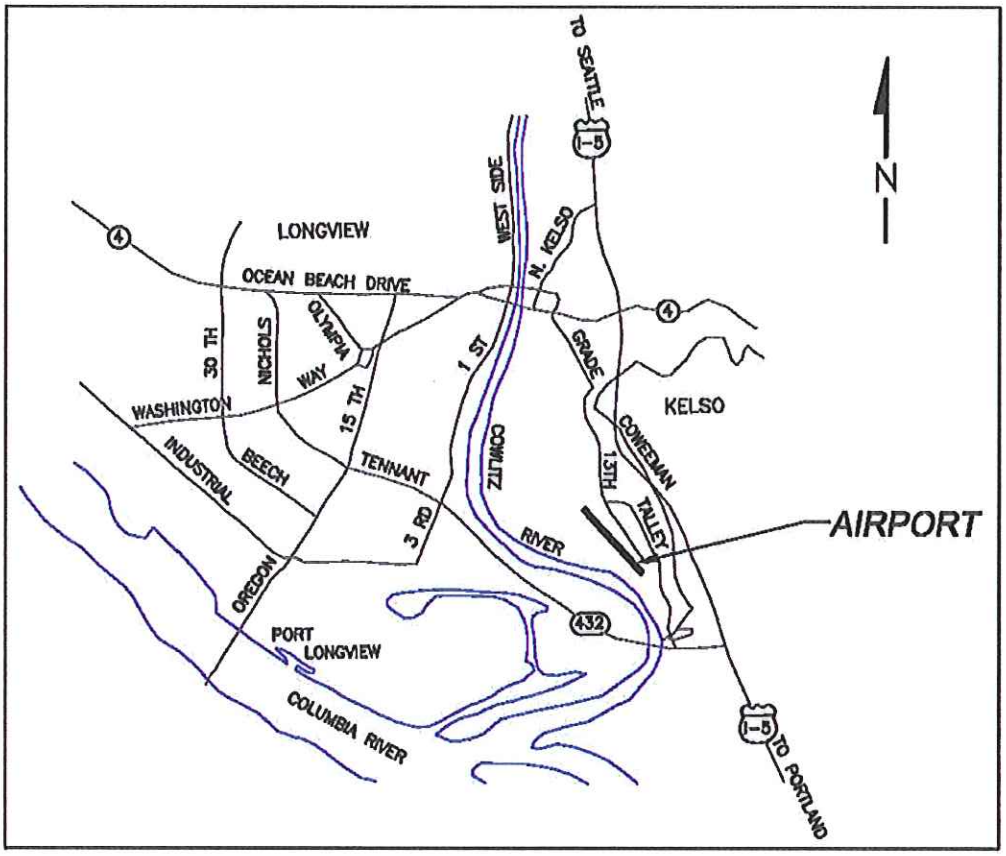
8) List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.
Wetland identification and delineation studies are recommended to be prepared before construction begins on the master plan recommendations

9) Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.
None

10) List any government approvals or permits that will be needed for your proposal, if known.
The Master Plan will need to be approved by the City of Kelso and FAA.

11) Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)
The Master Plan (a non-project action) for the Southwest Washington Regional Airport is intended to evaluate and determine a short, intermediate and long-term maintenance and development program for the airport. A detailed program for airside and landside facilities has been formulated, and a 20-year capital improvement program has been prepared. The CIP consists of actions that support continued operation of the airport over time.

12) Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.
The Southwest Washington Regional Airport (KLS), located in Cowlitz County in southwestern Washington, lies along Parrott Way and Talley Way between the Coweeman and Cowlitz Rivers, approximately two miles southeast of the city of Kelso and one mile northwest of the Interstate 5/State Route 432 Interchange. The Southwest Washington area includes both Clark and Cowlitz Counties, with a combined population of over 500,000.



LOCATION MAP

URS
CENTURY SQUARE
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101
PHONE: (206) 438-2700

KELSO - LONGVIEW REGIONAL AIRPORT
AIRPORT MASTER PLAN

AIRPORT LOCATION MAP

SHEET 2-01

B. ENVIRONMENTAL ELEMENTS

1) **Earth**

a. General description of the site (circle one): **FLAT,** rolling, hilly, steep slopes, mountainous, other . . . . . .

b. What is the steepest slope on the site (approximate percent slope)? **Approximately 3 %**

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland. **Newberg Fine Sandy Loam, 0 to 3 percent; Clato Silt Loam, 0 to 3 Percent; and Caples Silty Clay Loam, 0 to 3 Percent.**

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. **No.**

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Does not apply.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Does not apply.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Does not apply.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Does not apply. None needed.

2) **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.
Individual projects in the Master Plan Update may result in increased air emissions. These will be subject to project approval at the time of implementation.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

Does not apply.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
Mitigation measures for individual projects will be implemented as needed to reduce or control emissions.

3) **Water**

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.
The Coweeman River flows near the airport's eastern boundary and the Cowlitz River to the west.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Projects listed in the Master Plan Update may involve some work within 200 feet of some of the described waters. Specific plans for the projects will be completed as the projects are implemented.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Does not apply.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

Does not apply.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
Does not lie in flood plain

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

Does not apply.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Does not apply.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

Does not apply.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.
Does not apply.

2) Could waste materials enter ground or surface waters? If so, generally describe.
Does not apply.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:
Does not apply.

4. **Plants**

a. Check or circle types of vegetation found on the site:

——— deciduous tree: alder, maple, aspen, other

——— evergreen tree: fir, cedar, pine, other

——— shrubs

__X__ grass

——— pasture

——— crop or grain

__X__ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other; forested wetlands, riparian

——— water plants: water lily, eelgrass, milfoil, other

——— other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Does not apply.

c. List threatened or endangered species known to be on or near the site.

None listed.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Does not apply to the Master Plan.

5. **Animals**

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other: **Canada geese and seagulls**
mammals: deer, bear, elk, beaver, other: **coyotes, deer, rodents and other small mammals**
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

None

c. Is the site part of a migration route? If so, explain.

None

d. Proposed measures to preserve or enhance wildlife, if any:

Does not apply.

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Does not apply.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

Does not apply.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Does not apply.

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

Does not apply.

1) Describe special emergency services that might be required.

Does not apply.

2) Proposed measures to reduce or control environmental health hazards, if any:

Does not apply.

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Does not apply.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.
Does not apply.

3) Proposed measures to reduce or control noise impacts, if any:

Does not apply. None needed.

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties?
The current land use is for airport operations. Properties immediately west of the airport is the Burlington Northern Railroad right-of-way and a public golf course. Further to the west across the Cowlitz River include industrial and medium density residential development. Approximately one mile north of the airport along the extended runway centerline is a large area of high density residential designated property immediately east of the Longview Central Business District.

b. Has the site been used for agriculture? If so, describe.

No

c. Describe any structures on the site.
The structures include airport hangars and maintenance buildings.

d. Will any structures be demolished? If so, what?
Not as a result of the Master Plan. Individual projects recommended in the various phases will involve demolition of structures.

e. What is the current zoning classification of the site?

The zoning is industrial

f. What is the current comprehensive plan designation of the site?

The comprehensive plan designation is industrial

g. If applicable, what is the current shoreline master program designation of the site?

Does not apply.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.
No.

i. Approximately how many people would reside or work in the completed project?

Does not apply.

j. Approximately how many people would the completed project displace?

Does not apply.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:
The Master Plan incorporates a discussion on land use and will be in compliance with existing land use policies. Continuing planning efforts are under way to protect the airport or community within the airport influence area.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.
Does not apply.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.
Does not apply.

c. Proposed measures to reduce or control housing impacts, if any:
Does not apply.

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?
Does not apply.

b. What views in the immediate vicinity would be altered or obstructed?
Does not apply.

c. Proposed measures to reduce or control aesthetic impacts, if any:
Does not apply.

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?
Airport use requires various lighting intensity levels, day and night.

b. Could light or glare from the finished project be a safety hazard or interfere with views?
No.

c. What existing off-site sources of light or glare may affect your proposal?
Does not apply.

d. Proposed measures to reduce or control light and glare impacts, if any:
Does not apply.

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?
None.

b. Would the proposed project displace any existing recreational uses? If so, describe.
Does not apply.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:
Does not apply.

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.
No.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.
Project area is adjacent to the confluence of the Coweeman and Cowlitz Rivers, a high probability location for encountering cultural resources according to a cultural resources assessment conducted in February 2007 for a previous project.

c. Proposed measures to reduce or control impacts, if any:
This SEPA is for approval of the plan, Cultural resources investigation and consultation will be conducted prior to development.

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.
Interstate 5 serves the airport (from the east). Parrott Way and 13th Street are the direct airport access roads.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?
No.

c. How many parking spaces would the completed project have? How many would the project eliminate?
Does not apply.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).
Some of the projects listed in the Master Plan Update may require on-site airport road improvements.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

Does not apply.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Does not apply.

g. Proposed measures to reduce or control transportation impacts, if any:

Does not apply.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

The Master Plan would not.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Does not apply.

16. **Utilities**

a. Circle utilities currently available at the site:
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Does not apply.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: .....

Date Submitted: 10/18/10

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?
Proposed improvements recommended in the Master Plan may result in increased discharges to water; air emissions; or production of noise.

Proposed measures to avoid or reduce such increases are:
SEPA compliance, permits and other agency approvals will be obtained and mitigation provided as needed on a case by case basis for individual projects.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?
Individual projects listed in the Master Plan may have the potential to affect plants or animals.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:
Mitigation measures will be outlined as needed for individual projects listed in the Master Plan.

3. How would the proposal be likely to deplete energy or natural resources?
Individual projects listed in the Master Plan may have the potential to deplete energy or natural resources.

Proposed measures to protect or conserve energy and natural resources are:
Mitigation measure will be outlined as needed for individual projects listed in the Master Plan.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?
Individual projects listed in the Master Plan may have the potential to affect environmentally sensitive areas.

Proposed measures to protect such resources or to avoid or reduce impacts are:
Mitigation measure will be outlined as needed for individual projects listed in the Master Plan.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Individual projects listed in the Master Plan will be in compliance with existing land and shoreline uses and plans.

Proposed measures to avoid or reduce shoreline and land use impacts are:

None needed.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Individual projects listed in the Master Plan have the potential to slightly increase demands on transportation or public services and utilities.

Proposed measures to reduce or respond to such demand(s) are:

Mitigation measures will be outlined as needed for individual projects listed in the Master Plan.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

To the extent known at this time, individual projects listed in the Master Plan will not conflict with local, state or federal laws or requirements for protection of the environment.

NOTICE OF DETERMINATION OF NONSIGNIFICANCE (DNS)
City of Kelso
Southwest Washington
Regional Airport
Master Plan
SEPA #10-012

Description of Proposal: A non-project legislative action to update the Southwest Washington Regional Airport Master Plan for 2010-2030 to include facility expansion, maintenance, enhancement, phasing, financing and construction of individual projects, i.e. runway extension and hangar development, etc.

Proponent(s): City of Kelso
P. O. Box 819
203 S. Pacific Ave. Ste. #208
Kelso, WA 98626

Location of proposal, including street address, if any: All areas within the boundaries of the Southwest Regional Airport, City of Kelso.

Lead Agency: The City of Kelso is the lead agency for this proposal. The city has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030 (2) (C). This determination was made after review of a completed environmental checklist and other information on file with the lead agency. An initial determination has been made that the project is consistent with applicable regulation and the Comprehensive Plan of the City of Kelso. The Lead Agency will not act on this proposal for fifteen (15) days from the date of issuance. You may submit comments on this proposal to the address below before 5 p.m. on November 10, 2010.

RESPONSIBLE OFFICIAL: Michael P. Kerins, Community Development Director
203 S. Pacific Ave. Ste#208
Kelso, WA 98626
(360) 423-9922

CONTACT PERSON: Nancy Malone, Associate Planner

Date: 10/21/2010 Signature: Michael Kerins

Publish: October 26, 2010

AFFIDAVIT OF PUBLICATION

IN THE MATTER NOTICE OF PUBLICATION

Ad Number 452354

CITY OF KELSO COMM. DEV.

NOTICE OF DETERMINATION OF

STATE OF WASHINGTON
COUNTY OF COWLITZ

TRINI M. ARCE being duly sworn says that she is the CHIEF CLERK of THE DAILY NEWS. And that THE DAILY NEWS, published in Cowlitz County, has been approved as a Legal newspaper by order of the Superior court of the State of Washington of Cowlitz County, and that the Annexed printed copy is a true copy of the notice in the above entitled matter as it was printed in the regular entire issue of said paper for a period of one insertions commencing October 26, 2010 and ending on October 26, 2010, and that said newspaper was regularly distributed to its subscribers during all of said period, and that said notice was published in said paper and not in a supplement form. That the full amount of the fee charged for said forgoing publication is the sum of $126.08 at the rate of $1.97 per line for the first insertion and $1.80 per line for each subsequent insertion. There is also an additional charge of $10.00 for every additional affidavit copy over two copies.

TRINI M. ARCE

Trini M. Arce

Subscribed and sworn to before me this
29th Day of October, 2010

JENNIFER L. SMITH

Jennifer L. Smith

Notary Public for the State of Washington
Residing in Cowlitz County

JENNIFER L SMITH
NOTARY PUBLIC
APRIL 13, 2014
STATE OF WASHINGTON

TABLE OF CONTENTS

1 Background

1.1 Scope

Kelso-Longview Airport (KLS. This designation shall refer to the City of Kelso or its designee) recognizes the threats wildlife pose to aircraft operations and takes measures to mitigate these threats. This Wildlife Hazard Management Plan (WHMP) presents guidelines KLS will implement for mitigating wildlife hazards.

1.2 Objectives

KLS is not a Part 139 Certificated airport and is not held to the same regulations as Certificated airports. However, based on Federal Aviation Administration (FAA) memorandum PGL-05-03 (Updated Grant Assurances), the experience of aviation wildlife damage management professionals, and history, KLS will follow a significant portion of CertAlert 97-09 (Wildlife Hazard Management Plan outline) for the development of this WHMP. The purposes of this Plan are to present actions and priorities to mitigate wildlife hazards at KLS, to list key participants and individuals associated with the wildlife program at KLS, and to identify guidelines by which the program will be operated and evaluated. KLS recognizes that it is not possible to entirely eliminate wildlife strikes, but through the development and implementation of this WHMP, wildlife hazards can be substantially reduced at KLS.

1.3 Strike History and Hazards

The FAA's National Wildlife Strike Database was reviewed on 21 October 2008. Only two wildlife strikes were reported between 1990 and 2007. Both occurred during the month of July, an unknown small bird in 2005 and a barn swallow in 2007. No damage was reported as a result of either strike. Limited reporting at General Aviation (GA) airports throughout the nation is not uncommon. Linnell et al. (1999) found that only 20-25% of all wildlife strikes get reported, whereas nearly 11 years later, Barras and Dolbeer (2000) estimated from carcass recovery studies that as few as 13% of all strikes are reported by pilots or air carriers. The lack of reports from KLS negates any useful analysis of the National Wildlife Strike database.

In terms of the likelihood of a possible strike, birds pose the greatest risk to aircraft. But in terms of the likelihood of a strike resulting in significant damage, deer pose the greatest risk to aircraft. The FAA reports that birds comprise 97% (n = 79,972, $\bar{x}$ = $3,640 per strike) of all reported strikes between 1990 and 2007, resulting in nearly $300M in damages, whereas deer comprise 2% (n = 760, $\bar{x}$ = $38,305 per strike) of all reported strikes, resulting in nearly $30M in damages (Cleary et al. 2007).

The most common hazardous wildlife frequenting KLS include blackbirds and European starlings, gulls (primarily glaucous-winged, and waterfowl (ducks and Canada geese).

Deer and coyotes irregularly use the airfield, but because of their propensity for causing damage, they are a substantial risk. Other species of interest include crows, eagles, great blue herons, pigeons, red-tailed hawks, and small mammals such as mice, voles, and rabbits.

According to airport remarks within the FAA Airport/Facility Directory (FAA 2008), there are "Numerous flocks of birds on and invof arpt [in the vicinity of the airport]". Notices to Airmen should be time specific to be of any practical value to pilots. Generic statements such as that given above will be avoided in favor of providing seasonal guidance (e.g., flocks of migrating gulls and waterfowl should be anticipated between October and February) or immediate notice of recent wildlife hazards (e.g., coyote sighted Monday, Tuesday, and Wednesday afternoon). KLS will amend the AFD to reflect seasonal hazardous wildlife presence and restrict wildlife hazard NOTAMs to time-specific details.

Hazardous wildlife attractants are those features that offer hazardous wildlife food, water, and/or shelter. At KLS, these include wetlands, temporary standing water, the Columbia River and sloughs, berry producing plants (e.g., blackberry bushes), fragmented brushy areas/woodlands, worms, and small mammals. While not necessarily hazardous to aircraft by themselves, worms, mice, voles, and rabbits serve as a prey source for larger predators (e.g., coyotes, eagles, gulls, and hawks) and are considered hazardous wildlife attractants.

2 The persons who have authority and responsibility for implementing the plan

City of Kelso, Public Works Manager – David Sypher

Support Agencies:
U.S. Department of Agriculture, Wildlife Services (USDA WS) – Laurence M. Schafer
Federal Aviation Administration
Washington State Department of Transportation - Aviation

3 Habitat modification and changes in land use

3.1 Coyotes and Deer

3.1.1 Existing Fence

An appropriate wildlife fence is the best approach to exclude coyotes and deer from airfields. The existing fence at KLS is incomplete and does not effectively serve to deter wildlife. However, extenuating factors prohibit the installation of an appropriate wildlife fence. The entire southwest portion of the airfield borders Burlington Northern and Santa Fe (BNSF) railroad property and, in places, does not extend further than 250' from centerline. In October, 2003, Burlington Northern Santa Fe's operating and engineering departments denied a City of Kelso proposal to purchase a portion of the BNSF right-of-way adjacent to the airport to create an object free zone for the airport, primarily due to interference with construction of the future third mainline track for BNSF (letter from Brian Andriese, BNSF Transaction Manager, 28 October 2003). As such, the installation of a perimeter fence along airport property would conflict with the Object Free Area restrictions and is not feasible at this time. KLS may pursue the installation of a wildlife fence if situations change.

3.1.2 Habitat Management

Several vegetated areas on the eastern portion of the airfield are attractants (Figure 1). Areas with dense woods, shrubs, and blackberry bushes offer thermal and hiding cover and serve as a food source for coyotes, deer, and small mammals. Additionally, coyotes will hunt the edges and openings in these areas for small mammals that hide and feed in the areas themselves. Coyote and deer trails are present through the two vegetated areas south of the new T-hangars (south of Taxiway N, east of Taxiway A).

Coyotes and deer most likely enter the airfield through the golf course and Columbia River adjacent to the southwestern perimeter of the airfield, where an appropriate wildlife fence is not currently a viable management option. If these animals remained along the southwestern portion of the airfield, they would not be at risk of causing a wildlife strike. As such, efforts to reduce the likelihood of these animals crossing the airfield will be implemented.

To reduce the likelihood of coyotes and deer crossing the runway west to east, KLS will implement an Operations and Management plan to address the clearing and proper grading of the areas highlighted in Figure 1, as funding becomes available. Areas not formally delineated as wetlands will be given preference for clearing and grading. Proper grading is essential to insure that ponding water will not develop once the areas are cleared. Once cleared and graded, these areas should be maintained free of attractive vegetation (e.g., no woody vegetation, blackberry bushes, etc.).

Figure 1. Aerial view of Kelso-Longview Airport, showing areas to be cleared and graded to reduce the attractiveness to coyotes, deer, and European starlings.

3.2 Birds

3.2.1 Canada Geese and Gulls

Canada geese and gulls are the species considered most hazardous at KLS. Both species exhibit a preference for open habitats with short vegetation (grass 0-10 inches). Geese prefer these features because they allow unobstructed scanning for predators while loafing and feeding, and mowed grass results in tender shoots of new growth that is highly palatable and more nutritious. Gulls use these habitats for loafing and feeding as well (though not on the grass itself). Frequently following heavy rains, earthworms

migrate above the soil layer and are easily found by foraging gulls. In many cases, earthworms are able to travel onto the taxiways and runways, where they are much easier to feed upon and attract gulls directly into the path of aircraft. Both species are most abundant during fall and winter months.

Grass management is a key approach to deterring both species from airfields. In general, and when no site-specific wildlife hazard assessments have been conducted, short grass (<10 inches) is the preferred grass height on airfields throughout the United States. However, this may not be the case at KLS, especially during seasons when geese and gulls are expected to be abundant (e.g., fall and winter months). KLS will continue the current grass management operation (mowing three times during the fall through winter months), but will monitor gull and goose use in the mowed areas. From 1 August 2009 to 1 March 2010, KLS will refrain from mowing most of the grass within the air operations area. This is to allow that grass to grow taller so that it will deter geese and gulls from loafing and feeding in these areas. It is possible that taller grass could inhibit worm movements, thereby keeping them within the grass areas, and better hide worms from foraging gulls. Mowing shall occur year round near airport signage, lights, and other structures as needed to maintain them clear of obstructions and visible to pilots. KLS will again monitor gull and goose use in these un-mowed areas and compare bird abundance to determine long term mowing operations.

In either case, mowing will resume after 1 March so that the grass height will be short enough to deter grassland nesting birds from using the area. These species are also attracted to areas of ponding and temporary standing water (e.g., poorly graded areas, tire ruts, etc.). KLS will regularly monitor unpaved areas of the airfield for these locations and backfill/re-grade as necessary. Where ponding occurs on paved areas, KLS will maintain a heightened vigilance following heavy rains, as birds are most likely to use these areas during and following heavy events.

3.2.2 Ducks

Ducks are expected to be abundant around KLS from early fall through winter. The Columbia River and slough are natural travel corridors and feeding and loafing areas. The golf course ponds, fairways, and greens also offer feeding and loafing opportunities. Ditches, ponding water, and areas with temporary standing water at KLS are also attractive to ducks.

Habitat management for ducks will be similar to that for geese and gulls. In addition, KLS will monitor drainage ditches to ensure that water flows freely off the airfield without ponding. This may require routine clearing of ditches or lining them with high-density polyethylene to eliminate vegetation and enhance conveyance. KLS may recommend waterfowl mitigation options for the golf course to use for deterring hazardous birds from crossing the airfield as they transit to and from the golf course.

3.2.3 Blackbirds, Crows, and European Starlings

These species are generally attracted to large open fields, blackberry bushes, and unsecure garbage. Taller grass can offer feeding and hiding cover for these birds, but populations are usually lower during periods when migratory geese and gulls are present. Therefore, it is unlikely that taller grass used to discourage feeding and loafing by migratory geese and gulls will attract significant number of blackbirds, crows, or European starlings.

Loose garbage around an airfield is a significant FOD/debris issue. In addition, it can attract hazardous blackbirds, crows, European starlings, and gulls. As such, KLS will be diligent to ensure that trash can lids are secure and persistent garbage problems are corrected.

3.2.4 Red-tailed Hawk

Red-tailed hawks have been observed in the area of the airport south approach. Allowing grass to grow taller may increase rodent abundance which could ncreae raptor use of the area. Red-tailed hawk presence will be monitored during standard runway inspections. Harassment, trapping, and translocation of hazardous individuals may be used to reduce red-tailed hawk hazards, should they occur.

3.3 Moles

The extensive tunnel systems of moles at KLS presents a safety concern by possibly reducing the soil compaction values in the runway safety areas. The preferred method for reducing mole tunneling is to lethally trap moles from the area. However, the passage of I-713 (banning the use of body-gripping traps) prohibits the use of all effective mole traps. No known, EPA-approved, chemical or physical repellents have be proven effective against moles in Washington (http://wdfw.wa.gov/wlm/living/moles.pdf). Although some poisons are commercially available, they are generally ineffective because moles feed primarily on earthworms, grubs, and insects rather than grain-based baits. Fumigants require an air-tight system to produced desired results. Because of the extensive tunnel systems and porous nature of areas moles inhabit, fumigants are not a feasible option either. Orco Mole Bait is approved for use in Washington and Oregon (http://www.rcogopherbait.com/mole_study.html), but was tested on alternative moles species in Michigan. Efficacy against pacific or coast moles is not confirmed.

Until the use of body-griping traps is permitted for resolving health and safety risks, KLS may mechanically compact or disc mole tunnels and mounds as a means to discourage mole presence. Typical mole tunnels are 3-12 inches below the surface, buy may extend 40 inches, so the purchase of any discing tools will reflect this information.

KLS may contact a private nuisance control operator for future assistance with mole control.

3.4 Stormwater Treatment and Wetlands

KLS recognizes that stormwater facilities can be a significant attractant for hazardous wildlife. Whenever stormwater facilities are proposed within the guidelines of FAA Advisory Circular 150/5200-33B (i.e., 5,000 feet for airports serving piston-powered aircraft and 10,000 feet for airports serving turbine-powered aircraft), KLS will use or recommend that developers use the Aviation Stormwater Design Manual developed by Washington State Department of Transportation – Aviation (http://www.wsdot.wa.gov/aviation/AirportStormwaterGuidanceManual.htm). Because of the extreme hazard wetlands pose (as a significant wildlife attractant), it is recommended as a basic safety obligation that, any opportunity to remove and replace onsite wetlands with offsite mitigation should be employed in the fundamental preservation of life and safety.

There is a recently constructed stormwater pond southeast of the intersection of Taxiways A and N. This facility will be monitored for hazardous bird use and KLS may add bird balls to the pond if warranted.

KLS will comply with appropriate Federal and State laws before modifying any area formally designated as a wetland.

3.5 Construction Activities

KLS will consider how construction and landscaping activities on and near the airfield (e.g., at the landfill and compost facility) could impact the presence of hazardous wildlife at the airfield. KLS may consult with a FAA-approved airport wildlife biologist to ensure that plants unattractive to hazardous wildlife are used for on-site projects and recommend the same for off-site projects outside the immediate control of KLS, within the citing area per FAA AC 150/5200-33B . If hydroseeding is required, KLS will avoid these activities when the development of new grass shoots is anticipated to coincide with the arrival or presence of migratory ducks and geese (i.e., avoid large areas of new growth during the late fall through winter months).

3.6 Remove or Modify Perching/Nesting Structures

Birds use many structures on an airport for perching. KLS will remove all unnecessary structures (e.g., old buildings and signage) that birds may use as perches. KLS will remove dead trees (snags) found on airport property due to the tendency of raptors to use these trees as perching locations. Active nesting by hazardous birds, including bald

eagles, will be discouraged by active harassment (under permit for eagles) and removal/modification of potential nest sites/trees.

3.7 Action Plan Summary with a Proposed Timeline for Completion

Maintain existing mowing operations and document gull and geese use, except continue to mow grass near signs and lights. (Sections 3.1 and 3.2)	Until 1 August 2009
Clear and grade brushy areas in Figure 1 (Section 3.1.2)	31 December 2009
Monitor hazardous bird use of stormwater pond to determine if bird balls are necessary to mitigate hazards. (Section 3.4)	Ongoing
Remove unnecessary perches/nesting structures. (Section 3.6)	Ongoing
Begin use of 3-D coyote effigy to deter birds.)Section 6.2.1)	Immediately
Create the electronic *Wildlife Control, Observation, and Strike Log* database from the monthly reports. (Section 6.4)	Immediately
Refrain from seasonal mowing (Sections 3.1 and 3.2)	1 August 2009 – 1 March 2010

4 Local, state, and Federal wildlife control regulations and permit issues

4.1 Overview

Federal, state, and local governments administer laws and regulations that protect wildlife and their habitat. A number of laws affect wildlife control at airports and wildlife control personnel should be educated about these regulations to ensure compliance. In general, harassing and/or taking most types of wildlife are regulated through permit processes, overseen by federal and state agencies. An annual Federal Migratory Bird Depredation permit is necessary for a successful wildlife control program at KLS and will be obtained by the City of Kelso.

4.2 Wildlife Categories

CFR Title 50, RCW Chapter 77, and WAC Chapter 232-12 define the categories of wildlife and regulations for them. For the purposes of this document, feral and free roaming dogs, cats, and other domestic animals are considered "wildlife" because of hazards they pose to aircraft, but are mostly regulated under municipal laws. Table 1 lists species and groups (though not exhaustive) that wildlife control personnel may face throughout the year and whether permits are needed for control of those species. Wildlife control personnel will be trained in species identification so they can determine the relevant laws and necessary permits for those species they intend to manage.

4.3 Washington Wildlife Regulations

Several Washington government agencies have regulations that affect wildlife control at airports. Pertinent regulations can be found in the Washington Administrative Code (WAC) Chapter 232-12 and the Revised Code of Washington (RCW) Title 77. Cowlitz County and municipality regulations may also affect KLS's wildlife management efforts. State wildlife laws involving migratory and resident birds, mammals, reptiles, and amphibians, as well as state threatened and endangered (T&E) species are generally administered by Washington Department of Fish and Wildlife (WDFW). State permits are generally required to take most wildlife species. However, WDFW honors U.S. Fish and Wildlife Service (USFWS) depredation permits for migratory birds and permits for harassing bald eagles.

Table 1. Wildlife categories in Cowlitz County, and permits necessary for control as required by Federal and State wildlife agencies.

Species	[1]Federal/State T/E Species	Harassment		Lethal Take	
		[2]WDFW Permit Required	Federal Permit Required	[2]WDFW Permit Required	Federal Permit Required
[3]MAMMALS					
Coyotes		no	no	no	no
Deer		no	no	yes	no
Black-tailed deer		no	no	yes	no
Columbian white-tailed deer	FE/SE	yes	yes	yes	yes
Feral Cat/Dog		no	no	no	no
Mazama (western) pocket gopher	ST	yes	no	yes	no
Rabbits		no	no	yes	no
BIRDS					
[4]Blackbirds		no	no	no	no
4Crows		no	no	no	no
Feral pigeon (rock pigeon)		no	no	no	no
Pheasant		no	no	yes	no
Gulls		no	no	no	yes
Raptors		no	no	no	yes
Eagles		no	yes	no	yes
Falcons		no	no	no	yes
Hawks		no	no	no	yes
Ferruginous hawk	ST	yes	no	yes	yes
Owls		no	no	no	yes
Spotted owl	FT/SE	yes	yes	yes	yes
Shorebirds		no	no	no	yes
Snowy plover	FT/SE	yes	yes	yes	yes
Upland sandpiper	SE	yes	no	yes	yes
Songbirds		no	no	no	yes
Wading Birds		no	no	no	yes
Sandhill crane	SE	yes	no	yes	yes
Great blue heron		no	no	no	yes
Waterfowl		no	no	no	yes
American white pelican	SE	yes	no	yes	yes
Brown pelican	FE/SE	yes	yes	yes	yes
Canada goose		no	no	no	yes
Ducks		no	no	no	yes

[1] Federal T/E species cannot be harassed/taken without a special permit under the Endangered Species Act.

[2]RCW 77.36.030 provides for the taking of non-protected/T&E wildlife that pose an immediate threat to human safety at airports. WDFW prohibits the "malicious" harassment of State listed T/E species.

[3]WDFW permits are required for "body-gripping" traps.

[4]CFR 50, Part 21.43 allows for the take of crows, magpies, blackbirds, and grackles when they are a health threat.

4.4 Federal Wildlife Regulations

Several Federal regulations, including the Migratory Bird Treaty Act, the Lacey Act, the Endangered Species Act, Bald and Golden Eagle Act of 1940, the Clean Water Act, the National Environmental Policy Act, and the Federal Insecticide, Fungicide, and Rodenticide Act regulate various aspects of KLS's wildlife management activities. Additional regulations that may affect wildlife control activities at KLS are found in the Code of Federal Regulations (CFR), and several Federal agencies may be responsible for their implementation. Federal wildlife laws are typically administered by the USFWS and involve primarily migratory birds and T&E species.

4.5 Birds

4.5.1 European Starlings and House Sparrows

European starlings and house sparrows are non-game birds that are classified as non-migratory and no permit is required to take them (Also see 50 CFR 21.41, in section 4.5.3). All other non-game birds in Cowlitz County are classified as migratory.

4.5.2 Feral Birds

Feral pigeons (rock pigeon) are typically the only species of concern in this category. Currently State and Federal laws do not regulate this species and no permit is required to take them. Domestic waterfowl may become a problem if they are abandoned on airport property. Taking these species will only be done by personnel trained to distinguish the differences between domestic and wild waterfowl with similar appearances. In the event that KLS is issued the recommended Migratory Bird Depredation Permit, this will not be an issue. If other species of feral poultry or exotic birds are observed, KLS may request assistance with control methods.

4.5.3 Migratory Birds

A USFWS depredation permit allows control of migratory and non-game birds (e.g., gulls and waterfowl) provided that the species are not listed as federal or state threatened or endangered species and are listed on the depredation permit. **Any airport staff implementing depredation shall obtain adequate training, beforehand, by USDA Wildlife Services or another FAA qualified airport wildlife biologist.**

50 CFR § 21.41. CONTROL OF DEPREDATING BIRDS - Depredation permits

(a) ***Permit requirement.*** Except as provided in 21.42 through 21.46, a depredation permit is required before any person may take, possess, or transport migratory birds for depredation control purposes. No permit is required merely to scare or herd depredating migratory birds other than endangered or threatened species or bald or golden eagles.

(b) ***Application procedures.*** Applications for depredation permits shall be submitted to the appropriate Special Agent in Charge (see 13.11 (b) of this Subchapter). Each such

application must contain the general information and certification by 13.12 (a) of this Subchapter plus the following additional information:

(1) A description of the area depredations are occurring;

(2) The nature of the crops or other interests being injured;

(3) The extent of such injury; and

(4) The particular species of migratory birds committing the injury.

(c) ***Additional permit conditions*****.** In addition to the general conditions set forth in Part 13 of this Subchapter B, depredation permits shall be subject to the following conditions:

(1) Permittees may not kill migratory birds unless specifically authorized on the permit.

(2) Unless otherwise specifically authorized, when permittees are authorized to kill migratory birds they may do so only with a shotgun not larger than No. 10 gauge fired from the shoulder, and only on or over the threatened area or area described on the permit.

(3) Permittees may not use blinds, pits, or other means of concealment, decoys, duck calls, or other devices to lure or entice birds within gun range.

(4) All migratory birds killed shall be retrieved by the permittee and turned over to a Bureau representative or his designee for disposition to charitable or worthy institutions for use as food, or otherwise disposed of as provided by law.

(5) Only persons named on the permit are authorized to act as agents of the permittee under authority of the permit.

(d) ***Tenure of permits*****.** The tenure of depredation permits shall be limited to the dates which appear on its face, but in no case shall be longer than one year.

4.6 Mammals

4.6.1 Game Mammals

Normally a state permit is required to control deer and elk, but RCW 77.36.030 (Trapping or killing wildlife causing damage -- Emergency situations) provides:

1) Subject to the following limitations and conditions, the owner, the owner's immediate family member, the owner's documented employee, or a tenant of real property may trap or kill on that property, without the licenses required under RCW 77.32.010 or authorization from the director under RCW 77.12.240, wild animals or wild birds that are damaging crops, domestic animals, or fowl:

(a) Threatened or endangered species shall not be hunted, trapped, or killed;

(b) Except in an emergency situation, deer, elk, and protected wildlife shall not be killed without a permit issued and conditioned by the director or the director's designee. In an emergency, the department may give verbal permission followed by written permission to trap or kill any deer, elk, or protected wildlife that is damaging crops, domestic animals, or fowl; and

(c) On privately owned cattle ranching lands, the land owner or lessee may declare an emergency only when the department has not responded within forty-eight hours after having been contacted by the land owner or lessee regarding damage caused by wild animals or wild birds. In such an emergency, the owner or lessee may trap or kill any deer, elk, or other protected wildlife that is causing the damage but deer and elk may only be killed if such lands were open to public hunting during the previous hunting season, or

the closure to public hunting was coordinated with the department to protect property and livestock.
(2) Except for coyotes and Columbian ground squirrels, wildlife trapped or killed under this section remain the property of the state, and the person trapping or killing the wildlife shall notify the department immediately. The department shall dispose of wildlife so taken within three days of receiving such a notification and in a manner determined by the director to be in the best interest of the state.

T&E species are protected under the Endangered Species Act and require a Federal depredation permit (see Sections 4.5.3 and 4.8.1 of this WHMP) to take (including harass).

4.6.2 Furbearers

Coyotes are not considered furbearers, although beaver and fox are. Although not expected to be found at KLS, beaver and fox may be removed, via shooting, without a permit, but a permit is necessary to use body-gripping traps. Thirty-day trapping permits are available through the WDFW office in Olympia, WA, (360) 902-2926.

4.6.3 Non-game Mammals

Several species of non-game mammals are present at KLS and may need to be controlled. Of these, coyotes present the greatest threat to aviation. Permits to lethally remove these species are only required (other than T&E species) if body-gripping traps are used.

4.7 Reptiles & Amphibians

At their current abundance, these species do not present a major attractant to hazardous wildlife.

4.8 Threatened and Endangered Species

4.8.1 Federal and State Threatened and Endangered Species

The Federal Endangered Species Act (Sec. 2 [16 U.S.C. 1531]) and Washington Endangered Species Act (RCW 77.12.020; WAC 232-12-297) protect animal and plant species potentially threatened with extinction. These acts classify species as endangered or threatened. Once listed, a threatened or endangered species cannot be taken or harassed without a special permit.

Eagles are afforded protection under the U.S. Eagle Protection Act and Bald and Golden Eagle Act of 1940. In Washington, several additional species are given special protection by being listed as state T&E species. Columbian white-tailed deer occur in Wahkiakum County, may occur in Cowlitz County, but are unlikely to be observed at KLS. If a significant hazard exists with a listed species that jeopardizes air safety, either the USFWS or WDFW, depending on the species involved, should be contacted for assistance (see Table 1 for a listing of Federal threatened or endangered species which may be present at KLS).

KLS wildlife control personnel will learn to identify pertinent T&E species and understand the regulatory permitting processes required for their effective management. No control activities will be aimed toward T&E species without appropriate authorization. Habitat critical to listed species is regulated by the USFWS or WDFW and these regulations should be reviewed to determine their potential effect on KLS's habitat modification plans to reduce wildlife hazards.

CFR 50 PART 22.23

EAGLE PERMITS - Permits to take depredating eagles.

The Director may, upon receipt of an application and in accordance with the issuance criteria of this section, issue a permit authorizing the taking of depredating bald or golden eagles.

> ***(a) Application procedure.*** Applications for permits to take depredating bald or golden eagles shall be submitted to the appropriate Special Agent in Changes (See: Part 13, Appendix F). Each application must contain the general information and certification required by Part 13.12(a) plus the following additional information:
>
> > **(1)** Species and number of eagles proposed to be taken;
> > **(2)** Location and description of property where taking is proposed;
> > **(3)** Inclusive dates for which permit is requested;
> > **(4)** Method of taking proposed;
> > **(5)** Kind and number of livestock or domestic animals owned by the applicant;
> > **(6)** Kind and amount of alleged damaged; and
> > **(7)** Name, address, age, and business relationship with applicant of any person the applicant proposes to act for him as his agent in the taking of such eagles.
>
> ***(d) Tenure of permits.*** The tenure of any permit to take bald or golden eagles for depredation control purposes shall be that shown on the face thereof, and shall in no case be longer than 90 days from date of issue.

4.8.2 Avoiding Impacts to Threatened and Endangered Species

The proposed actions outlined in this WHMP involve application of the most appropriate, effective, and biologically sound wildlife control methods available. This approach is known as Integrated Wildlife Damage Management, and includes habitat management and direct control.

Habitat management provides the greatest long-term remedial measure for reducing wildlife attractions on an airfield. Habitat management measures are discussed in Section 3 of this WHMP and include elimination of standing water, removal of fruit and berry producing vegetation, thinning wooded areas, removing perches, and incorporating wildlife considerations in the early planning stages of new construction projects. Direct control efforts generally provide a more immediate response to hazardous situations,

but the desired effects are often not as long lasting. Some of the wildlife control and dispersal methods employed at KLS include, pyrotechnic hazing, mylar flash tape, vehicular harassment, nest removal, selective trapping, and shooting with air rifles or shotguns.

Collisions between birds and aircraft nearly always result in the death of the bird, in addition to threatening human safety. Consequently, potential eagle nesting habitat on and around the airfield will be eliminated to the extent possible, thus discouraging eagles from being drawn to the area where they may be struck and killed. Guidelines in this WHMP were developed to ensure wildlife hazard management activities would not have adverse affects on threatened or endangered species.

4.8.3 Habitat Conservation

USFWS and WDFW are responsible for species conservation and recovery plans. These plans require the identification of critical habitat when it is associated with the decline of a species. Habitat alterations and developments may be prohibited in areas where critical habitat has been designated or where such changes could result in the inadvertent take of an endangered species. Consultation with USFWS or WDFW biologists on a case-by-case basis will help determine whether critical habitat is affected by airport projects, and if so, the necessary mitigation. In most cases, airports are required to manage habitat in a manner unattractive to hazardous wildlife, which is the goal at KLS. The FAA issued CertAlert 06-07 to provide guidance regarding habitat management to airport operators.

> *Airport operators must decline to adopt habitat management techniques that jeopardize aviation safety. Adopting such techniques could place them in violation of their obligations and subject to an FAA enforcement action and possible civil penalties under 49 U.S.C. 44706, as implemented by 14 CFR 139.337.*

KLS will seek assistance from USDA WS prior to consultation with U.S. Army Corps of Engineers, USFWS, or WDFW regarding wildlife and wildlife habitat issues.

4.9 Wetland Regulations

Section 404 of the Clean Water Act was passed in 1972 and prohibits discharging dredged or fill material into U.S. waters without a permit from the U.S. Army Corps of Engineers (USACE). The term "discharge of dredged material" was modified in August 1993, resulting in a USACE permit being required for nearly all activities that impact waters, including wetlands. A subsequent Supreme Court ruling [see Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corp of Engineers, January 2001] concluded that USACE does not have jurisdictional Authority over isolated wetlands. However, under Section 401, states can review all Section 404 permits and veto or condition any 404 permit.

Section 401 of the Clean Water Act allows that proposed dredge and fill activities permitted under Section 404 may be reviewed and certified by states. RCW 90-48 designates the Washington Department of Ecology (DOE) as the state water pollution control agency. Section 404 permits are invalid until certified. Section 401 affords states the ability to deny the 404 permit or impose conditions upon it. The State Environmental Policy Act (SEPA) is one mechanism used by DOE to identify concerns regarding Waters of the State early in the permitting process. Additionally, Ecology may provide technical assistance to agencies with wetland regulatory authority (the Hydraulic Code, WDFW).

WDFW regulates activities affecting wetlands, by requiring a hydraulic permit for construction activity in or near waters of the state (RCW 75.20.100-160). Construction activity is defined so as to include "log, log jam, or debris removal", such as beaver dams. WAC 220.110.030 provides:

> Hydraulic Project Approvals [HPA] -- Procedures. (1) A person shall obtain an HPA before conducting a hydraulic project ***["Hydraulic project" means construction or performance of other work that will use, divert, obstruct, or change the natural flow or bed of any of the salt or fresh waters of the state]***.

The appropriate mechanism for applying for a HPA is called a Joint Aquatic Resource Permit Application (JARPA) and is available from WDFW and Ecology.

4.10 FAA Advisory Circulars and CertAlerts

The FAA provides several Advisory Circulars (AC) and CertAlerts to guide and assist airports when dealing with hazardous wildlife issues.

4.10.1 Advisory Circulars

AC 150/5200-32A Wildlife Strike Reporting
This AC discussed the importance of reporting ALL wildlife strikes, how the Feather Identification Lab at the Smithsonian Institute assists with bird identification, and ways to report wildlife strikes.

AC 150/5200-33B Hazardous Wildlife Attractants On or Near Airports
This AC provides guidance on land uses that may attract hazardous wildlife onto or near airports.

AC 150/5200-34 Construction or Establishment of Landfills near Public Airports

This AC contains guidance on complying with Federal requirements regarding the construction or establishment of landfills near public airports.

4.10.2 CertAlerts

04-09 Relationship Between FAA and USDA WS

This CertAlert describes the Memorandum of Agreement between the FAA and USDA WS. The FAA recognizes USDA WS' expertise in dealing with wildlife hazards to aviation.

04-16 Deer Aircraft Hazard

This reminds airport operators of the importance of controlling deer on and around airfields.

06-07 Concerns Regarding Habitat Projects for Threatened and Endangered Species

Airport operators must decline to adopt habitat management techniques that jeopardize aviation safety. Adopting such techniques could place them in violation of their obligations and subject to an FAA enforcement action and possible civil penalties under 49 U.S.C. 44706, as implemented by 14 CFR 139.337.

98-05 Grasses Attractive To Hazardous Wildlife

Airport operators should ensure that grass species and other varieties of plants attractive to hazardous wildlife are not used on the airport.

5 Identification of resources to be provided by KLS for implementation of the plan

PERSONNEL

KLS

City of Kelso
Assistant Airport Manager
Airport Manager

EQUIPMENT TO BE PROVIDED

Wildlife control vehicle
Compactor and disc
Radios for air traffic communication
Shotgun and ammunition (12 gauge is preferred)
Pyrotechnic launchers and starter caps
Screaming and exploding pyrotechnics
3D coyote effigy
Eye and hearing protection
Carcass collection bags

- garbage bags
- latex gloves

Birdstrike collection kits

- birdstrike report forms (FAA 5200-7)
- latex gloves
- alcohol wipe
- gallon or quart-sized zip-type bags

Bird identification book
Airport inspection sheet

6 Wildlife control measures

6.1 Physical Inspections of the Movement Area and Other Areas Critical to Wildlife Hazard Management

KLS will monitor the AOA twice a day, per airport manager contract, for hazardous wildlife and attractants in conjunction with other on-airfield duties. Any hazardous wildlife observed or control actions will be recorded on the Weekly Inspection Log and then submitted to the City of Kelso for addition into the *Wildlife Control, Observation, and Strike Database*. KLS will clearly document when no hazardous wildlife are observed as well. Staff will be on call for vegetation management and refuse removal as needed.

6.2 Wildlife Control Measures

KLS will give priority to dispersing or removing coyotes, Canada geese, deer, and gulls from the runway and taxiways when they are observed. A strict approach establishes an attitude for all personnel and helps prioritize events as they occur.

6.2.1 Bird Control

KLS will aggressively harass (e.g., vehicle, pyrotechnic, shoot harass) hazardous birds when observed and may shoot hazardous birds that fail to depart the movement area if non-lethal dispersal is not effective. A life-size coyote effigy will be purchased and used to deter hazardous birds from portions of the airfield. KLS understands that the effigy will only serve as a deterrent as long as it is frequently moved about the airfield. If left in any one place for more than several days, most birds will quickly learn not to fear the effigy. All dispersals and removals will be recorded on the Weekly Inspection Log and then submitted to the City of Kelso for addition into the *Wildlife Control, Observation, and Strike Database.*

6.2.2 Mammal Control

Coyotes and deer will be chased from the airport immediately upon detection. Persistent animals may be lethally removed. The most effective and efficient way to remove these species is by shooting at night. If removal of deer is necessary, KLS may request assistance from WDFW, USDA WS, or will contract out removal work to an entity that will provide fast response and assurance that the killing procedure is safe, effective, and humane. All dispersals and removals will be recorded on the Weekly Inspection Log and then submitted to the City of Kelso for addition into the *Wildlife Control, Observation, and Strike Database.*

6.2.3 Harassment and Deterrent Tools

The following is a list of nonlethal methods KLS may use for harassing and/or deterring hazardous wildlife from the airfield. Other methods may be employed as developed or if conditions warrant.

- Pyrotechnics
- Effigies
- Sirens/distress calls
- Grass management
- Ground compaction (moles)
- Vehicle harassment
- Lasers
- Shooting harassment
- Disking/destruction of mole burrows

6.3 Communication Between Wildlife Control Personnel and Local Air Traffic

KLS is a non-towered airport. The wildlife control vehicle shall have a rotating overhead beacon and an operational two-way radio for monitoring air traffic at KLS. All personnel assigned to this vehicle will be trained in proper radio communication and familiar with aeronautical operations.

KLS will communicate with fixed-base operators regarding any wildlife strikes or observations of wildlife activity at the airfield. Hazardous wildlife observations and wildlife strikes reported by pilots or fixed-base operators will be recorded on the Weekly Inspection Log and then submitted to the City of Kelso for addition into the *Wildlife Control, Observation, and Strike Database.* A notice will be posted in the FBO lounge, requesting that the FBO be notified of wildlife hazards. As provided by contract, the FBO shall submit a letter to each airport tenant warning of wildlife hazards in anticipation of seasonal variation.

If KLS is not successful in immediately dispersing wildlife from the AOA, or if major wildlife hazards (such as a deer on or near the active runway) are observed during aircraft operations, KLS will communicate this information to pilots. Direct communication or NOTAMs will be used whenever possible.

6.4 Recording Wildlife Control Measures, Observations, and Strikes

KLS will document hazardous wildlife observations made during the required runway inspections and may record hazardous wildlife observations made in conjunction with other on-airfield duties. Any control measures taken and possible wildlife strike events will be recorded as well (refer to AC 150/5200-32A or go to http://wildlife.pr.erau.edu/strikeform/birdstrikeform.php for wildlife strike reporting procedures). Any dead wildlife found within 200 feet of centerline will be reported as a wildlife strike, unless some alternative, **obvious**, cause of death is confirmed. Paper datasheets (Weekly Inspection Log) for recording observations/control actions will be kept in the wildlife control vehicle. These records will be kept in a dedicated,

electronic, *Wildlife Control, Observation, and Strike Database,* managed by the City of Kelso. This electronic database will allow for simple and prompt review throughout the year, and especially for the annual review of the WHMP. USDA WS can provide a simple Microsoft Excel database and training for entering these data.

7 Periodic evaluation and review of the wildlife hazard management plan

KLS recommends they meet at least once per year with representatives from the following departments:

KLS
City of Kelso
Airport Board
Airport Manager
Fixed-based Operator(s)
Concerned pilots who have provided comments documented, in the weekly inspection log, regarding wildlife issues

Other Assisting Agencies:
USDA Wildlife Services

During this annual meeting KLS should review the Wildlife Control, Observation, and Strike Log. KLS will discuss the effectiveness of wildlife dispersal and control efforts and any need for changes to permits or direct/technical assistance from USDA WS.

KLS, pilots, and ground crews will be familiar with the proper procedures for collecting and reporting wildlife strike information (either on the web at http://wildlife.pr.erau.edu/strikeform/birdstrikeform.php or using the FAA Form 5200-7). KLS will attempt to determine the correct species of bird whenever possible (wildlife dispersal, carcass reporting, strike reporting, etc.). If a collected specimen is unidentifiable, KLS will either contact USDA WS for assistance (or other trained ornithologist) or send appropriate parts to the Smithsonian Institution Feather Lab for proper identification (refer to AC 150/5200-32A for directions).

8 A training program to provide airport personnel with the knowledge and skills needed to carry out the wildlife hazard management plan

Individuals conducting wildlife control at KLS will receive at least four hours of wildlife hazard management training from a FAA-approved airport wildlife biologist every 3 years. This training will reflect guidance provided by AC 150/5200-36 and will help KLS personnel develop and retain familiarity with bird identification and wildlife control methods.

9 References

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APPENDIX H: INTRODUCTION/SUMMARY

The City of Kelso initiated this review of the Southwest Washington Regional Airport (KLS) management structure to determine whether any alternatives to the current City owned and operated structure was available. After the range of acceptable alternatives was identified, a comparison of the advantages and disadvantages of each was conducted. The following report includes details regarding the steps that were taken in this evaluation. These steps include;

- Review of the airport's existing management structure.
- Review of the authority and powers extended to municipalities under the Revised Code of Washington (RCW).
- Identification of the Federal Aviation Administration (FAA) obligations and requirements of airport sponsors who accept federal funding through the FAA's Airport Improvement Program (AIP).
- Identification of the range of alternative airport management structures available under Washington code.
- Examine the examples of other Washington airports and the management structures that they operating under.
- Evaluation of the advantages and disadvantages of each management alternative in comparison to the existing City owned and operated management structure at Southwest Washington Regional Airport.
- Identification of the City's goals regarding airport management.
- Identification of the changes and/or actions required to implement an alternative management structure for KLS.

The City of Kelso currently carries the full obligations associated with airport ownership, operation and management. However, the financial burden of operating the airport is shared, in part, by the City of Kelso, City of Longview, Port of Longview, and Cowlitz County which provide annual financial contributions to the Airport Fund. Total annual contributions from these sources average $80,000 per year or 40 percent of annual airport operating expenses.

In the State of Washington there are a number of public bodies that could legally assume ownership and operational responsibility for KLS. Allowing any of these to assume control would relieve the City of Kelso of the total responsibility for the airport and provide a more rational and sustainable structure for future airport financial stability. However, the entity that ultimately assumes control would need to address many of the same issues being faced by the City today including setting reasonable rates for aircraft storage and support facilities and providing staff to operate and manage the day-to-day activities at the airport. Additionally, unless the entity assuming control has considerably more resources than the City of Kelso, it is likely that the four financial contributors to the airport would be required to continue this support since the business planning conducted as part of the master plan indicates that the income derived from the airport is unlikely to cover the expense of improving, maintaining and operating the facility for the foreseeable future.

It is recommended in this report that serious consideration be given to transferring ownership of KLS to the Port of Longview. The Port is the only entity with legal governance authority that has a regional perspective as part of its core mission. Currently the airport serves a variety of users that benefit the region rather than the City of Kelso alone. The following list includes those governmental agencies that have recently utilized KLS to provide Statewide or regional service;

1. The Washington State Department of Transportation, Air Search Coordination
2. The Washington National Guard
3. The Civil Air Patrol
4. Area Police and Sheriff Departments
5. The Washington State Patrol
6. The United States Army
7. The United States Coast Guard
8. The Drug Enforcement Administration
9. The Department of Homeland Security and
10. Numerous “Angel Flight” missions providing emergency medical services

In addition to these agencies that bring essential public services to the region, surveys and observations at the airport show that the entities that base their aircraft at KLS or who use the airport for transient operations have a regional impact also. Some of these users include;

1. Les Schwab Tire
2. John Deere Equipment

3. U-Haul Rentals
4. Clary Chevrolet
5. Weyerhaeuser
6. Mint farm and their clients
7. Clients of the Port of Kalama, and the Port of Longview
8. Kelso Aviation
9. NW Airtech
10. Interstate Wood Products
11. Hydraulic Services
12. Moilanen Aerial Photography
13. Woods Logging
14. Life Flight
15. Wasser Winters
16. Long-Air and
17. Lakeside Industries

Again, these aircraft owners and operators use the airport in support of their business interests, bringing jobs and economic activity to the region. This again emphasizes the need for a regional perspective to airport ownership, use and expansion in the governing agency. By having the Port of Longview assume ownership, an operational structure that gives the FAA and WSDOT an entity that is qualified to receive and administer grants while allowing for shared financial contributions can be maintained.

1.0 EXISTING AIRPORT MANAGEMENT STRUCTURE

The City of Kelso has a City Manager form of government which is commonly used both in Washington State and nationally. Under this form of government the City Council, as elected officials, appoint a City Manager to oversee the day-to-day management and administration of the city and the various departments that provide city services (e.g. Public Works, Planning & Zoning, Parks & Recreation, etc.). The Kelso City Council is seven-member body with each member elected to serve a four-year term. The powers and authority granted to the City Council are defined in the Kelso City Charter (Ord. 3279 § 2(g)–(i), 1995). The Council elects one of its members to serve as Mayor for a two-year term. The mayor has no regular administrative duties.

The City Manager serves at the pleasure of the City Council for an indefinite term. The specific responsibilities of the City Manager as defined in the Kelso Municipal code are as follows:

- To have general supervision over the administrative affairs of the city;
- To appoint and remove, at any time, all department heads, officers and employees of the city, subject to the provisions of any applicable law, rule or regulation relating to civil service or other tenure of office laws;
- To attend all meetings of the City Council at which his attendance may be required by that body;
- To see that all laws and ordinances are faithfully executed, subject to the authority that the council may grant the mayor to maintain law and order in times of emergency;
- To recommend for adoption by the council such measures as he may deem necessary or expedient;
- To prepare and submit to the council such reports as may be required by that body or as he may deem it advisable to submit;
- To keep the City Council fully advised of the financial condition of the city, and its future needs;
- To prepare and submit to the City Council a proposed budget for the fiscal year, as required by RCW Chapter 35A.33, and to be responsible for its administration upon adoption;

- To perform such other duties as the council may determine by motion, ordinance or resolution. (Ord. 2972 § 3(B).

The Southwest Washington Regional Airport is currently managed through the City of Kelso's Public Works Department under the direction of the Director of Public Works who reports to the City Manager. The Director of Public Works directs the airport manager, coordinates and reviews all airport operations, building and field maintenance, construction plans, community relations, financial and personnel matters at the airport. Other duties and responsibilities include:

- Monitor and assure compliance of the Airport with regard to applicable FAA and other federal regulations and requirements.

- Establish rates and charges necessary to achieve cost recovery of airport operating and maintenance expenses in accordance with sound business practices.

- Develop and publish minimum standards for commercial operators and tenants to provide a basis for practical negotiations. Supervise and coordinate airline, general aviation and military tenants regarding use of airport facilities.

- Review airport tenant activities for compliance with terms of leases and other agreements.

- Confer with airport businesses and tenants, the FAA, and others regarding airport regulations, facilities and related matters.

- Plan for increased aircraft activity and facilities expansion.

- Determine and recommend airport staffing requirements.

- Compile and submit an annual airport budget.

- Coordinate airport activities with construction, maintenance, and other work done by departmental staff, tenants, public utilities, and contractors.

- Prepare FAA Airport Improvement Program (AIP) grant applications and administration of AIP funds.

- Solicit qualifications for consultants. Guide the selection process and manage and administer consultant contracts.

- Present recommendations to the Airport Board on matters pertaining to the business, operation, conduct and use of the airport. The Airport Board makes recommendations on airport matters to the City Council as the policy and decision making authority.

- Public relations, promotion and marketing of the airport and services to the public, customers/users, air carriers, and political interests.

The day-to-day operation of the airport is monitored by the airport manager. The airport manager is responsible for enforcing the rules and regulations for the airport as set forth in the Kelso Municipal Code and as directed by the Council, City Manager and Director of Public Works. The existing Fixed Base Operator (FBO) currently serves as airport manager under contract to the City. The airport manager's regular responsibilities include the following:

- Keep the airport office open during business hours as specified in the agreement.

- Maintain the records and required documentation of hangar tenants.

- Provide monthly written report to and attend Airport Board meetings.

- Notify the Department of Public Works when repairs are needed to pavement, fencing or signage.

- Keep runways clear of debris.

- Provide bird and animal control.

- Maintain accident logs.

- Issue NOTAMS.

- Close or open the airport runway when needed.

- Monitor fuel tanks and report leaks.

- Provide weather reports when requested.

- Log complaints and document to the Public Works Department.

- Maintain airport maintenance log.

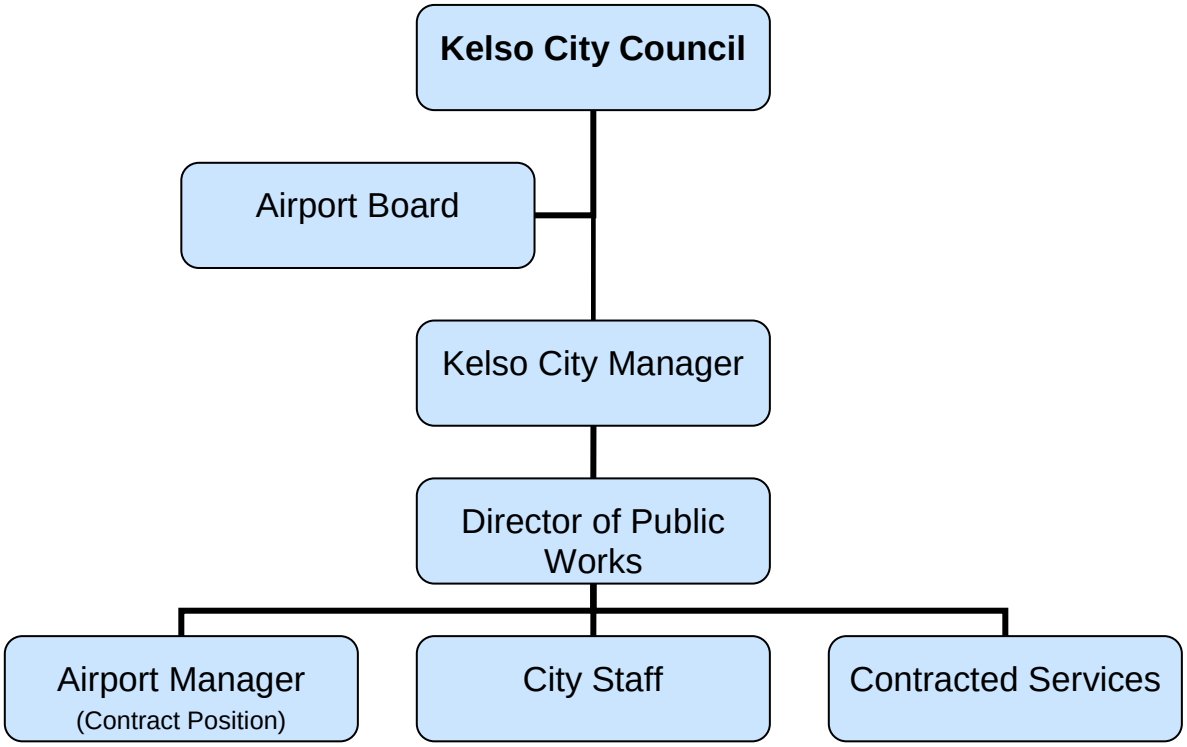
- Mow grass areas as specified during the winter off-season.
- Monitor condition and provide minor maintenance of airport lighting.
- Maintain knowledge of Airport Master Plan and notify Public Works Department of pending Master Plan related updates or events.
- And, additional duties as requested by and negotiated with the Public Works Department.

The City has also established an Airport Board to advise and make recommendations to the City Council on matters concerning the airport. The four-member Board includes one member designated by the City of Kelso, one member designated by the City of Longview, a third designated by the Port of Longview, and a fourth designated by Cowlitz County. Members serve for indefinite terms as determined by their respective jurisdictions. The Airport Board is established under Section 2.72 of the Kelso Municipal Code which defines the role and function of the Airport Board as follows:

- The board shall be responsible for the day-to-day operation and maintenance of the airport. It shall also be the responsibility of the board to advise the city manager and the city council relative to the acquisition, utilization, care, maintenance and disposition of all airport facilities and all property or equipment pertaining to or associated with the airport.
- The board shall review, advise and make recommendations to the city manager and city council relative to the promulgation and enforcement of rules and regulations governing the operation of the airport. In addition thereto, the board shall make recommendations to the city council regarding the granting or revocation of FBO leases or other grants of operational authority at the airport.
- In addition thereto, the board shall have such further duties as may from time to time be assigned to it by the city council. (Ord. 3360 § 2, 1997)

The organization and management structure for the Airport is summarized in Exhibit 1.

Exhibit 1: Airport Management Structure



The Kelso Municipal Code Title 13, Chapter 13.12 sets forth in detail the rules and regulations for operation of the airport. Chapter 13.12 is composed of five Articles, each dealing with a separate aspect of management and operation of the airport as follows:

- **Article I. General Provisions**: Sets forth definitions of responsibilities, allowable activities and public safety relative to the airport.

- **Article II. Aeronautical Regulations**: Defines the rules and regulations for operation of aircraft, use of airport facilities and the conduct of aviation associated activities on airport.

- **Article III. Motor Vehicles**: Addresses the operation of surface vehicles on and around the airport.

- **Article IV. Minimum Standards for Fixed Base Operators and Airport Tenants:** Sets forth the rules, regulations and performance requirements for on-airport commercial

activities.

- **Article V. Penalties**: Defines the penalties for violating the rules and regulations established in Articles I through IV.

A complete listing of subchapters of the Kelso Municipal Code Title 13 Public Services, Chapter 13.12 Kelso Airport is presented in Appendix X of this Master Plan report.

1.1 Kelso-Longview Regional Airport Authority

Although no longer in existence, a Kelso-Longview Regional Airport Authority was established in 1993 by intergovernmental agreement between the City of Kelso, City of Longview, Cowlitz County and Port of Longview. Each participant in the agreement appointed two representatives to the authority and staff support was provided by the City of Kelso. The Airport Authority was disbanded in 2000 because it was unable to fulfill necessary FAA legal requirements for airport sponsors within the powers available to it. However, the Regional Airport Authority provided the foundation for the existing Airport Board and inter-governmental cooperation on the airport that continues today.

1.2 Kelso-Longview Regional Airport Joint Funding

As noted in the finance discussion of the Existing Conditions chapter, although the airport is under the jurisdiction and management authority of the City of Kelso, the City of Longview, Cowlitz County and Port of Longview also contribute financially to the maintenance and operation of the Southwest Washington Regional Airport.

2.0 POWERS AUTHORIZED UNDER THE REVISED CODE OF WASHINGTON

The power to develop, own and operate municipal airports in Washington is set forth under Title 14 Aeronautics of the Revised Code of Washington (RCW). These powers are extended to any county, city, town, airport district, or port district of Washington for "airport purposes" including airports, restricted landing areas and other air navigation facilities (RCW Chapter 14.08, Section 14.08.010).

2.1 Airports Are a Public Purpose

Under RCW, the county, city, town, airport district, or port district, hereinafter referred to as "municipality", is invested with significant powers. Section 14.08.020 of RCW declares the airport to be a public purpose and as such may acquire land, property, easements, and privileges to establish, construct, enlarge, improve, maintain, equip and operate airports and other air navigation facilities. The exercise of these powers are declared a public purpose, and acquired and used as a matter of public necessity. Furthermore, a municipality may exercise these powers "either within or without the territorial limits of such municipality and within or without this state" (RCW 14.08.030)

In addition to authorizing property acquisition by the municipality for aeronautical purposes, RCW Section 14.08.030 also extends the power of eminent domain to the municipality both within and beyond its territorial limits not only for airport land area requirements but also the purpose of maintaining unobstructed airspace around the airport as well. Objects or vegetation penetrating airport protective areas may be deemed public nuisances and, if necessary, the municipality may enter the property and remove the encroachment without incurring any liability for damages in doing so.

2.2 Airport Finance

Under RCW Title 14, municipalities are authorized to finance their actions and authority through the issuance of public debt in the form of bonds covered by airport revenues, mortgages and general tax levies. Revenues derived from the airport or associated activities are required to be applied to airport financial obligations in a certain sequence, specifically;

- First, to airport operating and maintenance costs;
- Second, to debt coverage on bonds or long-term debt instruments;
- Last, to the extension, expansion or improvement of the airport or air navigation facilities.

2.3 Specific Powers of Municipalities Operating Airports

Under RCW 14.08.120, a municipality may vest any of the powers authorized to it under RCW to" an officer, a board, or body of the municipality by ordinance or resolution that prescribes the powers and duties of the officer, board, or body". The municipality may also "vest authority for industrial and commercial development in a municipal airport commission" subject to certain

provisions as to eligibility of members and the establishment and functioning of the commission. However, the expense of the construction, enlargement, improvement, maintenance, equipment, industrial and commercial development, operation, and regulation remain the responsibility of the municipality.

In addition, key powers extended to municipalities under RCW are summarized below. For a more complete listing the powers of municipalities under Washington Revised Code please refer to RCW Title 14 Aeronautics.

- Adopt and amend all needed rules, regulations, and ordinances for the management, government, and use of any properties under its control, whether within or outside the territorial limits of the municipality.

- Provide for the public safety through the acquisition and operation of fire protection equipment and facilities or to contract with any private body or political subdivision for such protection.

- To appoint airport guards or police, with full police powers;

- To fix by ordinance or resolution, as may be appropriate, penalties for the violation of the rules, regulations, and ordinances, and enforce those penalties in the same manner in which penalties prescribed by other rules, regulations, and ordinances of the municipality are enforced.

- To adopt and enact rules, regulations, and ordinances designed to safeguard the public upon or beyond the limits of private airports or landing strips within the municipality or its police jurisdiction against the perils and hazards of instrumentalities used in aerial navigation. Rules, regulations, and ordinances shall be published as provided by general law the publication of similar rules, regulations, and ordinances. They shall conform to and be consistent with the laws of this state, the rules of the state department of transportation, and shall be kept in conformity, as nearly as may be, with current federal legislation regulations, rules and standards governing aeronautics.

- To create a special on-going airport fund for receipt of revenues, as well as applied toward payment of aviation bonds, or the future maintenance, construction, or operation of airports or airport facilities.

- To lease airports or other air navigation facilities, or real property acquired or set apart for airport purposes, to private parties, any municipal or state government or the national government, or any department thereof for operation or use consistent with the purposes of RCW Title 14, providing that the airport and air navigation facilities remain accessible to and for use by the public.

- To lease real or personal property belonging to the municipality and found to be found to be not or no longer needed for airport purposes. The maximum lease term shall be for 75 years. Any lease of real property for longer than ten years must include provisions for periodic renewal and rate adjustments. Any disputes will be subject to arbitration.

- The proceeds of the sale of any property purchased through the sale of bonds shall be applied to repayment of the bond(s). Any additional proceeds of the sale not needed for repayment of bonds shall be deposited into the Airport Fund. In addition, the proceeds of sales of property originally paid for through the use of tax funds shall be paid into the Airport Fund of the municipality.

- To establish reasonable rates and charges for the use of any properties under the municipality's control, charges for any services or accommodations, and the terms and conditions under which such properties may be used, as long as public access and use is preserved.

- Lastly, to exercise all powers necessary and incidental to the exercise of the general and special powers granted under RCW Title 14, Aeronautics.

2.4 Existing Bodies with Authority to Operate Airport

Under the powers set forth in the RCW title 14, Aeronautics, those local governmental bodies with authority to own and operate an airport include any city, county, port district or county airport district. The airport is currently located within the jurisdictional boundaries of the City of Kelso and the Port of Longview (District 2). However, as noted in RCW Title 14, Aeronautics, the authority to own and operate an airport extends beyond a municipality's geographic boundaries, therefore virtually any city, county, or port district meeting the definition and requirements set forth in RCW is eligible to own and operate the airport, regardless of the whether the airport is located within its jurisdictional boundaries. Existing bodies meeting this definition include, but are not limited to the following:

Cities	Counties	Port Districts
• City of Kelso	• Cowlitz	• Port of Longview
• City of Longview	• Wahkiakum	• Port of Kalama
• Any other municipality or incorporated area	• Lewis	• Port of Wahkiakum County No. 1
		• Port of Woodland
		• Port of Ridgefield

In addition to the public entities identified above, the State of Washington Department of Transportation Aviation Division has the necessary authority to take over ownership and/or operation of the airport as well.

2.5 Additional Alternatives to Airport Operation

County Airport Districts

The establishment of county airport districts is authorized under RCW 14.08.290. A county airport district may be formed by application signed by at least 100 registered voters residing and owning property within the proposed district boundaries. The validated application must then be presented to the voters of the proposed district at the next election.

The county airport district may include all or portions of incorporated cities and towns within the county. Once established the county airport district shall be considered a municipality as defined under RCW title 14 and entitled to all the powers conferred upon and exercised by municipal corporations in this state. The county airport district is also authorized to levy taxes (not more than seventy-five cents per thousand dollars of assessed value of the property lying within the district) if first approved by a public vote at any election called for the purpose of voting on such a levy.

New Port District

As already noted, Port Districts are authorized to own and operate airports under RCW. Port districts may be established for entire counties or limited to smaller geographical areas. It is common within the state for multiple ports districts to exist within a single county. Exhibit X-2 identifies those Washington counties that have more than one port district. It should be noted that the exhibit does not include those counties which contain only one port district.

Exhibit X-2: Washington Counties with Multiple Port Districts

County	Port Districts Operating
Benton County	2
Clark County	3
Cowlitz County	3
Franklin County	2
Grant County	10
Island County	3
Kitsap County	12
Lewis County	2
Mason County	5
Pacific County	4
San Juan County	2
Skagit County	2
Snohomish County	2
Wahkiakum County	2
Yakima County	2

Source: Washington Ports Association

The establishment of a new port district, as defined in the RCW, follows a process similar to that of a County Airport District. For a county-wide airport district, RCW defines the process as follows:

Washington Revised Code RCW 53.04.020: Formation of county-wide district

At any general election or at any special election which may be called for that purpose, the county legislative authority of any county in this state may, or on petition of ten percent of the registered voters of such county based on the total vote cast in the last general county election, shall, by resolution submit to the voters of such county the proposition of creating a port district coextensive with the limits of such county. Such petition shall be filed with the county auditor, who

shall within fifteen days examine the signatures thereof and certify to the sufficiency or insufficiency thereof, and for such purpose the county auditor shall have access to all registration books in the possession of the officers of any incorporated city or town in such proposed port district. If such petition be found to be insufficient, it shall be returned to the persons filing the same, who may amend or add names thereto for ten days, when the same shall be returned to the county auditor, who shall have an additional fifteen days to examine the same and attach his or her certificate thereto. No person having signed such petition shall be allowed to withdraw his or her name therefrom after the filing of the same with the county auditor. Whenever such petition shall be certified to as sufficient, the county auditor shall forthwith transmit the same, together with his or her certificate of sufficiency attached thereto, to the legislative authority of the county, who shall submit such proposition at the next general election or, if such petition so requests, the county legislative authority shall, at their first meeting after the date of such certificate, by resolution, call a special election to be held in accordance with *RCW 29.13.010 and 29.13.020. The notice of election shall state the boundaries of the proposed port district and the object of such election. In submitting the question to the voters for their approval or rejection, the proposition shall be expressed on the ballot substantially in the following terms:

"Port of . . . . . ., Yes." (giving the name of the principal seaport city within such proposed port district, or if there be more than one city of the same class within such district, such name as may be determined by the legislative authority of the county).

"Port of . . . . . ., No." (giving the name of the principal seaport city within such port district, or if there be more than one city of the same class within such district, such name as may be determined by the legislative authority of the county).

For a less than county-wide port district, RCW defines the process as specified below.

Washington Revised Code RCW 53.04.023: Formation of less than county-wide district

A less than county-wide port district with an assessed valuation of at least one hundred fifty million dollars may be created in a county that already has a less than county-wide port district located within its boundaries. Except as provided in

this section, such a port district shall be created in accordance with the procedure to create a county-wide port district.

The effort to create such a port district is initiated by the filing of a petition with the county auditor calling for the creation of such a port district, describing the boundaries of the proposed port district, designating either three or five commissioner positions, describing commissioner districts if the petitioners propose that the commissioners represent districts, and providing a name for the proposed port district. The petition must be signed by voters residing within the proposed port district equal in number to at least ten percent of such voters who voted at the last county general election.

A public hearing on creation of the proposed port district shall be held by the county legislative authority if the county auditor certifies that the petition contained sufficient valid signatures. Notice of the public hearing must be published in the county's official newspaper at least ten days prior to the date of the public hearing. After taking testimony, the county legislative authority may make changes in the boundaries of the proposed port district if it finds that such changes are in the public interest and shall determine if the creation of the port district is in the public interest. No area may be added to the boundaries unless a subsequent public hearing is held on the proposed port district.

The county legislative authority shall submit a ballot proposition authorizing the creation of the proposed port district to the voters of the proposed port district, at any special election date provided in RCW 29.13.020, if it finds the creation of the port district to be in the public interest.

The port district shall be created if a majority of the voters voting on the ballot proposition favor the creation of the port district. The initial port commissioners shall be elected at the same election, from districts or at large, as provided in the petition initiating the creation of the port district. The election shall be otherwise conducted as provided in RCW 53.12.172, but the election of commissioners shall be null and void if the port district is not created.

As noted previously, ports are authorized to own and operate municipal airports under: RCW Title 14, Aeronautics, Chapters 14.07 and 14.08.

Southwest Washington Regional Airport is located within the Port of Longview's district boundary – which encompasses the northern portion of Cowlitz County. The Port of Kalama boundary extends from the southern boundary of the Port of Longview to the northern boundary of the Port of Woodland. Given that port boundaries cannot overlap, the airport would need to be removed from the Port of Longview's district before it could be incorporated into any new port district that might be established. Otherwise, ownership and or operation of the airport would need to be by one of the existing port districts in the area.

Private Sector

Private management and operation of the airport is a possibility through a management contract with the city of Kelso, or outright divestiture of the airport by the city to a private entity. Under a private management contract, the city would retain actual ownership of the airport and therefore remain eligible to receive FAA grants as the airport sponsor. Tacoma Narrows Airport is an example of a publicly owned regional general aviation airport that is under private management.

Sale of the airport to a private operator would result in the loss of access to federal grant funding for airport improvements, even if the airport remains a public-use facility. Furthermore, FAA would also likely need to be reimbursed for any unamortized value remaining from previous grants received by the airport. The value of any property purchased using federal funding would need to be reimbursed at current market rates based on the original percentage of federal participation. Harvey Field in Snohomish County is an example of an active privately owned public-use facility.

2.6 Joint Operating Agreements

Under RCW 14.08.200, municipalities are authorized to enter into joint agreements with one or more other municipalities, with Washington or other states, and within or beyond the municipality's territorial limits. This section of RCW also authorizes to the state all those powers extended to municipalities when acting jointly with one or more municipalities.

Any joint agreements between municipalities must set forth "…the proportionate interest which each municipality shall have in the property, facilities, and privileges involved, and the proportion of preliminary costs, cost of acquisition, establishment, construction, enlargement, improvement, and equipment, and of expenses of maintenance, operation, and regulation to be borne by each, and make such other provisions as may be necessary to carry out the provisions of this section. It shall provide for amendments thereof and for conditions and methods of

termination; for the disposition of all or any part of the property, facilities, and privileges jointly owned if the property, facilities, and privileges, or any part thereof, cease to be used for the purposes provided in this section or if the agreement is terminated, and for the distribution of the proceeds received upon any such disposition, and of any funds or other property jointly owned and undisposed of, and the assumption or payment of any indebtedness arising from the joint venture which remains unpaid, upon any such disposition or upon a termination of the agreement."

Municipalities entering into a joint agreement are required to establish a board from residents of the municipalities. The board shall consist of members to be appointed by the governing body of each municipality involved, the number to be appointed by each to be provided for by the agreement for the joint venture. Each member shall serve for such time and upon such terms as to compensation, if any, as may be provided for in the agreement.

A board established under such a joint agreement may exercise, on behalf of the municipalities acting jointly by which it is appointed, all the powers of each of the municipalities granted by this chapter, except for the disposal of real property, which must be approved by all the appointing governing bodies of each participating municipality. However, the board is authorized to lease real property and sell personal property when deemed to be in the best interest of the municipalities.

Each municipality participating in a joint agreement is authorized to enact ordinances and penalties as provided for under RCW 14.08.120(2). Such ordinances and penalties are in effect both within the municipality as well as on any property jointly controlled under the agreement, whether within or beyond the municipality's territorial limits.

When participating in a joint agreement, any condemnation proceedings shall be instituted in the names of the municipalities jointly and any property acquired through such proceedings shall be held by the municipalities as tenants in common.

Under a joint agreement, a fund shall be established, into which each of the municipalities involved shall deposit its proportionate share as specified in the agreement. Such funds shall be provided for by bond issues, tax levies, and appropriations made by each municipality in the same manner as though it were acting individually under the authority of RCW Title 14. The revenues obtained from the ownership, control, and operation of the airport(s) and other air navigation facilities jointly controlled under the agreement shall be paid into the fund, to be expended as specified in the RCW. Revenues in excess of cost of maintenance and operating

expenses of the joint properties shall be divided or allowed to accumulate for future anticipated expenditures as may be provided in the original agreement, or amendments thereto, for the joint venture.

3.0 FEDERAL AIRPORT REQUIREMENTS AND OBLIGATIONS

In order to receive federal funds available through the Federal Aviation Administration (FAA) under the Airport Improvement Program (AIP), airports and their sponsoring municipality must meet certain criteria and commit to fulfilling certain obligations to the federal government. Although not an airport management alternative, the ability to access federal funding for eligible airport improvements and the capability to meet the associated obligations and commitments can have a direct impact on the viability of airport management alternatives under consideration.

As mentioned previously, a Regional Airport Authority was established in 1993 for Southwest Washington Regional Airport by inter-governmental agreement between the City of Kelso, City of Longview, Cowlitz County and Port of Longview. However, the Regional Airport Authority was disbanded in 2000 as it lacked the necessary authority to meet FAA requirements and fulfill obligations associated with receipt of Federal funds.

Federal requirements of airport sponsors receiving federal funding are set forth in FAA Order 5190.6a, the Airport Compliance Handbook. The following information, obtained through the FAA, summarizes these requirements and obligations.

3.1 Airport Obligations: Overview

The FAA's Airport Compliance Program ensures that airport sponsors comply with the Federal obligations they assume when they accept Federal grant funds or the transfer of Federal property for airport purposes. The program serves to protect the public interest in civil aviation and ensure compliance with applicable Federal laws, FAA rules, and policies.

3.2 Sources of Obligations

When airports receive Federal assistance, the airport owners or sponsors accept certain obligations and conditions, which may be incurred by contract or by restrictive covenants in property deeds. These may include the following:

- Grant agreements or Grant Assurances issued under Federal grant programs

- Instruments of approved property transfers
- Deeds of conveyance

When airport owners and operators accept Federal grants, they agree to preserve and operate their facilities in a safe and efficient manner and comply with certain conditions and assurances. These obligations can span different airport development grant programs, including the Federal Aid to Airports Program (FAAP), the Airport Development Aid Program (ADAP), and the Airport Improvement Program (AIP). Grant assurances remain in effect for up to a maximum of 20 years. Airports owners should be aware that obligations incurred under each program or conveyance document vary.

3.3 Major Obligations

The following list includes some of the major obligations an airport owner can incur when accepting a Federal airport development grant.

- Prohibition of exclusive rights to use of the airport
- Use of airport revenue for airport purposes
- Proper maintenance and operation of airport facilities
- Protection of approaches
- Keeping good title of airport property
- Working with surrounding communities to assure compatible land use
- Availability of fair and reasonable terms without unjust discrimination
- Adhering to the approved Airport Layout Plan
- Strive to achieve financial self-sustainability
- Sale or disposal of Federally acquired property
- Preserving rights and powers
- Using acceptable accounting and record-keeping systems
- Compliance with civil rights requirements

The FAA encourages airport owners to review each agreement and conveyance document to ensure that they understand their obligations. Keeping good records will allow them to quickly reference incurred obligations. Further, annual reviews of all agreements will aid efforts in complying with incurred Federal obligations.

3.4 Eligibility for Airport Improvement Program Funding

Eligibility to receive funds under the AIP is contingent upon the type of sponsor and the type of activity for which funds are sought. To receive funds an agency does not necessarily need to own or operate an airport but the funds must be used for purposes related to aviation facilities or systems. The different types of sponsors that are eligible to receive funds are:

- Planning agencies;
- Public agencies owning airports;
- Certain public agencies not owning airports; and
- Certain private airport owners/operators of public-use airports.

A state, whether it owns an airport or not, may sponsor development at airports within the state. If the state is not the owner of the airport, certain policies and conditions may apply.

A "municipality" or airport board or authority operating under the powers conveyed under RCW Title 14, Aeronautics, should meet FAA eligibility requirements for receipt of AIP funds.

3.5 Legal and Financial Responsibilities of AIP Funding

Airport sponsors seeking or accepting federal AIP funding must:

- Be legally, financially, and otherwise able to assume and carry out the certifications, representations, warranties, assurances, covenants and other obligations required of sponsors which are contained in the AIP project application and grant agreement forms; and
- Have the authority to act as a sponsor. An opinion of the sponsor's attorney as to its legal authority to act as a sponsor and carry out its responsibilities under the grant agreement will be required when deemed necessary or desirable.

3.6 Co-Sponsorship of AIP Projects

Any two or more public agencies desiring to participate in accomplishing a project may co-sponsor a project provided such public agencies jointly or severally meet the requirements of the funding program.

- The terms and conditions of the grant agreement will jointly and severally bind co-sponsors unless their respective rights and obligations with respect to an approved AIP project are otherwise set forth in a written agreement. A true copy of such agreement must be incorporated in or made a part of the project application submitted to the FAA office in whose jurisdiction the airport is located. The agreement shall, as a minimum, set forth:

    - The responsibilities of each co-sponsor to the other(s) with respect to the accomplishment of the proposed development, operation, and maintenance of the airport;

    - The obligations which each will assume to the United States; and

    - The names of the sponsor or sponsors who will accept receipt of and disburse grant payments.

- A public agency that desires only to contribute funds to a sponsor need not become a sponsor or an agent of the sponsor. However, any funds contributed become funds of the sponsor(s) for purposes of the project.

- Any other entity not legally, financially, and otherwise able to assume and carry out the certifications, representations, warranties, assurances, covenants and other obligations required of sponsors may co-sponsor a development project only if an eligible sponsor co-signs the grant, and a written agreement must bind that sponsor to the terms and conditions of the grant.

3.7 Public Agencies as Agents

A public agency authorized by state or local law may act as an agent of the public agency that owns and operates the airport without participating financially in the project or becoming a sponsor. The terms and conditions of the agency and the agent's authority to act for the sponsor must be set forth in an agreement that is satisfactory to the FAA Administrator, a true copy of

which must be submitted for approval with the project application. Such agent may accept, on behalf of the sponsor, a grant only if that acceptance has been specifically authorized by resolution or ordinance of the sponsor's governing body and such authority is specifically spelled out in the agreement.

3.8 AIP Funding Eligibility by Airport Ownership

In general, public agencies owning public-use airports are eligible to receive federal grants for:

- Airport master planning;
- Noise compatibility planning;
- Noise program implementation projects; and
- Airport development projects.

Public agencies not owning public-use airports are eligible to receive grants for:

- Airport master planning to obtain necessary agreements and FAA site approval to acquire existing airports or develop a new airport;
- Compatible land use planning in areas around a large or medium hub provided the airport has not submitted a Part 150 program to the FAA (or has not updated its approved airport noise compatibility program within the preceding 10 years);
- Noise program implementation where such projects are for educational/medical buildings within the noise impact area at a public airport (or are included within the airport’s Part 150 program approved by the FAA) and the compatible land use projects resulting from (2) above. See Chapter 8 about noise compatibility projects; and
- Acquisition of existing airports or development of a new airport.

Private airport owners eligible to receive AIP funding may be an individual, a partnership, or corporation, that owns a public-use airport used or intended to be used for public purposes that is designated as a reliever airport or an airport that has at least 2,500 passenger boardings each year and receives scheduled passenger aircraft service.

A privately owned airport sponsor, as defined above, is eligible for AIP funding of:

- Airport development projects;
- Airport master planning;
- Noise compatibility planning; and
- Noise program implementation projects.

State sponsorship of airport projects is also possible. Title 49 U.S.C., Section 47105(a) (1) (B) allows State sponsorship of development projects, including master planning, for one or more airports. This provision is subject to three statutory conditions:

- The sponsor of each airport shall consent in writing to State sponsorship;
- There shall be administrative merit and aeronautical benefit to the State sponsorship; and
- An agreement acceptable to FAA shall exist to assure compliance with appropriate grant conditions and assurances.

3.9 Federal AIP Grant Assurances

There are numerous grant assurances associated with the receipt of federal AIP funding. A general list of the topics that may apply to the acceptance of Federal funds is provided below.

- General Federal Requirements
- Responsibility and Authority of the Sponsor
- Sponsor Fund Availability
- Good Title
- Preserving Rights and Powers
- Consistency with Local Plans
- Consideration of Local Interests
- Consultation with Users
- Public Hearings
- Air and Water Quality Standards
- Pavement Preventive Maintenance

- Terminal Development Prerequisites
- Accounting Systems, Audit and Record Keeping
- Minimum Wage Ranges
- Veteran's Preference
- Conformity to Plans and Specifications
- Construction Inspection and Approval
- Planning Projects
- Operation and Maintenance
- Hazard Removal and Mitigation
- Compatible Land Use
- Economic Nondiscrimination
- Exclusive Rights
- Fee and Rental Structure
- Airport Revenue
- Reports and Inspections
- Use by Government Aircraft
- Land for Federal Facilities
- Airport Layout Plan
- Civil Rights
- Disposal of Land
- Engineering and Design Services
- Foreign Market Restrictions
- Policies, Standards, and Specifications
- Relocation and Real Property Acquisition
- Access by Intercity Buses

Not all of the above grant assurance categories will apply in all circumstances and the airport sponsor will need to review each category in depth to determine the terms of the assurance. The FAA has the flexibility to modify or alter the assurances from agreement to agreement to reflect changing circumstances over time or between airports.

4.0 THE UNIQUE REQUIREMENTS OF AIRPORT MANAGEMENT IN A MUNICIPAL GOVERNMENT

In considering management alternatives for the Southwest Washington Regional Airport, differences in the financial structure between airports can play an important role. It is important to acknowledge the differences between Enterprise Fund departments versus General Fund departments. Most city departments are characterized as General Fund departments because

their funding is derived from tax revenues that flow into the city's General Fund. When tax revenues do not meet the projected budget requirements of the General Fund departments, then either taxes are increased to make up the difference or services are reduced to bring the budget in line with the revenues available. More often than not, city officials respond to projected shortages in the General Fund by establishing policies to reduce spending (e.g. moratoriums on new hires and pay increases, deferral of purchasing equipment/vehicles, etc.). Problems can occur, however, when these kinds of policies are adopted department-wide because of the constraints they place on the Enterprise Funds.

In order to successfully manage an airport, the airport should be viewed as a business and treated as such. Municipally-owned airports managed by an Aviation Department are typically operated as an Enterprise Fund. In an Enterprise Fund, the accounting is set up in a manner similar to private business so that revenues and expenses can be clearly defined and allow a net surplus or deficit to be calculated on a monthly basis. This method of accounting also permits the justification for, and establishment of; appropriate fees and charges to allow the airport to be financially self-sustaining, or as near to self-sustaining as practical. While other municipal functions can be operated as enterprise funds, airports are unique in that the degree to which management succeeds in implementing policy, promoting, planning and development, and general management can determine the degree to which financial self-sufficiency is achieved. In addition, unlike other enterprise funds such as utility districts or parking operations, the management structure and resources must be able to negotiate with prospective tenants and customers as well as comply with requirements of Federal regulators. The existence of the Airport Fund at Kelso, separate from the city's General Fund, serves a function similar to an Enterprise Fund and provides a the city with the opportunity to track airport revenues and expenses.

The aviation industry is one of the most highly regulated industries in the United States and airports must comply with a number of federal and state regulations. Compared to other departments within a city's organizational structure, the department managing the airport, whether an Aviation or Public Works Department, is responsible for compliance with a disproportionately greater number of regulations. Failure to comply could jeopardize important federal funding not only for airport projects, but also for other non-airport projects within the city. Thus, any department-wide constraints imposed on an Enterprise Fund department should be carefully evaluated to determine whether it may create or lead to a situation where the Airport is not in compliance with Federal regulations.

As already noted, in addition to the many Federal regulations, an airport which receives FAA grants through the Airport Improvement Program (AIP) must comply with the grant assurances that accompany the grant document as noted under Section 4.9 above. The grant assurances require:

- Economic nondiscrimination by the establishment of fair and reasonable terms and without unjust discrimination (Grant Assurance C 22);

- No exclusive rights are to be given to any person providing, or intending to provide, aeronautical services to the public (Grant Assurance C 23);

- A fee and rental structure which is consistent with regard to economic nondiscrimination and exclusive rights, and which will make the airport as self-sustaining as possible (Grant Assurance C 24); and

- All revenues generated by the airport will be expended only for capital or operating costs of the airport or for local facilities directly and substantially related to the actual air transportation of passengers or property (Grant Assurance C 25).

Compliance with these grant assurances is critical because failure to comply, as stated earlier, could lead to withdrawal of federal participation from any and/or all federally eligible transportation projects within the City.

A common example of how cities can create situations of non-compliance is when rates and fees substantially lower than true market value are approved in the hope of creating or enhancing economic development. In a case like this, to remain in compliance or to re-establish compliance, the city would be required to provide funding to the Airport which makes up the difference between the market value amount and the actual rent or fee.

There is an emphasis within the industry and the FAA on the establishment of rates and charges with respect to the issue of revenue diversion. Revenue diversion can occur in many ways, and includes the failure to consistently establish/impose rates and charges based on market value, even when it's done as an "economic development" measure. The net result is that airport revenues that could and should have been collected are essentially diverted elsewhere.

Issues like compliance with grant assurances and the avoidance of revenue diversion are unique to the management of airports, and they underscore the importance of having an experienced,

professional Airport executive in charge and in control of the management and administration of all airport functions, free from (or at least arms length from) political influences. Additionally, in order for the Airport to be self sustaining as possible, it is critical that the Airport be viewed as a complex business enterprise and treated as such.

5.0 SOUTHWEST WASHINGTON REGIONAL AIRPORT GOVERNANCE ALTERNATIVES

The range of airport management options available for the Southwest Washington Regional Airport is described in the following. These options address airport ownership and management at a "high" level and do not provide details on the specific internal organizations or management structures. Within each option, a wide variety of internal management structures are possible. For example, a large city-owned airport could elect to create its own Aviation Department managed by a Director of Aviation. In contrast, a small city or county-owned airport may simply include the airport under its Public Works Department, managed by the Director of Public Works and operated and maintained by existing employees. In other instances, the responsible municipality may simply contract out the management and operation responsibilities for the facility to a private management company. The options listed below are labeled in accordance with their general management structure:

- **Alternative 1 - Unitary Authority**. All ownership, management, finance, development and operation of the airport is exercised through a single municipal corporation as authorized under RCW Title 14 (town, city, county or port), or by the Washington Aeronautics Division. The Renton Municipal Airport and Snohomish County/Paine Field are examples of sole city and county-owned and operated Unitary Authority facilities.

- **Alternative 2 - Joint Operating Agreement**. Shared responsibilities for the management, operation, finance and development of the airport is exercised through a joint agreement by two or more municipalities as authorized under RCW Title 14, or by the Washington Aeronautics division. Ownership of the airport may be held by one of the signatories to the agreement. Under the Joint Operating Agreement the management, operation finance and development of the airport may be exercised directly through the existing management structure of each signatory to the agreement, or through the establishment of a separate airport board. The Joint Operating Agreement should specify the roles and responsibilities of the participating municipalities as well as the powers and authority extended to the airport board. Pullman Moscow Regional Airport and Yakima Airport represent examples of this type of management structure. A copy of the inter-governmental local agreement for Pullman Moscow Airport is provided in the Appendix.

- **Alternative 3 – County Airport District**. Under this option a separate, independent airport authority is established through creation of a County Airport District as authorized

under RCW 14.08.290. Formation of a County Airport District would need to be approved by voters within the proposed district boundaries and would have certain taxing authority. Under RCW, a County Airport District is recognized as an independent municipal corporation with all the powers available to any municipality as provided under RCW Title 14 for the management, operation and development of the airport and surrounding airspace. King and Grant Counties both have established Airport Districts to support and operate local airports.

The Southwest Washington Regional Airport currently exhibits aspects of both Alternatives 1 and 2 above. The airport is owned, managed and operated by the City of Kelso through its Public Works Department. However, the City of Longview, the Port of Longview and Cowlitz County provide annual financial support to the airport. An Airport Board exists, composed of members from the supporting municipalities. This board serves an advisory role with the actual decision-making authority of the Board being limited. The Airport Board advises the Kelso City Council on any actions that need to be taken. In addition, the City contracts day-to-day management and operation to the airport FBO who serves as the on-site airport manager.

The Kelso-Longview Regional Airport Authority, first established in the early 1990's, was eventually disbanded as it could not meet FAA "legal" requirements, presumably sponsor eligibility criteria and/or grant assurances. The original agreement establishing the Airport Authority was not available for review so the specific powers extended to the authority are unknown at the time of this report. However, under the FAA's AIP program co-sponsorship of projects is allowed so in form, the Airport Authority may have been compliant with FAA requirements. These requirements state that if one or more additional public agencies meeting FAA AIP eligibility criteria co-sponsor an AIP project and "jointly or severally meet the requirements of the funding program" participation in the AIP program for funding of eligible projects is possible.

5.1 Alternative Assessment

Given the range of alternative governing choices available to the City of Kelso, determining the optimum choice for KLS is difficult. Provided below is a brief summary of the relative advantages and disadvantages of each alternative scenario.

Alternative 1 - Unitary Authority

This alternative provides the most efficient decision making structure for the management, operation and maintenance of the airport. All decision making rests within the sole authority of one entity. This entity could be a city, county or Port District. Policy guidance and direction established by the governing council is carried down and implemented through a single organizational structure. Existing staff resources are allocated or assigned roles and responsibilities as needed and any contracts, leases, and/or formal agreements are subject to a single administrative review process.

The management and administrative advantages of this alternative are counter balanced by the burden of carrying the sole responsibilities, liabilities and financial costs of owning and operating the airport. This alternative requires commitment of staff resources already taxed by competing and conflicting needs within the municipality. Lastly, as sole operator of the airport, obtaining the continued cooperation and/or participation of surrounding jurisdictions on items such as land use compatibility planning and financial contributions could be problematic.

Alternative 2 - Joint Operating Agreement

Under a Joint Operating Agreement, the responsibilities, liabilities and financial costs of owning and operating an airport are shared among the participants to the agreement. The form of each signatory's participation may vary from strictly financial support to providing staffing for daily operations, maintenance or management. A separate airport board may be established to reduce the day-to-day management, administration and decision-making burden on any single municipality. A shared sense of "ownership" in the airport would likely also contribute to a shared sense of responsibility in matters requiring inter-governmental cooperation, such as land use compatibility planning.

Operating under a joint agreement could be more cumbersome if decision making required actions and approvals by the individual signatories rather than by the airport board established

for that purpose. Any airport board created under a joint operating agreement should be vested with sufficient authority to act autonomously if efficient decision making is to be realized.

Alternative 3 – County Airport District

Creation of a County Airport District would require that a high level of interest and commitment within a broad cross section of the community be established if the creation of the district is to be successful. Given that the district would essentially create a new municipal entity, an entire management and operating structure would also need to be created or those functions would need to be provided by or contracted from others. The Revised Code of Washington limits the maximum taxing authority of the Airport District and whether the potential tax revenues available to the Airport District would be adequate to support the future needs of the airport would need to be carefully evaluated. Once established, it is unclear how, when or whether a County Airport District could be dissolved. The ability of the Airport District to fulfill FAA AIP sponsor eligibility criteria or ensure compliance with long-term grant assurances is not guaranteed and care would have to be given in the establishment of the district to assure that FAA criteria for sponsorship was fully considered.

A County Airport District might better serve as a participant in a Joint Operating Agreement, using its taxing authority as an alternative or additional source of income to support the airport while relying on other signatories to the agreement or an airport board established under the agreement to provide management, administration, maintenance and operations support.

5.2 Summary

It is clear from this analysis that the Southwest Washington Regional Airport already has elements of Alternative 2 – Joint Operating Agreement in place. The existing Airport Board reflects the foundation that was built under the now defunct Regional Airport Authority. The city of Longview, Cowlitz County and the Port of Longview already provide financial support to the airport and, through the existing Airport Board, have a voice in the management and operation of the facility. Although the city of Kelso actually owns and operates the airport, there is nothing in the existing relationship between the parties that conflicts with the Revised Code of Washington nor FAA AIP eligibility criteria. In order to determine the best management structure for the airport, the specific difficulties or deficiencies in the existing structure need to be identified.

6.0 CITY OF KELSO GOAL FOR AIRPORT GOVERNANCE

The City of Kelso's goal for the airport is to identify the optimal governance structure which provides for not only the on-going operation and maintenance of KLS, but the future growth and development of the facility as well. To determine which of the governing options best suit the city's needs the goals for the analysis have been set forth as follows

1. Develop the Southwest Washington Regional Airport (KLS) into a regional service airport as defined in the Washington State Long-Range Air Transportation Study (LATS) and as detailed in the airport master plan.

2. Implement a business plan that allows KLS to function as a self-sufficient air transportation facility.

3. Develop an airport governance and financial situation that allows for the services of a full-time airport manager and staff.

4. Assure that the governance model adopted complies with all applicable FAA and State requirements.

5. Assure that the airport's governing body is able to achieve the airport's mission, maintain its place in contributing to the financial health of the region, and coordinate with WSDOT LATS.

7.0 FINDINGS AND CONCLUSIONS

As presented in the preceding, there are multiple ways to manage the Southwest Washington Regional Airport. The City of Kelso currently carries the full burden of airport ownership, operation and management. However, the financial burden of operating the airport is shared, in part, by the City of Kelso, City of Longview, Port of Longview, and Cowlitz County which provide annual financial contributions to the Airport Fund in support of the airport. Total annual contributions from these sources average $80,000 per year or 40 percent of annual operating airport operating expenses.

There are a number of potential public bodies empowered that could legally assume ownership and operational responsibility for KLS. However, the entity that ultimately assumes control of KLS will need to address many of the same issues being faced by the City of Kelso today including setting reasonable rates for aircraft storage and support facilities, providing staff to

operate and manage the day-to-day activities at airport and maintaining the ability to accept responsibility for the grant assurances required to receive funding from FAA and WSDOT. Additionally, it is likely that the four financial contributors to the airport would be required to continue to support the airport since the business planning conducted as part of the master plan indicates that the income derived from the airport is unlikely to cover the expense of operating, maintaining and improving the facility.

It is recommended in this report that consideration be given to transferring ownership of KLS to the Port of Longview. The Port is the only entity with governance authority that has a regional perspective as part of its core mission. Given that the airport provides regional benefits, this regional perspective is invaluable to its continued viability. Currently the airport serves a variety of users that benefit the region rather than being of sole benefit to the City of Kelso. The following list includes those agencies that have recently utilized KLS;

11. The Washington State Department of Transportation, Air Search Coordination
12. The Washington National Guard
13. The Civil Air Patrol
14. Area Police and Sheriff Departments
15. The Washington State Patrol
16. The United States Army
17. The United States Coast Guard
18. The Drug Enforcement Administration
19. The Department of Homeland Security and
20. Numerous “Angel Flight” missions providing emergency medical services

In addition to these agencies that bring public services to the region through the airport, surveys and observations at the airport show that the entities that base their aircraft at KLS or who use the airport for transient operations also have a regional impact. Some of these regular business users include;

18. Les Schwab Tire
19. John Deere Equipment
20. U-Haul Rentals
21. Clary Chevrolet
22. Weyerhaeuser
23. Mint farm and Their clients
24. Clients of the Port of Kalama, and the Port of Longview

25. Kelso Aviation
26. NW Airtech
27. Interstate Wood Products
28. Hydraulic Services
29. Moilanen Aerial Photography
30. Woods Logging
31. Life Flight
32. Wasser Winters
33. Long-Air and
34. Lakeside Industries

Each of these businesses use the airport, bringing jobs and positive economic activity to the region, emphasizing again the need for the governing agency to maintain a regional perspective regarding airport ownership and operation. By having the Port of Longview assume ownership an operational structure that gives the FAA and WSDOT an entity that is qualified to receive and administer grants while allowing for shared financial contributions can be maintained.

Appendix X

Kelso Municipal Code Title 13 Public Services, Chapter 13.12 Kelso Airport

Article I. General Provisions

13.12.010 Definitions.
13.12.020 Authority of airport manager.
13.12.030 Obstruction of airport use.
13.12.040 Restricted areas.
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13.12.090 Accident reports.
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Article II. Aeronautical Regulations

13.12.150 Airport operation.
13.12.160 Operation of aircraft—General.
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13.12.180 Fueling and defueling of aircraft.
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13.12.230 Student pilot training.
13.12.240 Maintenance, repair and service of aircraft.
13.12.250 Hazards to aviation.
13.12.260 Damaged or disabled aircraft.
13.12.270 Glider operation procedures.
13.12.280 Ultralights.
13.12.290 Handling and storage of hazardous material.

Article III. Motor Vehicles

13.12.300 Driving on roads, streets and parking areas.
13.12.310 Use of roads and streets.
13.12.320 Restricted areas.
13.12.330 Basic speed limits.
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Article IV. Minimum Standards for Fixed Base Operators and Airport Tenants

13.12.750 Fixed base operator category G—Sale of aviation petroleum products and ramp service.
13.12.760 Fixed base operator category H—Airport tenant.
13.12.770 Fixed base operator category I—Flying clubs.

Article V. Penalties
13.12.780 Violation—Penalty.
13.12.790 Additional penalties.

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14.08.010 Definition -- "Municipality."
14.08.015 Definitions.
14.08.020 Airports a public purpose.
14.08.030 Acquisition of property and easements -- Eminent domain -- Encroachments prohibited.
14.08.070 Prior acquisition of airport property validated.
14.08.080 Method of defraying cost.
14.08.090 Issuance of bonds -- Security.
14.08.100 Raising of funds and disposition of revenue.
14.08.112 Revenue bonds authorized -- Purpose -- Special fund -- Redemption.
14.08.114 Issuance of funding or refunding bonds authorized.
14.08.116 Port district revenue bond financing powers not repealed or superseded.
14.08.118 Revenue warrants authorized.
14.08.120 Specific powers of municipalities operating airports.
14.08.122 Adoption of regulations by airport operator for airport rental and use and collection of charges.
14.08.160 Federal aid.
14.08.190 Establishment of airports on waters and reclaimed land.
14.08.200 Joint operations.
14.08.290 County airport districts authorized.
14.08.300 Governing body of district.
14.08.302 Board of airport district commissioners -- Petition -- Order establishing.
14.08.304 Board of airport district commissioners -- Members -- Election -- Terms -- Expenses.
14.08.310 Assistance to other municipalities.
14.08.330 Jurisdiction of municipality over airport and facilities exclusive -- Concurrent jurisdiction over adjacent territory -- Fire code enforcement by agreement.

RCW 14.08.120 - Specific powers of municipalities operating airports (full text)

In addition to the general powers conferred in this chapter, and without limitation thereof, a municipality that has established or may hereafter establish airports, restricted landing areas, or other air navigation facilities, or that has acquired or set apart or may hereafter acquire or set apart real property for that purpose or purposes is authorized:

(1) To vest authority for the construction, enlargement, improvement, maintenance, equipment, operation, and regulation thereof in an officer, a board, or body of the municipality by ordinance or resolution that prescribes the powers and duties of the officer, board, or body; and the municipality may also vest authority for industrial and commercial development in a municipal airport commission consisting of at least five resident taxpayers of the municipality to be appointed by the governing board of the municipality by an ordinance or resolution that includes (a) the terms of office, which may not exceed six years and which shall be staggered so that not more than three terms will expire in the same year, (b) the method of appointment and filling vacancies, (c) a provision that there shall be no compensation but may provide for a per diem of not to exceed twenty-five dollars per day plus travel expenses for time spent on commission business, (d) the powers and duties of the commission, and (e) any other matters necessary to the exercise of the powers relating to industrial and commercial development. The expense of the construction, enlargement, improvement, maintenance, equipment, industrial and commercial development, operation, and regulation are the responsibility of the municipality.

(2) To adopt and amend all needed rules, regulations, and ordinances for the management, government, and use of any properties under its control, whether within or outside the territorial limits of the municipality; to provide fire protection for the airport, including the acquisition and operation of fire protection equipment and facilities, and the right to contract with any private body or political subdivision of the state for the furnishing of such fire protection; to appoint airport guards or police, with full police powers; to fix by ordinance or resolution, as may be appropriate, penalties for the violation of the rules, regulations, and ordinances, and enforce those penalties in the same manner in which penalties prescribed by other rules, regulations, and ordinances of the municipality are enforced. For the purposes of such management and

government and direction of public use, that part of all highways, roads, streets, avenues, boulevards, and territory that adjoins the limits of any airport or restricted landing area acquired or maintained under the provisions of this chapter is under like control and management of the municipality. It may also adopt and enact rules, regulations, and ordinances designed to safeguard the public upon or beyond the limits of private airports or landing strips within the municipality or its police jurisdiction against the perils and hazards of instrumentalities used in aerial navigation. Rules, regulations, and ordinances shall be published as provided by general law or the charter of the municipality for the publication of similar rules, regulations, and ordinances. They shall conform to and be consistent with the laws of this state and the rules of the state department of transportation and shall be kept in conformity, as nearly as may be, with the then current federal legislation governing aeronautics and the regulations duly promulgated thereunder and the rules and standards issued from time to time pursuant thereto.

(3) To create a special airport fund, and provide that all receipts from the operation of the airport be deposited in the fund, which fund shall remain intact from year to year and may be pledged to the payment of aviation bonds, or kept for future maintenance, construction, or operation of airports or airport facilities.

(4) To lease airports or other air navigation facilities, or real property acquired or set apart for airport purposes, to private parties, any municipal or state government or the national government, or any department thereof, for operation; to lease or assign to private parties, any municipal or state government or the national government, or any department thereof, for operation or use consistent with the purposes of this chapter, space, area, improvements, or equipment of such airports; to authorize its lessees to construct, alter, repair, or improve the leased premises at the cost of the lessee and to reimburse its lessees for such cost, provided the cost is paid solely out of funds fully collected from the airport's tenants; to sell any part of such airports, other air navigation facilities or real property to any municipal or state government, or to the United States or any department or instrumentality thereof, for aeronautical purposes or purposes incidental thereto, and to confer the privileges of concessions of supplying upon its airports goods, commodities, things, services, and facilities: PROVIDED, That in each case in so doing the public is not deprived of its rightful, equal, and uniform use thereof.

(5) Acting through its governing body, to sell or lease any property, real or personal, acquired for airport purposes and belonging to the municipality, which, in the judgment of its governing body, may not be required for aircraft landings, aircraft takeoffs or related aeronautic purposes, in accordance with the laws of this state, or the provisions of the charter of the municipality, governing the sale or leasing of similar municipally owned property. The municipal airport

commission, if one has been organized and appointed under subsection (1) of this section, may lease any airport property for aircraft landings, aircraft takeoffs, or related aeronautic purposes. If there is a finding by the governing body of the municipality that any airport property, real or personal, is not required for aircraft landings, aircraft takeoffs, or related aeronautic purposes, then the municipal airport commission may lease such space, land, area, or improvements, or construct improvements, or take leases back for financing purposes, grant concessions on such space, land, area, or improvements, all for industrial or commercial purposes, by private negotiation and under such terms and conditions that seem just and proper to the municipal airport commission. Any such lease of real property for aircraft manufacturing or aircraft industrial purposes or to any manufacturer of aircraft or aircraft parts or for any other business, manufacturing, or industrial purpose or operation relating to, identified with, or in any way dependent upon the use, operation, or maintenance of the airport, or for any commercial or industrial purpose may be made for any period not to exceed seventy-five years, but any such lease of real property made for a longer period than ten years shall contain provisions requiring the municipality and the lessee to permit the rentals for each five-year period thereafter, to be readjusted at the commencement of each such period if written request for readjustment is given by either party to the other at least thirty days before the commencement of the five-year period for which the readjustment is requested. If the parties cannot agree upon the rentals for the five-year period, they shall submit to have the disputed rentals for the period adjusted by arbitration. The lessee shall pick one arbitrator, and the governing body of the municipality shall pick one, and the two so chosen shall select a third. After a review of all pertinent facts the board of arbitrators may increase or decrease such rentals or continue the previous rate thereof.

The proceeds of the sale of any property the purchase price of which was obtained by the sale of bonds shall be deposited in the bond sinking fund. If all the proceeds of the sale are not needed to pay the principal of bonds remaining unpaid, the remainder shall be paid into the airport fund of the municipality. The proceeds of sales of property the purchase price of which was paid from appropriations of tax funds shall be paid into the airport fund of the municipality.

(6) To determine the charges or rental for the use of any properties under its control and the charges for any services or accommodations, and the terms and conditions under which such properties may be used: PROVIDED, That in all cases the public is not deprived of its rightful, equal, and uniform use of the property. Charges shall be reasonable and uniform for the same class of service and established with due regard to the property and improvements used and the expense of operation to the municipality. The municipality shall have and may enforce liens, as provided by law for liens and enforcement thereof, for repairs to or improvement or storage or care of any personal property, to enforce the payment of any such charges.

(7) To impose a customer facility charge upon customers of rental car companies accessing the airport for the purposes of financing, designing, constructing, operating, and maintaining consolidated rental car facilities and common use transportation equipment and facilities which are used to transport the customer between the consolidated car rental facilities and other airport facilities. The airport operator may require the rental car companies to collect the facility charges, and any facility charges so collected shall be deposited in a trust account for the benefit of the airport operator and remitted at the direction of the airport operator, but no more often than once per month. The charge shall be calculated on a per-day basis. Facility charges may not exceed the reasonable costs of financing, designing, constructing, operating, and maintaining the consolidated car rental facilities and common use transportation equipment and facilities and may not be used for any other purpose.

(8) To exercise all powers necessarily incidental to the exercise of the general and special powers granted in this section.

RCW 14.08.200 Joint operations (full text)

(1) All powers, rights, and authority granted to any municipality in this chapter may be exercised and enjoyed by two or more municipalities, or by this state and one or more municipalities therein, acting jointly, either within or outside the territorial limits of either or any of the municipalities and within or outside this state, or by this state or any municipality therein acting jointly with any other state or municipality therein, either within or outside this state if the laws of the other state permit such joint action.

(2) For the purposes of this section only, unless another intention clearly appears or the context requires otherwise, this state is included in the term "municipality," and all the powers conferred upon municipalities in this chapter, if not otherwise conferred by law, are conferred upon this state when acting jointly with any municipality or municipalities. Where reference is made to the "governing body" of a municipality, that term means, as to the state, its secretary of transportation.

(3) Any two or more municipalities may enter into agreements with each other, duly authorized by ordinances or resolution, as may be appropriate, for joint action under this section. Concurrent action by the governing bodies of the municipalities involved constitutes joint action.

(4) Each such agreement shall specify its terms; the proportionate interest which each

municipality shall have in the property, facilities, and privileges involved, and the proportion of preliminary costs, cost of acquisition, establishment, construction, enlargement, improvement, and equipment, and of expenses of maintenance, operation, and regulation to be borne by each, and make such other provisions as may be necessary to carry out the provisions of this section. It shall provide for amendments thereof and for conditions and methods of termination; for the disposition of all or any part of the property, facilities, and privileges jointly owned if the property, facilities, and privileges, or any part thereof, cease to be used for the purposes provided in this section or if the agreement is terminated, and for the distribution of the proceeds received upon any such disposition, and of any funds or other property jointly owned and undisposed of, and the assumption or payment of any indebtedness arising from the joint venture which remains unpaid, upon any such disposition or upon a termination of the agreement.

(5) Municipalities acting jointly as authorized in this section shall create a board from the inhabitants of the municipalities for the purpose of acquiring property for, establishing, constructing, enlarging, improving, maintaining, equipping, operating, and regulating the airports and other air navigation facilities and airport protection privileges to be jointly acquired, controlled, and operated. The board shall consist of members to be appointed by the governing body of each municipality involved, the number to be appointed by each to be provided for by the agreement for the joint venture. Each member shall serve for such time and upon such terms as to compensation, if any, as may be provided for in the agreement.

(6) Each such board shall organize, select officers for terms to be fixed by the agreement, and adopt and from time to time amend rules of procedure.

(7) Such board may exercise, on behalf of the municipalities acting jointly by which it is appointed, all the powers of each of the municipalities granted by this chapter, except as provided in this section. Real property, airports, restricted landing areas, air protection privileges, or personal property costing in excess of a sum to be fixed by the joint agreement, may be acquired, and condemnation proceedings may be instituted, only by approval of the governing bodies of each of the municipalities involved. Upon the approval of the governing body, or if no approval is necessary then upon the board's own determination, such property may be acquired by private negotiation under such terms and conditions as seem just and proper to the board. The total amount of expenditures to be made by the board for any purpose in any calendar year shall be determined by the municipalities involved by the approval by each on or before the preceding December 1st, of a budget for the ensuing calendar year, which budget may be amended or supplemented by joint resolution of the municipalities involved during the calendar year for which the original budget was approved. Rules and regulations provided for by RCW

14.08.120(2) become effective only upon approval of each of the appointing governing bodies. No real property and no airport, other navigation facility, or air protection privilege, owned jointly, may be disposed of by the board by sale except by authority of all the appointing governing bodies, but the board may lease space, land area, or improvements and grant concessions on airports for aeronautical purposes, or other purposes which will not interfere with the aeronautical purposes of such airport, air navigation facility, or air protection privilege by private negotiation under such terms and conditions as seem just and proper to the board, subject to the provisions of RCW 14.08.120(4). Subject to the provisions of the agreement for the joint venture, and when it appears to the board to be in the best interests of the municipalities involved, the board may sell any personal property by private negotiations under such terms and conditions as seem just and proper to the board.

(8) Each municipality, acting jointly with another pursuant to the provisions of this section, is authorized and empowered to enact, concurrently with the other municipalities involved, such ordinances as are provided for by RCW 14.08.120(2), and to fix by such ordinances penalties for the violation thereof. When so adopted, the ordinances have the same force and effect within the municipalities and on any property jointly controlled by them or adjacent thereto, whether within or outside the territorial limits of either or any of them, as ordinances of each municipality involved, and may be enforced in any one of the municipalities in the same manner as are its individual ordinances. The consent of the state secretary of transportation to any such ordinance, where the state is a party to the joint venture, is equivalent to the enactment of the ordinance by a municipality. The publication provided for in RCW 14.08.120(2) shall be made in each municipality involved in the manner provided by law or charter for publication of its individual ordinances.

(9) Condemnation proceedings shall be instituted, in the names of the municipalities jointly, and the property acquired shall be held by the municipalities as tenants in common. The provisions of RCW 14.08.030(2) apply to such proceedings.

(10) For the purpose of providing funds for necessary expenditures in carrying out the provisions of this section, a joint fund shall be created and maintained, into which each of the municipalities involved shall deposit its proportionate share as provided by the joint agreement. Such funds shall be provided for by bond issues, tax levies, and appropriations made by each municipality in the same manner as though it were acting separately under the authority of this chapter. The revenues obtained from the ownership, control, and operation of the airports and other air navigation facilities jointly controlled shall be paid into the fund, to be expended as provided in this chapter. Revenues in excess of cost of maintenance and operating expenses of

the joint properties shall be divided or allowed to accumulate for future anticipated expenditures as may be provided in the original agreement, or amendments thereto, for the joint venture. The action of municipalities involved in heretofore permitting such revenues to so accumulate is declared to be legal and valid.

(11) The governing body may by joint directive designate some person having experience in financial or fiscal matters as treasurer of the joint operating agency. Such a treasurer shall possess all the powers, responsibilities, and duties that the county treasurer and auditor possess for a joint operating agency related to creating and maintaining funds, issuing warrants, and investing surplus funds. The governing body may, and if the treasurer is not the county treasurer it shall, require a bond, with a surety company authorized to do business in the state of Washington, in an amount and under the terms and conditions which the governing body finds will protect the joint operating agency. The premium on such bond shall be paid by the joint operating agency. All disbursements from the joint fund shall be made by order of the board in accordance with such rules and regulations and for such purposes as the appointing governing bodies, acting jointly, shall prescribe. If no such joint directive is made by the governing appointing bodies to designate a treasurer, then the provisions of RCW 43.09.285 apply to such joint fund.

(12) Specific performance of the provisions of any joint agreement entered into as provided for in this section may be enforced as against any party thereto by the other party or parties thereto.

7.1

RCW 14.08.290 County airport districts authorized (full text)

The establishment of county airport districts is hereby authorized. Written application for the formation of such a district signed by at least one hundred registered voters, who reside and own real estate in the proposed districts, shall be filed with the board of county commissioners. The board shall immediately transmit the application to the proper registrar of voters for the proposed district who shall check the names, residence and registration of the signers with the records of his office and shall, as soon as possible, certify to said board the number of qualified signers. If the requisite number of signers is so certified, the board shall thereupon place the proposition: "Shall a county airport district be established in the following area: (describing the proposed district)?," upon the ballot for vote of the people of the proposed district at the next election, general or special. If a majority of the voters on such proposition shall vote in favor of the proposition, the board, shall, by resolution, declare the district established. If the requisite number of qualified persons have not signed the application, further signatures may be added and certified until the requisite number have signed and the above procedure shall be thereafter followed.

The area of such district may be the area of the county including incorporated cities and towns, or such portion or portions thereof as the board may determine to be the most feasible for establishing an airport. When established, an airport district shall be a municipality as defined in this chapter and entitled to all the powers conferred by this chapter and exercised by municipal corporations in this state. The airport district is hereby empowered to levy not more than seventy-five cents per thousand dollars of assessed value of the property lying within the said airport district: PROVIDED, HOWEVER, Such levy shall not be made unless first approved at any election called for the purpose of voting on such levy.

SAMPLE AIRPORT INTERLOCAL COOPERATION AGREEMENT

PULLMAN-MOSCOW REGIONAL AIRPORT INTERLOCAL COOPERATION AGREEMENT

This agreement (AGREEMENT) is entered into between the City of Pullman, a municipal corporation of the state of Washington (PULLMAN); the City of Moscow, a municipal corporation of the state of Idaho (MOSCOW); the Port of Whitman County, a municipal corporation of the state of Washington (PORT); Latah County, a political subdivision of the state of Idaho (LATAH); Washington State University, an institution of higher education of the state of Washington (WSU); and the University of Idaho, an institution of higher education of the state of Idaho (U I). In this AGREEMENT, all the above entities are referred to as PARTY or jointly as the PARTIES. Additional governmental entities may be included in the AGREEMENT by addendum executed by all PARTIES existing at that time and the proposed additional PARTY.

RECITALS

The PARTIES are authorized to enter into and carry out the AGREEMENT pursuant to the provisions of Idaho Code §§ 67-2326-2333, 21-401, and 33-2804, and Article IX, Section 10, Idaho Constitution, and Chapter 39.34 of the Revised Code of Washington (RCW), RCW 14.08.200, and RCW 28B.30.150.

Previously executed Interlocal Agreements pertaining to the Pullman-Moscow Regional Airport dated December 31, 1970 (original agreement), and December 8, 1971, shall be rescinded in their entirety and the instant Agreement shall replace and supersede the terms of these two agreements. The 1987 Interlocal Agreement entitled "Pullman-Moscow Regional Airport Supplemental Cooperation Agreement for Sharing Costs of New Terminal Facility" will automatically terminate in 2008. This AGREEMENT shall be the sole governing and authorizing document upon expiration of the 1987 Interlocal Agreement.

OBJECTIVES

The objectives of this AGREEMENT are to assure the continued operation of the Pullman-Moscow Regional Airport for the benefit of the public, to provide for the continued grant of authority to the Airport Board, and to make additional money available for operation, repair, and improvement of said airport.

OPERATION AND MANAGEMENT

Airport Board. All operation and management of the said airport shall be vested in an airport board consisting of nine (9) members as follows: the Mayor of the City of Pullman, the Mayor of the City of Moscow, one (1) person appointed by the usual and lawful method of

appointment by the City of Pullman, one (1) person appointed by the usual and lawful method of appointment by the City of Moscow, one (1) person appointed by the Port Commission of the Port of Whitman County, one (1) person appointed by the Commissioners of Latah County, one (1) person appointed by Washington State University, one (1) person appointed by the University of Idaho, and one person to be appointed by a majority vote of the eight (8) members above designated. The duration, termination, and revocation of any appointment shall be within the sole discretion and control of the appointing authority and each appointing authority may appoint an alternate to serve in the absence or incapacity of any board member appointed to it.

A. AUTHORITY AND DUTIES. SUBJECT TO THE TERMS AND PROVISIONS OF THIS AGREEMENT, SAID AIRPORT BOARD IS HEREBY AUTHORIZED AND IT SHALL BE ITS DUTY TO DO AND PERFORM ANY AND ALL ACTS AND BUSINESS REASONABLY NECESSARY TO CARRY ON THE OPERATION OF THE PULLMAN-MOSCOW REGIONAL AIRPORT AS A PUBLIC AIRPORT, INCLUDING ALL FACILITIES AND SERVICES COMMON TO SIMILAR AIRPORTS AND AS HAVE BEEN HERETOFORE PROVIDED AT SAID AIRPORT. SPECIFICALLY, THE AUTHORITY AND DUTIES OF THE SAID BOARD INCLUDE BUT ARE NOT EXCLUSIVE OF THE FOLLOWING:

1. Elect its own officers and make its own regulations, rules, and by-laws for the conduct of the business of the board and of said airport.

2. Employ an airport manager and such other employees as the board may deem necessary and to fix all duties, salaries, wages, employee benefits, working terms, agreements, rules, and regulations.

3. To establish and enforce all reasonable rules and regulations not in conflict with law or any lawful regulation governing users of said airport and of any airport improvements and facilities.

4. To negotiate, fix, determine, charge, and collect all rents, fees, and airport charges whatsoever.

5. In the usual course of business to execute contracts, leases, user agreements, licenses, and any and all other agreements.

6. As trustees for the PARTIES to this AGREEMENT, to give any notice and to make any demand and bring any action at law or in equity to recover any claim, money, debt, obligation, and property due the airport and to which it may be entitled, including the enforcement of any fine or penalty provided by law or any authorized regulation.

7. As trustees for the PARTIES to this AGREEMENT, to defend any action at law or in equity arising from or connected with the operation of said airport.

8. To acquire by gift, governmental grant, purchase, and trade or exchange any and all real or tangible personal property for airport use including the acquisition by contract of any and all airport buildings and building improvements and/or in the alternative to construct any of the same by the direct employment of labor, rental of equipment, and the purchase of necessary materials, supplies, and equipment, subject to the limitations on real property acquisition set forth herein.

9. To improve any land used or owned by the airport by ditching, filling, leveling, diking, fencing, gravelling, paving, grading and otherwise improving the same for airport purposes, said work and improvements may be done by contract or by the direct employments of labor, rental of equipment, and the purchase of necessary materials, supplies, and equipment.

10. To keep full, complete, and accurate financial records and accounts in such manner as may be required by law for municipal corporations, together with minutes of all board meetings and such other records and accounts as may be necessary to fully show all assets, liabilities, and business transactions whatsoever all of which shall be available at any reasonable time for inspection by any officer or agent of any of the PARTIES to this AGREEMENT; provided, the Airport Board may contract with one of the PARTIES for all or a portion of the duties herein.

11. To make any and all reports required by law in the operation of said airport.

12. To maintain in good order and repair all airport property whatsoever of useful value and to insure against loss by fire and storm damage any and all airport personal property and building improvements (which may be subject to such damage) in the amount of the reasonable value thereof.

13. To carry such public liability insurance as may be necessary to adequately protect said airport and the PARTIES to this AGREEMENT from excessively large damage claims.

14. Within the resources of said airport under the control of the board to borrow money, execute promissory notes, issue bonds, pledge airport assets and /or revenues, enter into government matching fund agreements, and execute security agreements therefor.

15. To sell and trade or exchange any personal property of the airport when the same is no longer reasonably usable by the airport, is surplus to the needs of the airport, or is being traded for other property of like kind. Any such transaction may be by a privately negotiated agreement or by the giving of public notice and call for bids.

16. To take all reasonable action to improve and expand the airport operations and services, including the attraction of airport oriented industry.

17. To establish and regularly use such claims procedure for the payment of airport expenses, debts, obligations, and liabilities as will comply with the law and provide a reasonable means of auditing and approving the payment of claims.

B. Limitations of Authority.

1. None of the foregoing authorizations shall be interpreted as authorizing anything otherwise prohibited by law, ordinance, or regulation.

2. No real estate shall be purchased or acquired by lease nor shall any money be borrowed for capital improvement without the unanimous consent of the PARTIES hereto.

3. No person, firm, association, corporation, or group whatsoever shall be given the exclusive right to the use of said airport. This restriction shall not apply to the lease of any airport building or any portion thereof.

4. The authority of said board shall at all times be subject to the control and direction of the PARTIES hereto by their unanimous action, including the amendment or modification of or termination of this AGREEMENT. Provided that no action subsequent to the execution of any legally binding contract or obligation shall operate to rescind the same.

5. No compensation shall be paid to any Airport Board member for services rendered without the unanimous approval of all PARTIES to this AGREEMENT.

6. The board shall not discriminate against any person, firm, corporation, association, or group whatsoever in the use of said airport and in the fixing of fees, rents, or any airport charge and any and all such fees, rents, and charges shall be uniform for all like uses or services.

7. No member of the board shall be an airport employee or enter into any contract with the board or airport for the purchase or sale of any property or for the performance of any construction contract.

8. No airport property or money shall be loaned to anyone, provided that this provision shall not be construed to prevent the deposit of any money with any bank on interest or the purchase of any investment authorized by law for municipal corporations.

ANNUAL OPERATIONAL CONTRIBUTIONS

In return for representation on the Airport Board and the right to vote on decisions pertaining to the operation and management of the Pullman-Moscow Regional Airport, the PARTIES agree to payments for calendar year 2008 as follows: PULLMAN shall pay $32,013; MOSCOW shall pay $32,013; PORT shall pay $20,750; WSU shall pay $18,935; LATAH shall pay $17,000; and UI shall pay $7,500. Annual payments for 2009 and beyond shall be adjusted

annually using the prior years annual CPI, Seattle-Tacoma-Bremerton index. The PARTIES acknowledge that the Idaho parties' contributions are subject to annual appropriation by the governing bodies.

TERMINATION AND DISPOSITION OF PROPERTY

This AGREEMENT shall terminate only by the unanimous agreement of the PARTIES hereto. Upon the termination of this AGREEMENT, all real estate owned by the City of Pullman shall be fully restored to the City of Pullman's control. In the absence of any other agreement, the Airport Board shall act as a liquidating agency and shall dispose of all building improvements and other real and personal property of the airport according to procedures set forth in Washington law.

IN WITNESS WHEREOF, each of the PARTIES have executed this AGREEMENT by their duly authorized officials on the date and year indicated following his or her signature.

THE CITY OF PULLMAN, WASHINGTON

By _____
Mayor

Date _____

ATTEST:

_____
Clerk

THE CITY OF MOSCOW, IDAHO

By _____
Mayor

Date _____

ATTEST:

_____
Clerk

PORT OF WHITMAN COUNTY, WASHINGTON

By _____
President

Date _____

ATTEST:

_____
Secretary

LATAH COUNTY, IDAHO

By _____
Commissioner

By _____
Commissioner

By _____
Commissioner

Date _____

WASHINGTON STATE UNIVERSITY

By _____

Title _____

UNIVERSITY OF IDAHO

By _____

Title _____

Date _____ Date _____

STATE OF WASHINGTON)
) ss.
County of Whitman)

On this day personally appeared before me _____, MAYOR, and _____, FINANCE DIRECTOR/CITY CLERK, respectively for the CITY OF PULLMAN, A MUNICIPAL CORPORATION OF THE STATE OF WASHINGTON, the municipal corporation that executed the foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said municipal corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument, and that the seal affixed is the corporate seal of said municipal corporation.

GIVEN under my hand and official seal this _____ day of _____, 2007.

_____
NOTARY PUBLIC in and for the State
of Washington, residing at _____.
My commission expires:_____.

STATE OF IDAHO)
) ss.
County of Latah)

On this day personally appeared before me _____, MAYOR, and _____, FINANCE DIRECTOR/CITY CLERK, respectively for the CITY OF MOSCOW, A MUNICIPAL CORPORATION OF THE STATE OF IDAHO, the municipal corporation that executed the foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said municipal corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument, and that the seal affixed is the corporate seal of said municipal corporation.

GIVEN under my hand and official seal this _____ day of _____, 2007.

_____
NOTARY PUBLIC in and for the State
of Idaho, residing at _____.
My commission expires:_____.

STATE OF WASHINGTON)
) ss.
County of Whitman)

On this day personally appeared before me _____, _____, for the PORT OF WHITMAN COUNTY, A MUNICIPAL CORPORATION OF THE STATE OF WASHINGTON, the municipal corporation that executed the foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said municipal corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument, and that the seal affixed is the corporate seal of said municipal corporation.

GIVEN under my hand and official seal this _____ day of _____, 2007.

_____
NOTARY PUBLIC in and for the State
of Washington, residing at _____.
My commission expires:_____.

STATE OF IDAHO)
) ss.
County of Latah)

On this day personally appeared before me _____, _____, and _____, COMMISSIONERS respectively for the COUNTY OF LATAH, A POLITICAL SUBDIVISION OF THE STATE OF IDAHO, the political subdivision that executed the foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said political subdivision, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument, and that the seal affixed is the corporate seal of said political subdivision.

GIVEN under my hand and official seal this _____ day of _____, 2007.

_____
NOTARY PUBLIC in and for the State
of Idaho, residing at _____.
My commission expires:_____.

STATE OF WASHINGTON)
) ss.
County of Whitman)

On this day personally appeared before me _____, TITLE:_____, of WASHINGTON STATE UNIVERSITY, AN INSTITUTION OF HIGHER EDUCATION OF THE STATE OF WASHINGTON, the institution that executed the foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said institution, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument, and that the seal affixed is the corporate seal of said municipal corporation.

GIVEN under my hand and official seal this _____ day of _____, 2007.

_____
NOTARY PUBLIC in and for the State
of Washington, residing at _____.
My commission expires:_____.

STATE OF IDAHO)
) ss.
County of Latah)

On this day personally appeared before me _____, TITLE:_____, of UNIVERSITY OF IDAHO, AN INSTITUTION OF HIGHER EDUCATION OF THE STATE OF IDAHO, the institution that executed the foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said institution, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument, and that the seal affixed is the corporate seal of said municipal corporation.

GIVEN under my hand and official seal this _____ day of _____, 2007.

_____

_____
NOTARY PUBLIC in and for the State
of Idaho, residing at _____.
My commission expires:_____.

CITY OF KELSO
KELSO LONGVIEW REGIONAL AIRPORT
PRELIMINARY PLAN FOR MANAGEMENT OF ACCESS / SECURITY GATES

The City of Kelso has recently installed additional chain link fence, double 20 foot gates, pedestrian gates and two electrically operated security gates, programmed to open with electronically read access cards.

These security measures have been constructed as part of the airport master plan to enhance airport safety and to offer further protection of city facilities, personal property, locally based aircraft and transient aircraft.

Management of the gates may be classified into three levels of effort:

1. The electronically controlled gates
2. Proposed push button latches
3. Standard latch and padlock

1. The electronically controlled gates
The electronically controlled gates will require the highest level of management. Distribution of the access cards would be coordinated through the city finance office, such that one card would be distributed to each authorized tenant. A city-authorized person will issue the cards.

To reduce the programming of each security gate, only one gate would be programmed to read the tenant's card. Programming of the gate controller would be by a city-authorized person, which could include the FBO. The Public Works Director would develop a list of persons authorized to program the gates. The Public Works Director may authorize other persons to have an access card as necessary to conduct business on airport property.

The first security access card shall be provided without charge to all tenants. The fee for any additional security access card shall be set by rate resolution. Any card reported lost shall be un-programmed and the city shall develop a replacement fee consistent with the cost of card replaced from the supplier, plus a reasonable administrative fee.

2. Proposed push button latches
Frequent users of the airport, primarily the pilots of transient aircraft, would not have need for an electronic gate card, but would need to access the airport at times the FBO may not be present to have the gates opened. Therefore we will have the typical "4 digit" programmable push button latch installed at other locations so that the flight line on the FBO ramp and north ramp may be opened. This will further reduce the workload of the FBO to be locking and unlocking gates. This programmable push button latch was not specified on the recent airport improvement contract. The proposed push button latch locations are shown on the attached spreadsheet. The make and model should be a mechanical push button type. Each gate will have to be retrofitted with a gate box to hold the lock assembly and a striker plate. Cowlitz Fence Supply, a local contractor could offer suggested retrofitting. Examples of pushbutton gate locks can be found at the web site http://www.locksmithtoolandsupply.com. Anticipate hardware to be about $300 per lock, and additional labor for retrofitting. The push button latches apply to Reference G, J, L, O, and P.

3. Standard latch and padlock
At locations where there is minimal use, or entry is recommended for each site by only a few authorized people, the standard latch and padlock should be sufficient. However, multiple padlocks with a chain may be the practical solution. Standard latch and padlock apply to Reference A, C, D, E, H, K, M, N, and Q.

The AWOS site will have an FAA lock, and UNAVCO lock for the GPS and the city should have a key to one of the locks if there is need to access the AWOS site.

Access management of the gate to the Clary hangar should be addressed with the tenant. At a minimum, the city should require the gate be locked during hours of darkness, and at any other time the tenant has no activity at the hangar. (A push button latch may be a better solution here. Depends on the level of access control the city desires.)

Gate Access Management for the Sullivan and Private Hangars.
There is a pedestrian gate and 20 foot latch gate next to the CAP building on South Pacific. Both gates could be fitted with the programmable push button latch. The pedestrian gate appears to be minimally used and may best be standard padlocked and issue keys to the few people using the gate. Both gates should be locked during hours of darkness. With the number of tenants on the NW side of field, it is impractical to know who the "last person out" may be at the end of the day. The city should assign an authorized person to insure the gate will be closed at dusk. Another more stringent option is to request that every authorized person entering, close and lock the gate every time.

If the review of the Object Free Area indicates that many of the hangars along South Pacific do not have to be removed, the city may consider revising the airport master plan, leaving the appropriate hangers and installing an electric gate as a replacement gate near the rotating beacon. The gate at the Civil Air Patrol building at 2222 South Pacific Avenue should then remain locked most of the time.

Additional Access Management Consideration
Along the southwestern boundary of the airport, there is no fence, and the airport is accessible by vehicles in many places off the BNSF maintenance road. The city should enter into discussion with BNSF about access control gates near the tunnel to the golf course and at the driveway by the Talley Way Bridge over the Coweeman River. Since both parties would benefit from added access control, possibly BNSF would agree to a shared cost. A maintenance and repair agreement and distribution of keys should also be addressed.

For the types of gates and locations on the airport boundary, refer to the attached aerial map and spread sheet.

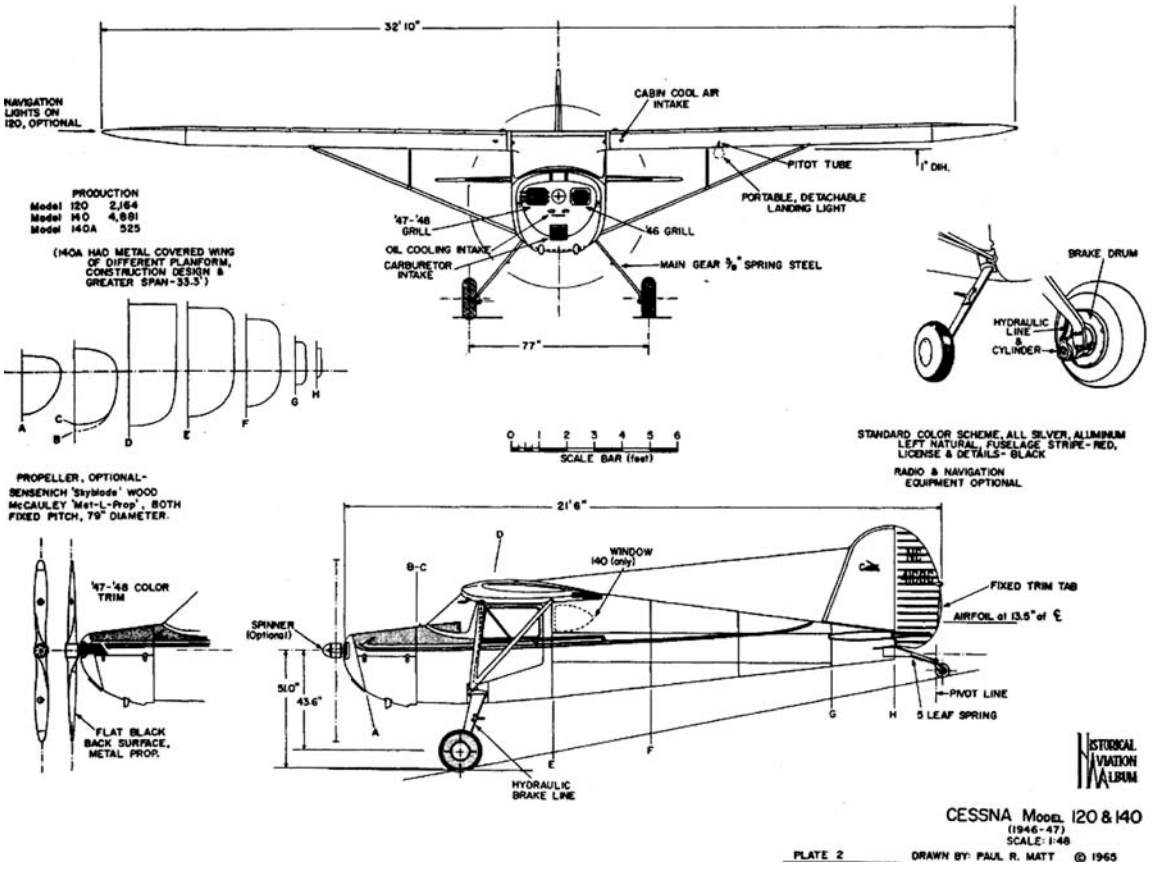
SOUTHWEST WASHINGTON REGIONAL AIRPORT
MASTER PLAN UPDATE
WEST SIDE DEVELOPMENT (HANGAR REMOVAL AND REPLACEMENT)

Prepared June 18, 2009 by Jerry Sorrell

Background:
The 2000 master plan called for the removal of all buildings along the west side of the airport. The reason for this was the assumption that all the hangars intruded into the Part 77 Airspace side slope. Further field survey and study in the spring of 2009 indicated that not all of the hangars or buildings did intrude.

Current Plan:
The master plan update is being revised to show that replacement hangars may be constructed, if the set back for the runway is sufficient and / or if the hangar roof elevations are kept low enough.

Aircraft Specifications and Hangar Size:
Certain A-1 aircraft and a number of experimental aircraft do not need the high "tail clearance" typical of an aircraft on tricycle gear. It is my opinion that a ceiling height of as low as nine feet will accommodate a number of the older conventional gear (tail wheel) aircraft such as the Cessna 140, Taylorcraft, Piper "Cub" and others.



The above aircraft is the Cessna 140 with “conventional” landing gear.

The Taylorcraft has a span of 36 feet, which is one of the longer spans for the conventional gear aircraft. A hangar width of 40 feet and depth of 30 feet and height of 9 feet would be adequate for these aircraft and the typical two place experimentals. To keep from intruding into the Part 77 airspace, the roofline may be a flat roof, with a clear span support header at the entry. Assume a 4 foot beam depth. It should be possible to place some of these low profile hangars to the west of the existing “Sullivan row” now.

Hangar 54-55 has a conventional pitch roofline, capable of holding A-1 aircraft such as A Cessna 172 or Piper Cherokee and this hangar does not intrude into the Part 77 airspace based on the current airspace contour plan provided by URS. It should be possible that all hangars to the north can be of conventional design.

Possible Scenario for Hangar Demolition and Replacement:
Ultimately, the plan is to demolish all the Part 77 non-compliant structures and construct replacement hangars as Part 77 space allows. The current ALP provides that hangers on ground leases will be removed at some point after the ground leases have expired. However, to only demolish the Part 77 non-compliant structures would create a poor use of the property in an attempt to mix the new with the old.

Here is a summary of the ground lease expirations: Some have expired and are on a month to month rental agreement and are not listed here. Only the remaining ground leases are shown and whether or not the building violates Part 77 Airspace.

Building 37,38	June 2013
Building 42,43	Feb 2010
Building 44,45	Nov 2012
Building 46,47	Feb 2010 Violates Part 77
Building 48,49	Sept 2013 Violates Part 77
Building 52,53	Dec 2014 Violates Part 77
Building 54,55	July 2010
Building 56	Nov 2015 Violates Part 77
Building 57	Nov 2015 Violates Part 77

Proposed Phasing:
Phase 1 near term:
Construct as many “low profile” hangars as possible, to the south of Building 56. The west side of the Sullivan’s might have to be vacated to achieve this. Remove all Sullivan hangars, 23, 24, and 25, with the exception of Building 57 to the far south until such time the lease expires Nov 2015. This phasing plan will not accommodate all Sullivan tenants, unless phase 2 hangar construction is advanced and displaced Sullivan tenants are given first option to rent.

Phase 2 medium term:

Acquire property in northwest corner to Douglas Ave and construct A-1 hangars (This is not shown on the current master plan alternatives). With the completion of these hangars, tenants of buildings 46-56 may relocate to the A-1 hangars and demolition of 46-56 may take place. (Consider displaced Sullivan tenants first.)

Phase 3 medium term.
With the demolition of buildings 46-56, complete the low profile hangars to the south and A-1 hangars to the north as far as Building 44/45

Phase 4 long term
With the exception of the city building 40 (former FBO and currently CAP) , the remaining buildings to the north appear to be clear of Part 77 airspace. Removal of these buildings would follow expiration of the last lease (June 2013). More A-1 hangars may be constructed.

Summary:
This plan introduces the alternative of property acquisition in the northwest corner and construction of more A-1 hangars than previously shown for the West Side Development. The phasing has not been coordinated with the hangar work on the east side. Hangars on the west side are intended to be more economical (fewer frills) than what is being constructed on the east side.

Refer to the East Side Development concepts. I think the B-II hangars that are shown to be built over the wetland pond will be an environmental and construction challenge. I think the closed system drainage for the airport flows into this pond and then into a storm drain under the city shop. Let's discuss how more A-1's might be built on the northwest side and free up some space for B-II's other than wetland fill in. I know we have a wildlife management plan to eliminate wetlands due to hazards created by attracting wildlife, but let's visit this.

The city also requests that URS provide a design/ construction estimate for each phase and recommendations for sources of low profile and economical A-1 hangars.

All of the above is draft conceptual and has not been tested for fatal flaws.