CHAPTER 4: DOES WASHINGTON'S AVIATION SYSTEM PROVIDE ADEQUATE CAPACITY TO MEET EXISTING DEMAND?

While an assessment of the existing facilities and services available at an airport helps in understanding the quality of access at airports in Washington, a true measure of the adequacy of air transportation facilities is only possible through an assessment of the facility's capacity. Airport capacity is a measure of an airport's ability to serve demand, whether operations, passengers or other. The objective of a capacity determination is to measure the ability of the existing airport components to accommodate both existing activity as well as future levels.

How is Existing Capacity Measured in This Report?

This report provides a capacity assessment for three geographic levels: Washington NPIAS system; Special Emphasis Regions of high growth, and RTPO. Six different airport components will be evaluated for each geographic level as follows:

1. Annual Aircraft Operations and Airfield Capacity

Measuring an airport's capacity is an important factor in determining whether improvements to the airfield will be required to allow for future growth. It also allows the consequences of inaction to be assessed in terms of both time and money lost due to operational delay. For a state system plan, it is important to assess the capacity of the individual airports to determine whether capacity exists within the system to accommodate demand increases.

The capacity of an airport's runway system measures the number of operations (take-offs or landings) that can occur annually at an airport without experiencing delays. As the number of operations approach capacity, the average delay per operation increases. Operational delay results in time wasted waiting for the take-off or landing, and consequently costs the operator money. This can lead to decreased service, higher costs to consumers of the service or decisions to offer service at other, less constrained facilities. Ideally delay should be minimal.

The capacity of the airfield at an airport is directly related to the ability of its runway and taxiway system to safely allow aircraft to take off and land.

The capacity of the airfield is a measure of the theoretical maximum number of aircraft operations that can be accommodated on the airfield, or its components, over a specified period of time. There are a variety of techniques available for determining airfield capacity. The most widely accepted methodology is described in FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*. The analyses employed herein reference the guidance in this circular and two additional mathematical methods for determining the aircraft operational throughput capacity of the airfield system.

The capacity of a runway system considers several factors. Among these are:

- Meteorology
- Runway system configuration and use
- Air Traffic Control Procedures
- Aircraft fleet mix
- Operations characteristics to include the percent of operations that are arrivals and departures (affects hourly capacities), and the percent that are touch-and-go
- The availability and spacing of exit taxiways
- Runway length

For this report, airfield capacity will be measured in terms of the facility's Annual Service Volume (ASV). ASV estimates an airport's annual theoretical capacity to accommodate aircraft operations. The ASV accounts for differences in runway use, aircraft mix, weather conditions, and other factors that can occur over the period of a year. The ASV for the airports will be determined using the simple calculation methodology contained in FAA AC 150/5060-5. Where there was no parallel taxiway, the capacity was reduced by 25 percent. Where master plans or other studies contained a detailed examination of the capacity, these numbers were used.

2. Commercial Airline Passengers

The ability of an airport to accommodate airline passengers depends on the terminal facilities available including roadways, parking and passenger

terminal building. The goal in measuring capacity in the terminal area is to determine how many potential passengers that can be served in an hour with an acceptable level of customer service and convenience. As terminal facilities get busier passenger processing times tend to increase due to longer queues or wait times.

The passenger capacity of an airport is measured by the number of passenger boardings (or enplanements) that can be processed through the passenger terminal during the peak hour. This is an important measurement of an airport's capacity because it provides a theoretical measurement for the airport's ability to accommodate increased service levels, larger capacity aircraft or increased passenger loads. From a system perspective, if an individual airport does not have available capacity for passenger increases, steps need to be taken to provide additional capacity or the passenger increases will either not materialize or will be transferred to a different airport. This could strain the ability of that airport to accommodate increases in service in the future or hasten the needs for terminal improvements. Conversely, several airports may have excess capacity within their terminals but may not be in a position to experience increased service due to their lack of demand. Most of the commercial service airports in Washington have master plans or have recently completed other studies that have assessed the many factors (such as access road, auto parking, curb frontage, ticketing, security, and departure gates/lounges) that are used to determine the airport's terminal area needs. However, by and large these plans address required facilities to serve peak hour passengers rather than the terminal's capacity.

To evaluate the terminal capacity of the commercial service airports in Washington State for this study, the project team utilized an industry standard mathematical formula developed by the FAA and outlined in Advisory Circular 150/5360-13, *Terminal Planning and Design Guidelines*. This AC suggests that approximately 150 square feet of building should be allotted for each peak hour enplaned passenger. Because this estimate was made prior to 2001, the 150 square feet per peak hour passenger ratio is most likely understated given the increased need for security facilities that have arisen since then. The figure used in this report is 175 square feet of passenger terminal per peak hour enplaned passenger.

This capacity estimate does not address the adequacy of individual facilities within the terminal. Such a determination requires an in-depth terminal programming and planning effort. Rather the terminal capacities shown herein will be limited to an estimate of whether adequate square footage is available for processing passengers. The underlying assumption is that internal reassignment of spaces could occur to address any inadequacies in specific facilities.

3. Air Cargo

Air cargo is an increasingly important component of economic activity and development supporting numerous facets of every day business and leisure activity. The growing dependence on internet purchases and transactions, both personal and business, continues to fuel the increase in air cargo growth worldwide. Air cargo capacity at airports is commonly measured as the annual enplaned tonnage that can reasonably be processed through existing facilities. When cargo volume exceeds the ability of the airport's facilities to process it efficiently, the cost of shipping by air increases. Alternatively, the cargo shipper may find that it is more efficient to ship by alternative methods (ground) or the cargo carriers may add processing facilities at a different airport, adding time and cost to their shipping process.

Air cargo capacity at airports is commonly measured as the annual enplaned tonnage that can reasonably be processed through the existing facilities. In measuring capacity at airports it is important to measure an airport's ability to handle increased cargo loads to assess whether the system can accommodate the changing needs of the air cargo industry. It is established that air cargo is an essential ingredient in economic growth for a community and a region. Therefore, well distributed air cargo capacity throughout an aviation system can be seen as serving this vital role. This is especially true for more remote communities. Regional capacity is needed to assure that opportunities do not pass due to the lack of air cargo potential.

Where possible, cargo capacity will be adopted from Master Plans or similar recent studies. Otherwise it will be calculated at the standard of 2,000 annual enplaned pounds (one ton) per square foot of air cargo processing building. This figure represents an industry standard and is similar to the figure used in the PSRC *Regional Air Cargo Strategy Study*.

Due to the diversity in cargo service in Washington, measuring capacity by using building size does not always work. Two of the busiest cargo airports in the state, Seattle-Tacoma International and King County International/Boeing Field provide apron area for loading and unloading cargo aircraft but much of the cargo processing takes place in buildings that are off-airport. For these, the data in the PSRC's *Regional Air Cargo Strategy Study* are referenced.

4. Aircraft Storage and Parking

Aircraft storage is an essential element of each airport's individual capacity and for the system as a whole. With more than 7,000 based aircraft in Washington State, maintaining locations for aircraft to be stored is essential to the success of the aviation system. Many of the based aircraft are used for business purposes in the local community. In addition to locations for based aircraft, there is a substantial need for transient aircraft positions. When aircraft move from one airport to another in the course of completing business in the various communities, maintaining a location where they are able to park for several hours or multiple days is essential for support to aviation users and future airport development. Aircraft based at the airports are stored in one of two areas: hangars or apron tie-downs. Aircraft tie-downs are provided for those aircraft that do not require, or do not desire to pay the cost for hangar storage. It is assumed that future storage spaces will reflect some of the characteristics of current storage patterns; however, it is anticipated that an increasing percentage of the based aircraft fleet will be stored in hangars for security and protection from the elements.

In addition to the needs of the based aircraft tie-down areas, transient aircraft also require parking areas at the airport. This storage is provided in the form of transient aircraft tie-down space. It should be noted that the future development of hangars and tie-downs are as demand dictates. Therefore, the number, type and location of these storage facilities will vary depending upon the demand for airport needs.

5. Undeveloped Land Available For Aviation Development

Another influence on the capacity of the system is opportunity for future expansion for aviation development. Numerous factors – both on and off airport property – contribute to expansion capability, including topography, adjacent land uses, local zoning and regulations, presence of wetlands, and future planning goals of the surrounding community. Undeveloped land is also an indicator of the ability of an airport to expand in order to support the operation and development of aviation facilities. The overall objective of the land development planning at the airport is the provision of facilities, which are conveniently located and accessible to the community, and which accommodate the specific requirements of airport users. Airports where land is not available may find it difficult to meet future capacity needs.

In the inventory survey, airport managers were asked to provide an estimate of undeveloped land available for aviation development. This estimate could include existing land owned by the airport that may or may not currently be designated for aviation uses. Phase II of this study will

investigate if the undeveloped land available is compatible for aviation use; more detailed analysis of each airport property is conducted as part of site planning. It is important to coordinate uses of the airport property in a manner compatible with the functional design of the airport facility. As a result, the geography, as well as, the size of the undeveloped land plays a significant role in determining whether the land available can be used for aviation development. In addition, the information collected on the undeveloped land available for aviation development will be used in Phase II to assess future capacity limitations and availability.

6. Airspace System Analysis

For safety and operational purposes, the FAA divides airspace into various classes designated for use by certain types of aircraft, taking into account the space that individual airports require for safe operations as well as the requirement to separate aircraft in transit between airports. Congestion occurs when volumes exceed available space resulting in delay and lower air transportation service levels. LATS includes an assessment of Washington State airspace to examine the overall airspace structure and the interaction of the airports within that space for the Special Emphasis Region, where the number of airports sharing airspace makes for complicated interactions.

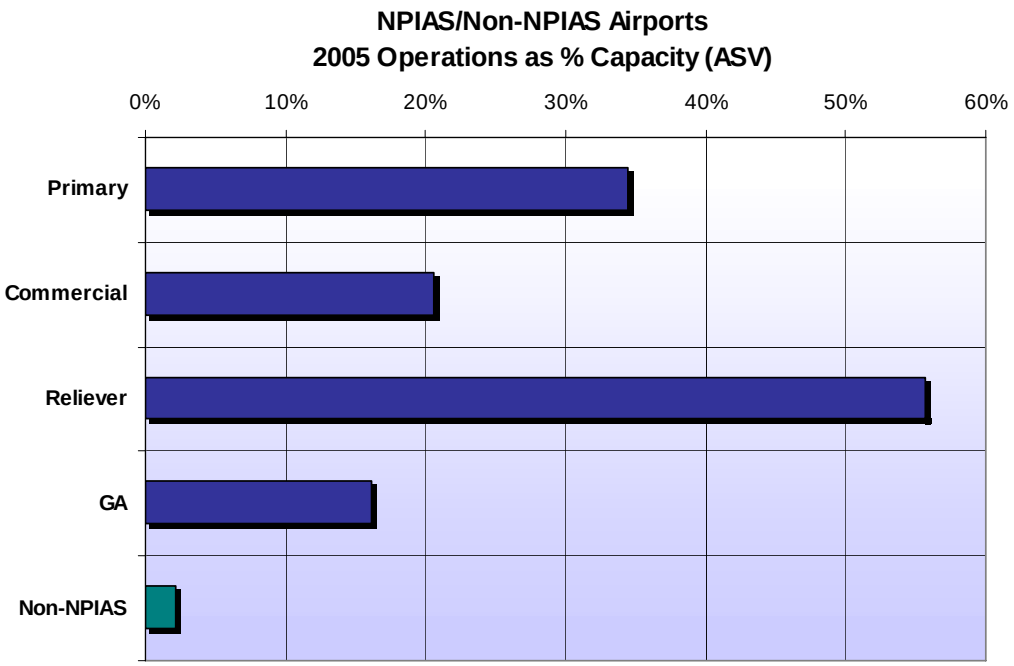
A more detailed summary of airspace structure and how it relates to Washington State airspace in particular is included in the appendices.

In addition to the overall airspace used for navigation between airports, each individual airport must maintain approach and departure paths that are clear of obstructions in order to maximize operations. Within the ESSB districts there are several instances where the proximity of other facilities requires that airspace coordination or operational restrictions be imposed in order to maintain safety at both airports. These interactions are discussed in Chapter 4.

Aircraft Operations Capacity

The map shown on page 5 represents the cumulative capacity of the airports by FAA airport class as measured by ASV. The data indicate that only the five NPIAS reliever airports in Washington are approaching 60 percent of their total operational capacity, which is the point where planning for additional capacity is normally recommended. Also shown is the percent of capacity currently being utilized at the 73 airports and seaplane bases that are included in the state system but are not part of the NPIAS.

Figure 18: Airport Capacity – NPIAS Airports



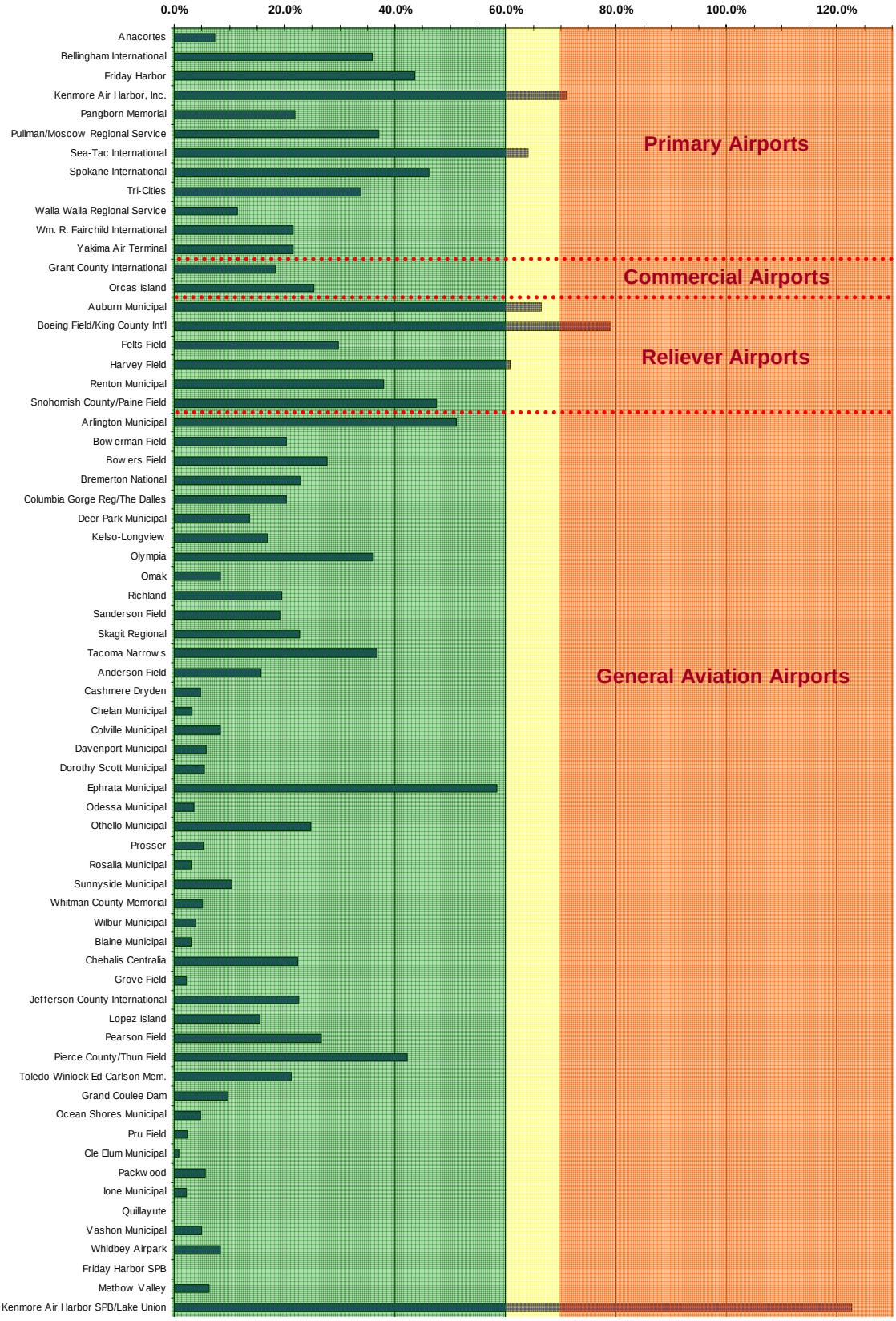
Key Highlights:

Only the five reliever airports are approaching 60 percent of their total operational capacity, the point where planning for additional capacity is normally recommended under FAA guidelines.

The capacity of each individual NPIAS airport was calculated and compared with operations levels recorded in 2005 to summarize statewide capacity. The details of this analysis are depicted in Figure 20 and are shown in a more detailed table in the appendices.

The data in Figure 20 show there are six individual airports where airfield capacity is an issue that will impact the system. Of these six, two are seaplane facilities operated by Kenmore Air and calculating capacity at a seaplane base is admittedly inexact. A third, Ephrata, is showing capacity issues based on current operations by sailplanes/gliders. This leaves the remaining capacity issues at facilities in the Puget Sound Region (Sea-Tac, King County International/Boeing Field, Auburn Municipal and Harvey Field). While some redistribution of activity could occur between airports in the region to balance overall operations levels for reliever and general aviation airports, this is less of a possibility for the Primary and Commercial Service airports which fulfill a public transportation function compared to private transport role of the smaller airports.

Figure 19: NPIAS Airports – 2005 Operations as a Percent of Capacity (ASV)



Key Highlights:

There are six individual airports where airfield capacity is an issue that will impact the system. This leaves the remaining capacity issues at facilities in the high volume Puget Sound Region (Sea-Tac, King County International/Boeing Field, Auburn Municipal and Harvey Field).

Supplementing the capacity of the NPIAS airports in Washington are 73 facilities that have not been included (Non-NPIAS Airports).

Figure 20: Aircraft Operations Capacity – Non-NPIAS Airports

Site ID.	Airport Name	NPIAS Role	2005 Ops	Annual Service Volume	2005 Operations as% of ASV	Reserve Capacity
26222.1A	Goldendale Municipal	None	5,300	120,750	4.4%	95.6%
26305.A	Moses Lake Municipal	None	24,750	230,000	10.8%	89.2%
26324.A	Okanogan Legion	None	5,450	120,750	4.5%	95.5%
26150.A	Sand Canyon	None	5,950	230,000	2.6%	97.4%
26438.A	Tonasket Municipal	None	2,500	230,000	1.1%	98.9%
26457.A	Waterville	None	3,250	120,750	2.7%	97.3%
26436.A	Willard Field	None	8,300	120,750	6.9%	93.1%
26167.A	Concrete Municipal	None	8,750	172,500	5.1%	94.9%
26384.12A	Ferry County	None	750	120,750	0.6%	99.4%
26273.A	Lind Municipal	None	750	120,750	0.6%	99.4%
26282.A	Mansfield	None	700	120,750	0.6%	99.4%
26454.A	New Warden	None	500	120,750	0.4%	99.6%
26376.83A	Quincy Municipal	None	1,250	120,750	1.0%	99.0%
26440.A	Twisp Municipal	None	10,600	230,000	4.6%	95.4%
26249.A	Vista Field	None	15,750	230,000	6.8%	93.2%
26463.A	Westport	None	1,000	120,750	0.8%	99.2%
26471.5*A	Wilson Creek	None	250	120,750	0.2%	99.8%
26180.A	Darrington Municipal	None	1,750	135,000	1.3%	98.7%
26213.A	Forks Municipal	None	1,800	230,000	0.8%	99.2%
26240.A	Port of Ilwaco	None	1,000	172,500	0.6%	99.4%
26401.*A	Sekiu	None	776	172,500	0.4%	99.6%
26304.8A	Strom Field	None	1,300	172,500	0.8%	99.2%
26322.11A	Wes Lupien	None	13,100	172,500	7.6%	92.4%
26412.A	Willapa Harbor	None	1,000	172,500	0.6%	99.4%
26267.4A	Avey Field State	None	800	120,750	0.7%	99.3%
26104.A	Bandera State	None	300	112,500	0.3%	99.7%
26424.3*A	Camano Island Airfield	None	2,750	172,500	1.6%	98.4%
26104.11*A	Cedars North Airpark	None	1,500	172,500	0.9%	99.1%
26170.A	Copalis State	None	200	120,750	0.2%	99.8%
26252.1A	Crest Airpark	None	146,250	240,000	60.9%	39.1%
26157.*A	Cross Winds	None	500	120,750	0.4%	99.6%
26290.9A	Desert Aire	None	2,750	230,000	1.2%	98.8%
26159.1A	DeVere Field	None	1,595	172,500	0.9%	99.1%
26189.A	Easton State	None	300	172,500	0.2%	99.8%
26196.A	Elma Municipal	None	9,800	120,750	8.1%	91.9%
26441.1A	Evergreen Field	None	2,250	172,500	1.3%	98.7%
26304.21A	Firstair Field	None	32,850	150,000	21.9%	78.1%
26444.4A	Fly For Fun	None	2,250	230,000	1.0%	99.0%

Site ID.	Airport Name	NPIAS Role	2005 Ops	Annual Service Volume	2005 Operations as% of ASV	Reserve Capacity
26104.1A	Goheen Field	None	18,900	172,500	11.0%	89.0%
26222.*A	Hillcrest	None	32,110	120,750	26.6%	73.4%
26328.1*A	Hoskins Field	None	1,250	172,500	0.7%	99.3%
26096.*A	J-Z	None	50	120,750	0.0%	100.0%
26269.1A	Lake Wenatchee State	None	600	120,750	0.5%	99.5%
26271.*U	Lester State	None	5	--	--	--
26424.5A	Little Goose Lock & Dam State	None	300	120,750	0.2%	99.8%
26291.6*A	Lost River Airport	None	500	120,750	0.4%	99.6%
26162.1A	Lower Granite State	None	300	120,750	0.2%	99.8%
26243.5A	Lower Monumental State	None	300	120,750	0.2%	99.8%
26275.A	Lynden Municipal	None	7,350	172,500	4.3%	95.7%
26163.A	Martin Field	None	13,250	120,750	11.0%	89.0%
26293.A	Mead Airport	None	6,300	120,750	5.2%	94.8%
26354.*A	Point Roberts Airpark	None	200	172,500	0.1%	99.9%
26388.8*A	R & K Skyranch	None	8,150	172,500	4.7%	95.3%
26230.A	Ranger Creek State	None	2,050	105,000	2.0%	98.0%
26098.6*A	Rogersburg State	None	300	120,750	0.2%	99.8%
26402.1A	Sequim Valley	None	12,600	172,500	7.3%	92.7%
26414.1*A	Shady Acres	None	13,500	120,750	11.2%	88.8%
26425.8*A	Sky Harbor	None	1,000	105,000	1.0%	99.0%
26409.A	Skykomish State	None	300	112,500	0.3%	99.7%
26415.A	Spanaway	None	13,500	140,000	9.6%	90.4%
26425.A	Stehekin State	None	250	120,750	0.2%	99.8%
26300.A	Sullivan Lake State	None	300	120,750	0.2%	99.8%
26191.1A	Swanson Field	None	6,315	112,500	5.6%	94.4%
26386.6A	Tieton State	None	300	120,750	0.2%	99.8%
26485.01A	Western Airpark	None	25,500	172,500	14.8%	85.2%
26478.1A	Woodland State	None	5,600	172,500	3.2%	96.8%
26433.C	American Lake SPB	None	50	230,000	0.0%	100.0%
26110.11C	Floathaven SPB	None	2,500	230,000	1.1%	98.9%
26365.C	Poulsbo SPB	None	275	230,000	0.1%	99.9%
26388.63C	Roche Harbor SPB	None	2,800	230,000	1.2%	98.8%
26389.4C	Rosario SPB	None	5,312	230,000	2.3%	97.7%
26098.23C	Skyline SPB	None	230	230,000	0.1%	99.9%
26381.01C	Will Rogers Wiley Post SPB	None	2,387	60,000	4.0%	96.0%

Passenger Capacity

All but one of the airports providing scheduled commercial passenger service within the state are included in the NPIAS as either primary or commercial service facilities. The exception is the seaplane facilities owned and operated by Kenmore Air on Lake Washington. Based on data reported by Sea-Tac, 2005 passenger levels constitute 68 percent of the theoretical peak hour capacity of their terminal facility. The remaining Washington commercial airports either have no issues concerning terminal capacity or have not reported their terminal facilities. In some cases, such as Anacortes and Orcas Island commercial service is offered from private facilities. Although no peak hour capacities were reported for Kenmore Air operations, the extremely low peak hour passenger demand would not be expected to place a significant burden on the facilities.

At Anacortes and Kenmore Air Harbor passengers are processed through privately-owned hangars. These facilities consist of a ticket counter, limited seating area and restrooms. The aircraft being used to serve the passengers are small piston powered aircraft with a seating capacity of fewer than nine seats. Therefore, the peak number of passengers within the terminal will be nine. Because of this low usage, these are seen as adequate for the passenger levels currently registered. When required, the private owners will expand them at their expense.

Figure 21: Statewide Airport Classifications: Passenger Capacity, 2005

Airport	Passenger Terminal Peak Hr Capacity	2005 Peak Hour Passengers	Capacity Utilization (%)	Reserve Capacity (%)
Anacortes	9	9	100%	0%
Bellingham International /1	149	30	20%	80%
Boeing Field/King County International	160	7	4%	96%
Friday Harbor	22	8	37%	63%
Grant County International	132	15	11%	89%
Orcas Island	7	7	100%	0%
Kenmore Air Harbor, Inc	8	8	100%	0%
Kenmore Air Harbor SPB	8	8	100%	0%
Pangborn Memorial	89	30	34%	66%
Pullman/Moscow Regional	51	30	59%	41%
Seattle-Tacoma International	8,065	5,500	68%	32%
Spokane International	2,205	746	34%	66%

Tri-Cities	271	185	68%	32%
Walla Walla Regional	206	30	15%	85%
William R. Fairchild International	29	7	24%	76%
Yakima Air Terminal	176	30	17%	83%

Note: /1 As of 2006, Bellingham has increased its large jet service (130-150 seat MD83/87s) operations which have resulted in a much higher utilization of the airport terminal at peak hour – approximately 80 percent capacity.

Key Highlights:

Sea-Tac passenger levels constitute 68 percent of the theoretical peak hour capacity of their terminal facility. Tri-Cities passenger levels also constitute 68 percent of theoretical peak hour capacity. With the exception of Bellingham International, the remaining airports have no current issues concerning terminal capacity.

Cargo Capacity

All airports where cargo activity has been reported are included in the NPIAS. Like other categories, cargo demand within the state is concentrated in the Puget Sound Region while capacity is available at numerous airports outside the region. In fact, many of the state's airports reported the existence of large apron areas available for cargo operation but no current activity. Of the airports reporting cargo volume, Seattle-Tacoma International has registered the highest level of enplaned tonnage. While handling the greatest cargo volumes of any airports evaluated under this study, Sea-Tac and King County International/Boeing Field are also the two most constrained airports in Washington State relative to reserve capacity available to accommodate future cargo growth. By contrast, Spokane International has capacity available and Skagit Regional Airport has more than 80 percent of its cargo capacity available.

A large portion of cargo volume operates as unscheduled activity and most airports have limited access to cargo volume information. USDOT provides limited information on cargo volume from carrier filings. Cargo carriers are sensitive to disclosing information for competitive reasons. Airports are able to document cargo operations/service so estimates can be developed, however cargo volume can vary greatly by direction within many markets.

Figure 22: Cargo Capacity in Washington

Airport	Total 2005 Enplaned Cargo (in tons)	Estimated Cargo Building Capacity (in tons)	Capacity Utilization (%)	Reserve Capacity (%)
Seattle-Tacoma International	373,233	600,000	62%	38%
King County International/Boeing Field	124,620	590,000	21%	79%
Spokane International	93,424	4,280,000	2%	98%
Tri-Cities	3,377	No Building	N/A	N/A
Yakima Municipal	2,268	No Building	N/A	N/A
Bellingham International	1,215	No Building	N/A	N/A
Pangborn Memorial	654	No Building	N/A	N/A
Grant County International	530	No Building	N/A	N/A
Wm. R. Fairchild International	519	No Building	N/A	N/A
Skagit Regional	384	No Building	N/A	N/A

[1] *Calculated based on dedicated apron and aircraft type rather than building size since cargo is processed off airport (ratio = 20 tons/sf/yr)*

Key Highlight:

Like other categories, cargo demand and cargo airline service within the state is concentrated in the Puget Sound Region while capacity is available at numerous airports outside the region.

Aircraft Storage and Parking Capacity

Nearly half of the state's aircraft are based in the Puget Sound Region. Although the region also has almost half of the state's aircraft storage capacity, it is approaching its existing capacity with only 682 aircraft storage positions remaining available for future use. Within the Puget Sound Region, there are 1,620 aircraft tie-downs and 2,753 hangars, resulting in a total inventory of 4,373 storage positions. This represents a mix of 37 percent tie-downs and 63 percent hangars providing storage capacity for based and transient aircraft.

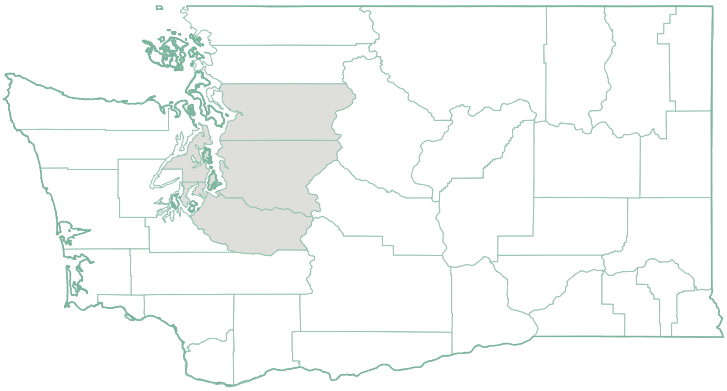
What is the Existing Capacity of the Four Special Emphasis Regions?

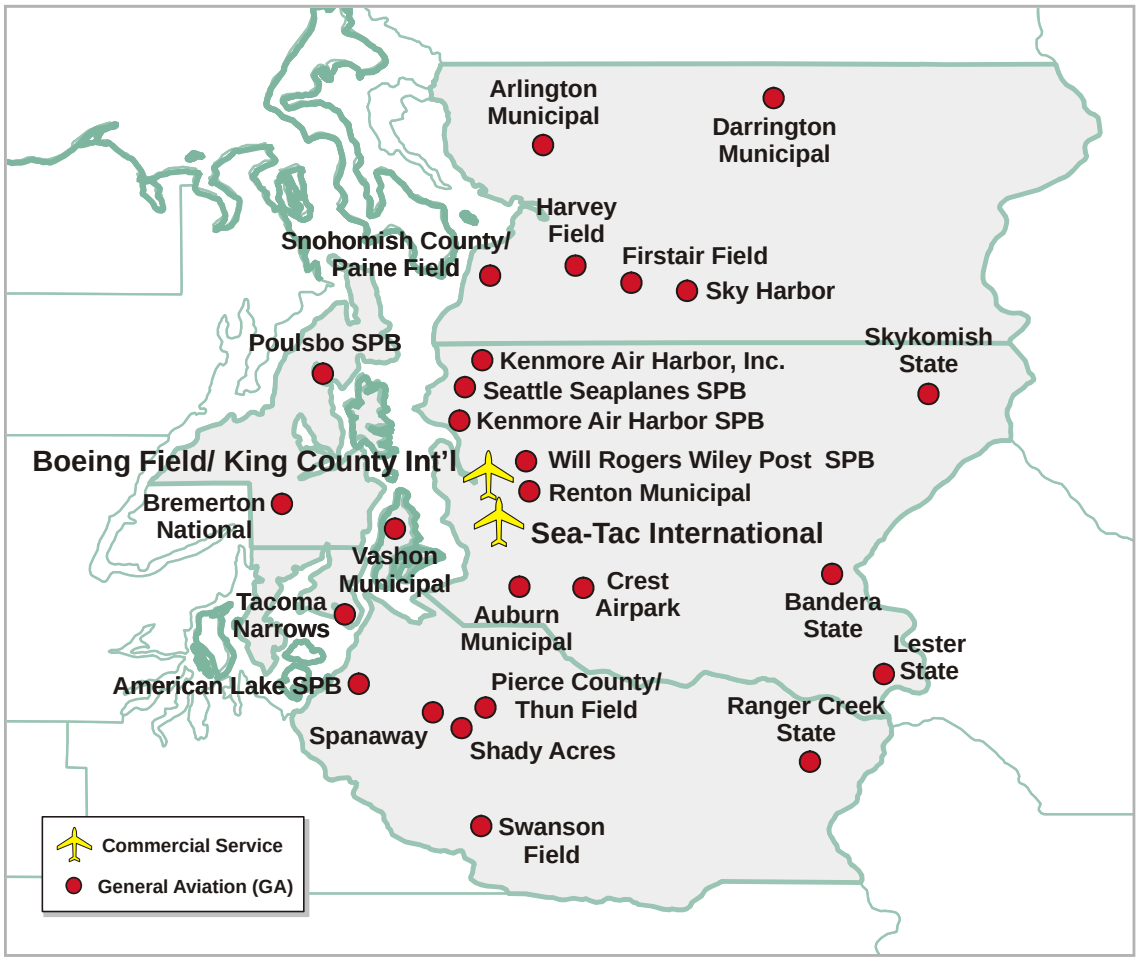
Per direction of the legislature, LATS provides a detailed capacity assessment for four Special Emphasis Regions in the state: Puget Sound, Southwest Washington, Spokane and Tri-Cities. Findings for each region are provided below.

Puget Sound Region

The Puget Sound Region represents the most populated region in Washington State and the busiest aviation area. It has also been identified as one of the ESSB 5121 Special Emphasis Regions. The region identified encompasses King, Snohomish, Pierce, and Kitsap Counties. This is the same area as the PSRC RTPO district. The PSRC has been active in airport planning and development issues for the 25 airports within their region as shown and listed below.

Figure 23: Puget Sound Region





Puget Sound Regional Council (PSRC) RTPO District Airports:

1. American Lake SPB
2. Arlington Municipal
3. Auburn Municipal
4. Bandera State
5. Bremerton National
6. Crest Airpark
7. Darrington Municipal
8. Firstair Field
9. Harvey Field
10. Kenmore Air Harbor SPB
11. Kenmore Air Harbor, Inc
12. King County International/Boeing Field
13. Lester State
14. Pierce County/Thun Field
15. Poulsbo SPB
16. Ranger Creek State
17. Renton Municipal
18. Seattle-Tacoma International
19. Shady Acres
20. Sky Harbor
21. Skykomish State
22. Snohomish County/Paine Field
23. Spanaway
24. Swanson Field
25. Tacoma Narrows
26. Vashon Municipal
27. Will Rogers-Wiley Post SPB

Puget Sound Passenger Capacity

Of the three airports providing scheduled commercial passenger service within the Puget Sound Region Special Emphasis Regions, Seattle-Tacoma International Airport is clearly the driving force in passenger activity. Based on data reported by Sea-Tac, 2005 passenger levels constitute 68 percent of the theoretical peak hour capacity of the airport. King County International/Boeing Field Airport only experiences a small fraction of its peak hour passenger capacity, and although no peak hour capacity was reported for Kenmore Air Harbor SPB, the extremely low peak hour passenger demand would not be expected to place a significant burden on its facilities.

Figure 24: Passenger Capacity in Puget Sound Region

Airport	Passenger Terminal Peak Hr Capacity	2005 Peak Hour Passengers	Capacity Utilization (%)	Reserve Capacity (%)
Boeing Field/King County Int'l	160	7	4%	96%
Kenmore Air Harbor SPB	8	8	100%	0
Kenmore Air Harbor, Inc	8	8	100%	0
Seattle-Tacoma International	8,065	5,500	68%	32%
Total:	**8,225**	**5,515**	**67%**	**33%**

Key Highlight:

Seattle-Tacoma International Airport is clearly the driving force in passenger activity. Based on data reported by Sea-Tac, 2005 passenger levels constitute 68 percent of the theoretical peak hour capacity of the airport.

Puget Sound Cargo Capacity

Cargo capacity within the Puget Sound Region Special Emphasis Region is fairly evenly distributed between Seattle-Tacoma International Airport and King County International/Boeing Field. While handling the greatest cargo volumes of any airports evaluated under this study, King County International/ Boeing Field and Sea-Tac are also the two most constrained airports in Washington State relative to reserve capacity available to accommodate future cargo growth.

Figure 25: Cargo Capacity in Puget Sound Region

Airport	Total 2005 Enplaned Cargo (in tons)	Estimated Cargo Building Capacity (in tons)	Capacity Utilization (%)	Reserve Capacity (%)
Seattle-Tacoma International	373,233	600,000	62%	38%
King County International/Boeing Field	124,620	590,000	21%	79%
Total:	**497,853**	**1,190,000**	**42%**	**58%**

Key Highlight:

King County International/Boeing Field has the most enplaned cargo tonnage in the Puget Sound and is operating at almost 80 percent capacity.

Puget Sound Aircraft Storage and Parking Capacity

Almost half of the state's aircraft are based in the Puget Sound Region. Although the region also has nearly half of the state's aircraft storage capacity, it is approaching capacity with only 682 aircraft positions available as either a tie-down or hangar. There are 1,620 aircraft tie-downs and 2,753 hangars for a total inventory of 4,373 storage positions in the region[1]. This represents a mixture of 37 percent tie-downs and 63 percent hangars providing storage capacity for based and transient aircraft.

As illustrated in Figure 27, Crest Airpark, Kenmore Air Harbor, Inc, Renton Municipal, and Sea-Tac have reached their existing aircraft storage capacity whereas a number of airports have reached over 80 percent capacity. These airports include Arlington Municipal, King County International/Boeing Field, Firstair Field, Harvey Field, and Swanson Field. Several seaplane base airports and state owned airports have few or no based aircraft and are not approaching capacity. These airports include American Lake SPB, Bandera State, Kenmore Air Harbor, SPB, Lester State, Poulsbo SPB, Ranger Creek State, Sky Harbor, Skykomish State, and Will Rogers Wiley Post SPB. Although the split between the number of hangars and tie-downs in the Puget Sound Region is 63 percent verses 37 percent, demand for hangars at most airports is far greater than tie-downs. The ratio of the number of hangars to tie-downs is roughly 5:1 at Arlington Municipal and Harvey Field, 9:1 at Vashon Municipal, and 3:1 at Firstair Field. Airports with significantly more tie-downs than hangars include Darrington Municipal and Tacoma Narrows.

[1] Several hangars accommodate multiple aircraft

Figure 26: Aircraft Storage and Parking Capacity in Puget Sound Region

Airport	2005 Based Aircraft	Total Tie-down Capacity	Total Hangar Capacity	Total Aircraft Capacity	Reserve Capacity	Storage Capacity Utilization (%)
American Lake SPB	0	0	0	0	0	0
Arlington Municipal	592	111	514	625	33	95
Auburn Municipal	276	155	234	389	113	71
Bandera State	0	0	0	0	0	0
King County International/Boeing Field	447	220	259	479	32	93
Bremerton National	196	88	160	248	52	79
Crest Airpark	325	165	160	325	0	100
Darrington Municipal	7	16	2	18	11	39
Firstair Field	70	25	62	87	17	81
Harvey Field	326	55	308	363	37	90
Kenmore Air Harbor, Inc	70	70	0	70	0	100
Kenmore Air Harbor SPB	0	0	0	0	0	0
Lester State	0	0	0	0	0	0
Pierce County/Thun Field	230	130	163	293	63	79
Poulsbo SPB	0	0	0	0	0	0
Ranger Creek State	0	0	0	0	0	0
Renton Municipal	290	135	155	290	0	100
Sea-Tac International^1	12	0	12	12	0	100
Shady Acres	30	25	27	52	22	58
Sky Harbor	0	0	0	0	0	0
Skykomish State	0	6	0	6	6	0
Snohomish County/Paine Field	571	255	495	750	179	76
Spanaway	30	13	52	65	35	58
Swanson Field	20	2	19	21	1	95
Tacoma Narrows	169	144	86	230	61	73
Vashon Municipal	30	5	45	50	20	60
Will Rogers Wiley Post SPB	0	0	0	0	0	0
Total in Region	**3,691**	**1,620**	**2.753**	**4,373**	**682**	**84**

^1 Aircraft at air-carrier airports generally park at gates or remote overnight parking areas and do not utilize tie-downs or hangars. Facility appears to have additional aircraft capacity.

Key Highlight:

Capacity for the region is averaging 84 percent utilization rate. Reserve capacity within the region is on average 16 percent. Many airports have reached over 80 percent capacity.

Puget Sound Aircraft Operations Capacity

Given the special emphasis of the Puget Sound Region under ESSB 5121, a more comprehensive analysis was prepared of operations demand and capacity by individual airport. Presented in Figure 28 are those airports falling within the Puget Sound Region as delineated in the Special Emphasis Regions. In the table, each airport's Service Classification as currently identified under the state system is presented along with its 2005 operations, the airport's calculated Annual Service Volume (operations capacity), the percentage of operations capacity represented by 2005 activity levels and the remaining reserve capacity available.

In some instances, the smaller unattended Recreation/Remote airports and Seaplane Bases did not have 2005 operations data available. Although these airports contribute capacity to the region, their available capacity could not be calculated and therefore was not included in overall calculation of aggregate capacity in the region. Given that these facilities are extremely low operation airports their impact on regional capacity calculations is negligible.

Figure 27: Aircraft Operations Capacity in Puget Sound Region

		2005 Demand	Operations Capacity	Percent Utilization	Reserve Capacity
/King County International/Boeing Field	Commercial Service	251,856	380,000	66.3%	33.7%
Kenmore Air Harbor, Inc.	Commercial Service	57,000	56,250	101.3%	-1.3%
Sea-Tac International	Commercial Service	346,744	533,041	65.1%	34.9%
	Subtotal by Service Class	**655,600**	**969,291**	**67.6%**	**32.4%**
Arlington Municipal	Regional Service	148,540	270,000	55.0%	45.0%
Auburn Municipal	Regional Service	143,450	231,000	62.1%	37.9%
Bremerton National	Regional Service	54,645	240,000	22.8%	77.2%
Harvey Field	Regional Service	139,160	230,000	60.5%	39.5%
Renton Municipal	Regional Service	87,571	230,000	38.1%	61.9%
Snohomish County/Paine Field	Regional Service	150,368	316,218	47.6%	52.4%
Tacoma Narrows	Regional Service	93,159	240,000	38.8%	61.2%
	Subtotal by Service Class	**816,893**	**1,757,218**	**46.5%**	**53.5%**
Pierce County/Thun Field	Local Community >10	61,638	213,200	28.9%	71.1%
	Subtotal by Service Class	61,638	213,200	28.9%	71.1%
Darrington Municipal	Local Community <10	1,750	135,000	1.3%	98.7%
	Subtotal by Service Class	**1,750**	**135,000**	**1.3%**	**98.7%**
Lester State	Recreation/Remote	5	Closed		
Shady Acres	Recreation/Remote	13,500	120,750	11.2%	88.8%
Bandera State	Recreation/Remote	300	112,500	0.3%	99.7%
Crest Airpark	Recreation/Remote	146,250	240,000	60.9%	39.1%
Firstair Field	Recreation/Remote	32,850	150,000	21.9%	78.1%
Ranger Creek State	Recreation/Remote	2,050	105,000	2.0%	98.0%
Sky Harbor	Recreation/Remote	1,000	105,000	1.0%	99.0%
Skykomish State	Recreation/Remote	300	112,500	0.3%	99.7%
Spanaway	Recreation/Remote	13,500	140,000	9.6%	90.4%
Swanson Field	Recreation/Remote	6,315	112,500	5.6%	94.4%
Vashon Municipal	Recreation/Remote	8,740	120,000	7.3%	92.7%
	Subtotal by Service Class	**24,890**	**570,750**	**4.4%**	**95.6%**
American Lake SPB	Seaplane Base	50	230,000	0.0%	100.0%
Kenmore Air Harbor SPB	Seaplane Base	31,200	60,000	52.0%	48.0%
Poulsbo SPB	Seaplane Base	275	230,000	0.1%	99.9%
Will Rogers Wiley Post SPB	Seaplane Base	2,387	60,000	4.0%	96.0%
	Subtotal by Service Class	**31,200**	**60,000**	**52.0%**	**48.0%**
	Total by Region	**1,591,971**	**3,705,459**	**43.0%**	**57.0%**

Note: 1 Service Class Subtotals and Region Total do not include airports for which no data is available.
2 Wiley Post SPB operations aggregated with and reported under Renton Municipal Airport

Key Highlights:

Overall, capacity in the Puget Sound is a little more than one-third utilized. However, at the commercial and regional service airports, the utilization averages 70 and 46 percent respectively.

The three Commercial Service facilities in the Puget Sound Region have minimal reserve operations capacity available. Typical FAA planning guidelines suggest that airports initiate planning for capacity improvements when activity levels reach 60 percent of capacity, with improvements in place and operational by the time the airport reaches 70 percent of capacity.

While activity levels can continue to grow in the absence of capacity improvements, operational delays will occur causing inconvenience and increased costs to passengers and airline operators. Two of Region's Regional Service airports, Auburn Municipal and Harvey Field, have also reached the FAA's 60 percent threshold for planning capacity improvements.

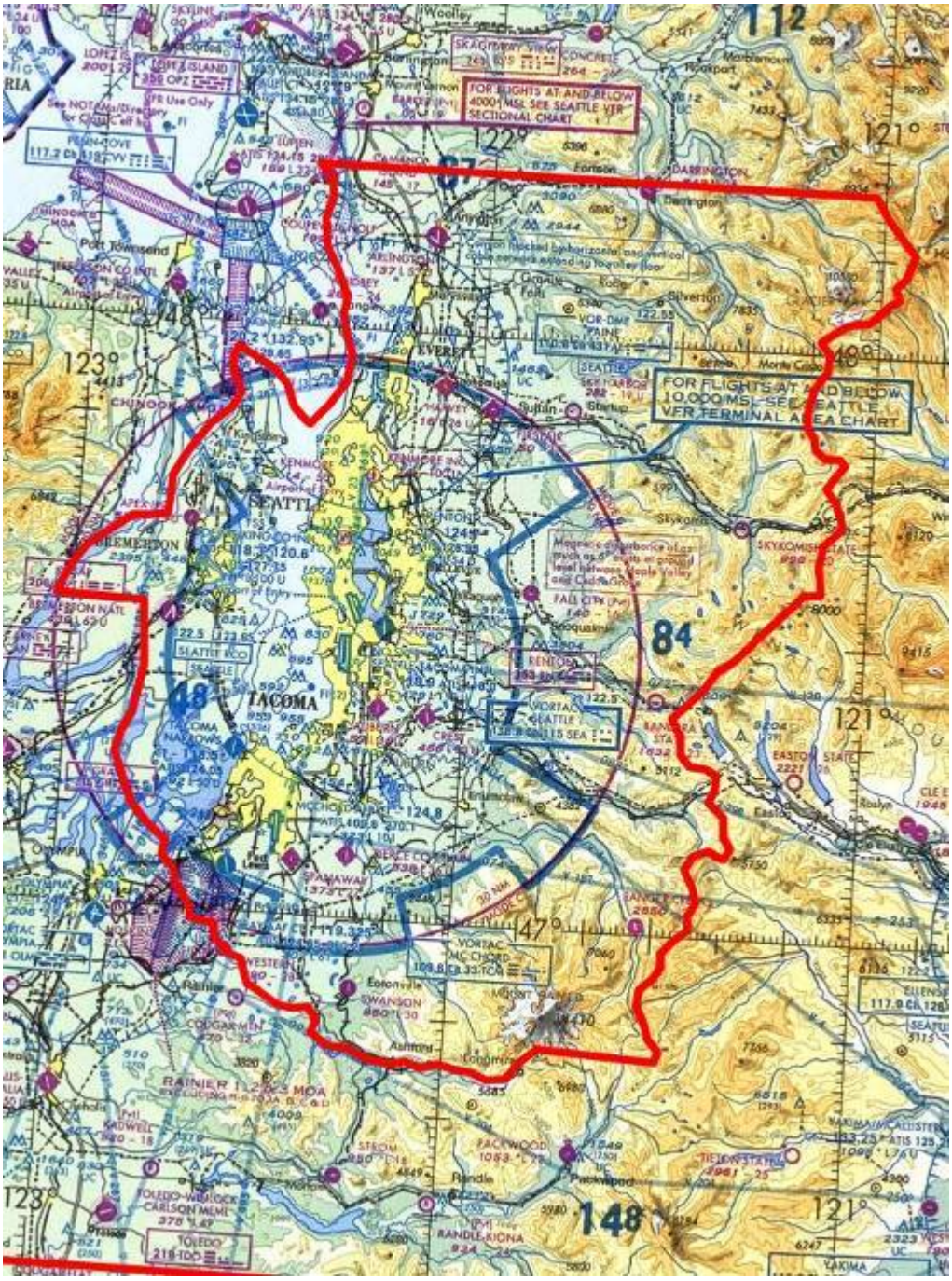
While some redistribution of demand activity may occur between airports in the Region to balance overall operations levels among Regional Service, Community and Recreation/Remote airports, this is less of a possibility for the Commercial Service airports which is driven by airline service levels and market demand.

Puget Sound Airspace

As described earlier, airspace interaction in the Puget Sound Region is dominated by the Class B airspace associated with the Seattle-Tacoma International Airport (See Figure 29). Within this area the primary interaction is the sharing of space by Seattle-Tacoma International Airport (Sea-Tac) and King County International/Boeing Field Airport. King County International/Boeing Field Airport is 5.7 nautical miles north of Sea-Tac, directly under the final approach course for runway 16C. This makes the airspace interaction between the two airports very complex. Air traffic controllers must provide at least one type of separation (vertical, lateral, and visual) to all aircraft under their guidance. Due to the complexities between the two airports, there are procedures in place that minimize potential delay. For example, when Sea-Tac and King County International/Boeing Field Airport are in south flow (weather permitting), "plan alpha" is employed. When plan alpha is in effect, the King County International/Boeing Field Airport tower has the responsibility of applying visual separation between Sea-Tac arrivals on a final approach and King County International/Boeing Field Airport traffic. In this scenario, King County International/Boeing Field Airport air traffic

controllers must be able to visually see the aircraft to determine separation. When Sea-Tac and King County International/Boeing Field Airport are in south flow and weather does not permit "plan alpha," Sea-Tac arrivals revert to Sea-Tac Terminal Radar Approach Control (TRACON); whereby, a controller is dedicated to the arrival-radar monitor and utilizes concurrent Instrument Landing System (ILS) operational procedures. The least desirable scenario is when Sea-Tac and King County International/Boeing Field Airport are in north flow and "plan alpha" cannot be employed, resulting in the occurrence of significant delays. When the condition of significant delays occurs, SEA TRACON treats Sea-Tac and King County International/ Boeing Field Airport as a single airport and efficiencies are impacted. Much of this is because the separation of King County International/ Boeing Field Airport arrivals and Sea-Tac departures are complicated by missed-approach procedures for the King County International/ Boeing Field Airport arrivals. In this situation, Sea-Tac departures must initiate takeoff rolls before the King County International/ Boeing Field Airport arrivals cross a specified intersection (7.6 nautical miles from King County International/ Boeing Field Airport), otherwise the Sea-Tac departure must be held until the King County International/ Boeing Field Airport arrival lands. The most volatile scenario is a split flow; whereby, King County International/ Boeing Field Airport traffic is opposite that of Sea-Tac, and "plan alpha" cannot be used. Although weather conditions that necessitate this configuration are rare, when they occur – especially during peak departure periods at Sea-Tac – significant delays rapidly cumulate.

Figure 28: Puget Sound Airspace


FOR FLIGHTS AT AND BELOW 4000 MSL SEE SEATTLE VFR SECTIONAL CHART
FOR FLIGHTS AT AND BELOW 10,000 MSL SEE SEATTLE VFR TERMINAL AREA CHART
SEATTLE
TACOMA
EVERETT
BREMERTON
Port Townsend
Bellingham
Mount Vernon
Arlington
Darrington
Granite Falls
Monroe
Snoqualmie
Skykomish
Sultan
Startup
Kingston
Poulsbo
Silverdale
Tacoma Narrows
Olympia
Shelton
Eatonville
Ashford
Packwood
Randle
Toledo
Rainier
Cougar Mtn
Spanaway
Kent
Renton
Fall City
Easton
Roslyn
Ellensburg
Yakima
Mount Rainier
Cle Elum
Snoqualmie Pass
Stevens Pass
Lopez Island
Friday Harbor
Coupeville
Oak Harbor
Langley
Freeland
Concrete
Sedro Woolley
Lynden
Blaine
Ferndale
Bellingham
Mount Vernon
Arlington
Darrington
Granite Falls
Monroe
Snoqualmie
Skykomish
Sultan
Startup
Kingston
Poulsbo
Silverdale
Tacoma Narrows
Olympia
Shelton
Eatonville
Ashford
Packwood
Randle
Toledo
Rainier
Cougar Mtn
Spanaway
Kent
Renton
Fall City
Easton
Roslyn
Ellensburg
Yakima
Mount Rainier
Cle Elum
Snoqualmie Pass
Stevens Pass
Lopez Island
Friday Harbor
Coupeville
Oak Harbor
Langley
Freeland
Concrete
Sedro Woolley
Lynden
Blaine
Ferndale
Bellingham
Port Townsend
Bremerton
Poulsbo
Silverdale
Kingston
Shelton
Olympia
Tacoma
Seattle
Everett
Bellingham
Mount Vernon
Arlington
Darrington
Granite Falls
Monroe
Snoqualmie
Skykomish
Sultan
Startup
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Renton
Fall City
Easton
Roslyn
Ellensburg
Yakima
Mount Rainier
Cle Elum
Snoqualmie Pass
Stevens Pass
Lopez Island
Friday Harbor
Coupeville
Oak Harbor
Langley
Freeland
Concrete
Sedro Woolley
Lynden
Blaine
Ferndale

Puget Sound Undeveloped Land Capacity

The Puget Sound Region has 1,769 acres of undeveloped airport land and accounts for approximately 16 percent of the total undeveloped airport land in Washington State. Twelve out of the 27 airports either have no land capacity or have not provided land capacity information. About 36 percent (636 of the 1,769) of the available acres are located at Bremerton National Airport.

Figure 29: Undeveloped Land Capacity in Puget Sound Region

Airport	Undeveloped Land (acres)
American Lake SPB	0
Arlington Municipal	190
Auburn Municipal	23
Bandera State	15
King County International/Boeing Field	0
Bremerton National	636
Crest Airpark	25
Darrington Municipal	20
Firstair Field	0
Harvey Field	125
Kenmore Air Harbor SPB	0
Kenmore Air Harbor, Inc.	0
Lester State	41
Pierce County/Thun Field	25
Poulsbo SPB	0
Ranger Creek State	10
Renton Municipal	2
Sea-Tac International	250
Shady Acres	0
Sky Harbor	0
Skykomish State	20
Snohomish County/Paine Field	267
Spanaway	0
Swanson Field	0
Tacoma Narrows	40
Vashon Municipal	0
Will Rogers Wiley Post SPB	0
Total	**1,689**

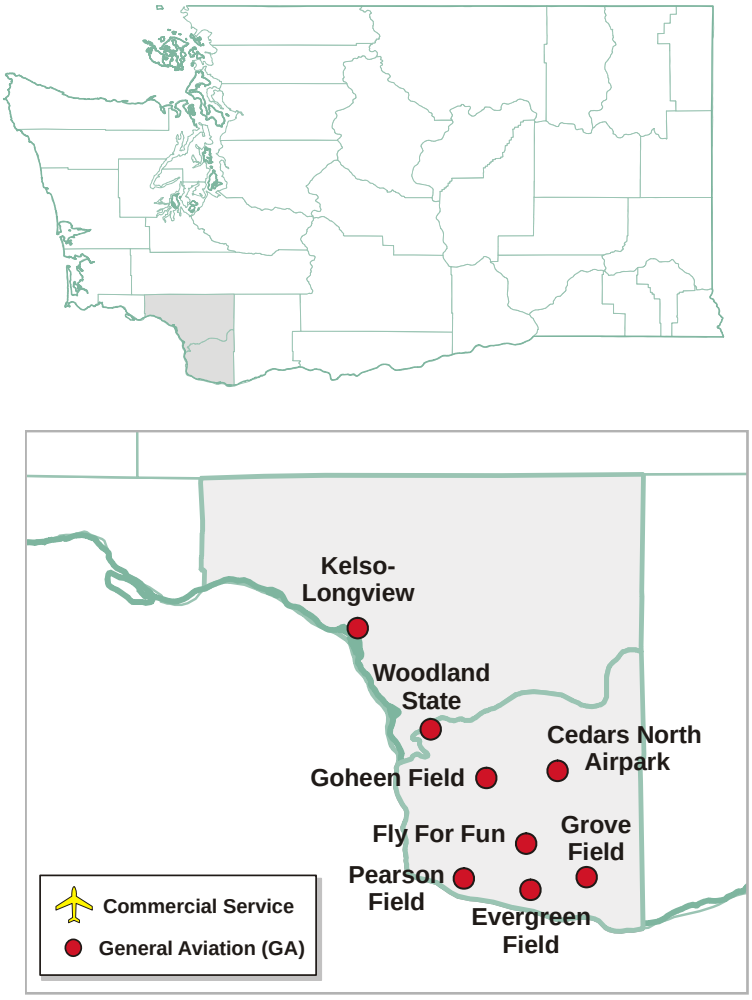
Key Highlight:

About 38 percent (636 of the 1,689) of the available acres are located at Bremerton National Airport.

Southwest Region

The Southwest Region identified in ESSB 5121 encompasses Cowlitz and Clark Counties and includes eight airports.

Figure 30: Southwest Region



Capacity and demand within the Southwest Region is complicated by the fact that the dominant airport for the region is located in another state. The Portland International Airport (PDX) is just south of the region, across the Columbia River. Although separated from Washington by the river and a political boundary, Portland International Airport provides all passenger and cargo service for the region. Additionally, general aviation demand and capacity are influenced by the three active GA facilities located within the state of Oregon and controlled by the Port of Portland that provide capacity for GA growth in this region. This is particularly true in light of the diminished GA capacity in recent years as private airports have closed in the region.

However, this analysis only measures the demand and capacity that have been identified as being within the region and therefore, measurable with our survey data.

Southwest Region Passenger Capacity

There is no scheduled commercial passenger service for airports within the Southwest Region Special Emphasis Regions. Given its proximity to Portland International Airport, and to a lesser extent Sea-Tac, the Southwest Washington Region's commercial air service needs are adequately served.

Southwest Region Cargo Capacity

No cargo service or cargo tonnages were reported for airports within the Southwest Region Special Emphasis Regions.

There are 397 hangars and 262 tie-downs in the Southwest Washington Region for a total inventory of 706 aircraft storage positions. This results in approximately 37 percent of tie-downs and 63 percent of hangars providing storage capacity for based and transient aircraft. With 469 based aircraft in the region, the airport system has 237 aircraft storage positions to handle additional based aircraft. Nonetheless, Cedars North Airpark has reached its existing aircraft storage capacity. Pearson Field only has one aircraft storage position remaining available. About 42 percent of the aircraft storage exists at Evergreen Field, while Kelso-Longview, Goheen Field and Grove Field still have some capacity to handle additional based or transient aircraft.

Demand for hangars at Grove Field and Pearson Field is far greater than tie-downs. The ratio of the number of hangars to tie-downs is roughly 6:1 and 7:1 respectively. On the other hand, at Evergreen Field the number of tie-downs out numbered hangars by 2:1. There are also 75 percent and 40

percent more tie downs than hanger positions respectively at Fly-for-Fun and Kelso-Longview. Phase II will evaluate in more detail the impact of the Evergreen Field closure on capacity in Southwest Washington.

Figure 31: Aircraft Storage and Parking Capacity in Southwest Region

Airport	2005 Based Aircraft	Total Tie-down Capacity	Total Hangar Capacity	Total Aircraft Capacity	Reserve Capacity	Storage Capacity Utilization (%)
Cedars North Airpark	6	0	6	6	0	100%
Evergreen Field	60	105	54	159	99	38%
Fly For Fun	9	7	4	11	2	82%
Goheen Field	50	20	72	92	42	54%
Grove Field	67	13	80	93	26	72%
Kelso-Longview	85	90	64	154	69	55%
Pearson Field	175	22	154	176	1	99%
Woodland State	17	5	15	20	3	85%
Total in Region	**469**	**262**	**449**	**711**	**252**	**66%**

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Key Highlight:

With 469 based aircraft in the region, the airport system has 252 aircraft reserve capacity to handle additional based aircraft.

Southwest Region Aircraft Operations Capacity

The operations levels and available capacity for the Southwest Region, as delineated under ESSB 5121, is presented in Figure 33. The Southwest Washington Region's close proximity to the Portland metropolitan area airports including Portland International, Portland-Hillsboro, Portland Troutdale, and Portland-Mulino Airports limits aviation activity at Washington airports primarily to GA recreational flying because of the competitive airport market. As readily apparent from Figure 33, there is ample reserve capacity available at Southwest Region airports.

Figure 32: Aircraft Operations Capacity in Southwest Region

		2005 Demand	Operations Capacity	Percent Utilization	Reserve Capacity
Kelso-Longview	Regional Service	32,110	230,000	14.0%	86.0%
	Subtotal by Service Class	**32,110**	**230,000**	**14.0%**	**86.0%**
Grove Field	Local Community >10	7,775	230,000	3.4%	96.6%
Pearson Field	Local Community >10	63,050	180,000	35.0%	65.0%
	Subtotal by Service Class	**70,825**	**410,000**	**17.3%**	**82.7%**
Cedars North Airpark	Recreation/Remote	1,500	172,500	0.9%	99.1%
Evergreen Field	Recreation/Remote	2,250	172,500	1.3%	98.7%
Fly For Fun	Recreation/Remote	2,250	230,000	1.0%	99.0%
Goheen Field	Recreation/Remote	18,900	172,500	11.0%	89.0%
Woodland State	Recreation/Remote	5,600	172,500	3.2%	96.8%
	Subtotal by Service Class	**9,350**	**575,000**	**1.6%**	**98.4%**
	Total by Region	**112,285**	**1,215,000**	**9.2%**	**90.8%**

/1 Service Class Subtotals and Region Total do not include airports for which no data is available.

Key Highlights:

There is ample reserve capacity available at Southwest Region airports. There are no commercial service airports in Southwest Region. Four of the airports in this region are private. Evergreen Field, one of the four, has closed and Pearson Field has space limitations due to the National Park land adjacent to airport property. Pearson Field has as congressional agreement which indicated that the Airport will close in 2022. The private airports in this region are under extreme growth pressure and are at risk of closure.

Southwest Region Airspace

The existing airspace structure and air traffic control (ATC) facilities serving the Southwest Region and the Portland International Airport (PDX) air traffic area are discussed in the following text and depicted in Figure 34.

Pearson Field is under the significant influence and control of FAA air traffic control located at Portland International Airport. Portland International Airport is a large, commercial airport located approximately three nautical miles to the southeast of Pearson Field in Oregon, with its own positive controlled airspace. Airspace surrounding Portland is classified as Class C airspace and is of large enough size and dimension to

extend into Clark County. Portland airspace is segmented and differentiated to accommodate the operations of Pearson Field. Instead of the airspace starting at the surface, as it does elsewhere in the circle, it starts at 1,100 feet over Pearson to allow for its operations to occur outside the limits of this airspace. The second circular area is 20 nautical miles in diameter and starts at different elevations depending upon the segment location within the 20 nautical mile area. These elevations vary from 1,100 feet over Pearson Field, to 1,700, 1,800, 2,000, or 2,300 feet at specified locations within the circle. The air traffic control aspects of this airspace are that pilots must contact Portland International Airport approach or departure control prior to arrival into the Portland International Airport Class C airspace, or shortly after departing Pearson (or Evergreen) airport(s). The primary purposes of these controls are for traffic and wake turbulence advisories. Additionally, "positive air traffic control" is provided by controllers in the regional Air Route Traffic Control Center (ARTCC). The ARTCC jurisdiction that Pearson Field comes under is the Seattle Center located in Auburn, Washington. If aircraft enroute to or from Pearson wish the services of positive control along the route of their flight, they contact Seattle Center.

Figure 33: Southwest Airspace

Southwest Region Undeveloped Land Capacity

The Southwest Washington Region has a total of 114 acres of undeveloped land at area airports. About 66 percent (75 of 114) comes from Cedars North Airpark and Goheen Field. Of the eight airports, two either have no land capacity or have not provided land information in the undeveloped land inventory database survey. Pearson Field and Woodland State have some undeveloped land; however, it is questionable whether it is useable land due to grading and floodplain issues.

Figure 34: Undeveloped Land Capacity in Southwest Region

Airport	Undeveloped Land (acres)
Cedars North Airpark	35
Evergreen Field	0
Fly For Fun	8
Goheen Field	40
Grove Field	0
Kelso-Longview	20
Pearson Field	6
Woodland State	5
Total	**114**

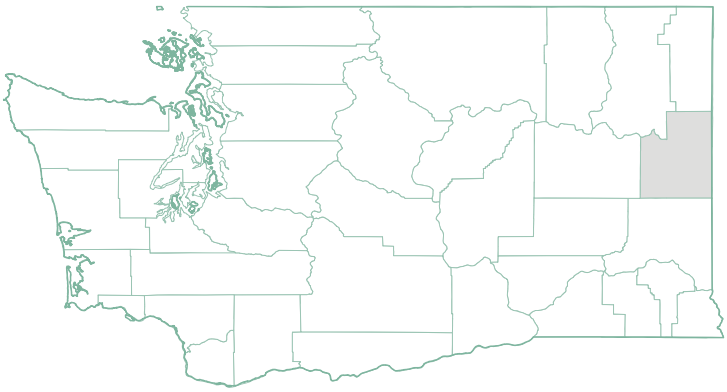
Key Highlight:

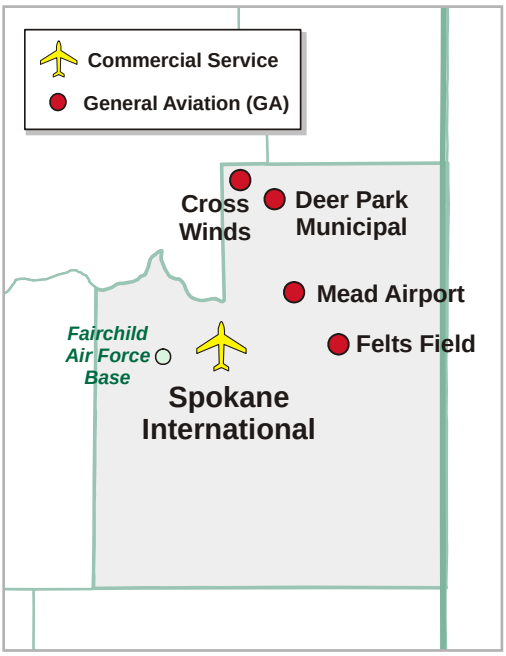
Of the eight airports, two either have no land capacity or have not provided land information in the undeveloped land inventory database survey.

Spokane Region

The Spokane Region identified in ESSB 5121 encompasses Spokane County and five airports. In addition, Fairchild Air Force Base is located within the region.

Figure 35: The Spokane Region





Spokane Region Passenger Capacity

Spokane International Airport is the only facility in the Spokane Special Emphasis Regions reporting scheduled commercial passenger service. Based on current peak hour passenger enplanement activity, the Spokane International Airport passenger terminal was operating at approximately one-third of its theoretical peak hour capacity.

Figure 36: Passenger Capacity in Spokane Region

Airport	Passenger Terminal Peak Hr Capacity	2005 Peak Hour Passengers	Capacity Utilization (%)	Reserve Capacity (%)
Spokane International	2,205	746	34%	66%
Total:	**2,205**	**746**	**34%**	**66%**

Key Highlight:

Based on current peak hour passenger enplanement activity, the Spokane International Airport passenger terminal has adequate passenger capacity.

Spokane Region Cargo Capacity

In recent years, Spokane International Airport significantly expanded its cargo apron facilities. As a result, cargo capacity was calculated based on apron capacity as the determining factor rather than building area. Based on the capacity of the airport's apron facilities, Spokane has 99 percent of its cargo capacity available for future growth.

Figure 37: Cargo Capacity in Spokane Region

Airport	Total 2005 Enplaned Cargo (in tons)	Estimated Cargo Building Capacity (in tons)	Capacity Utilization (%)	Reserve Capacity (%)
Spokane International [1]	93,424	4,280,000	2%	98%
Total:	**93,424**	**4,280,000**	**2%**	**98%**

[1] *Calculated based on dedicated apron and aircraft type rather than building size since cargo is processed off airport (ratio = 20 tons/sf/yr)*

Key Highlight:

Based on the capacity of the airport's apron facilities, Spokane has 99 percent of its cargo capacity available for future growth.

Spokane Region Aircraft Storage and Parking Capacity

The Spokane Region has a total of 541 based aircraft leaving less than seven percent of reserve aircraft storage capacity available. The region is approaching full utilization of its existing aircraft storage capacity. Currently, 62 percent of the storage capacity is comprised of hangars and 38 percent is tie-downs. Spokane International and Felts Field have reached their aircraft storage capacity while Deer Park Municipal is operating above 80 percent capacity. On the other hand, only 55 percent of the aircraft storage facilities are occupied at Mead Airport.

Figure 38: Aircraft Storage and Parking Capacity in Spokane Region

Airport	2005 Based Aircraft	Total Tie-down Capacity	Total Hangar Capacity	Total Aircraft Capacity	Reserve Capacity	Storage Capacity Utilization (%)
Cross Winds	3	0	4	4	1	75%
Deer Park Municipal	90	40	65	105	15	86%
Felts Field	316	100	210	310	-6	102%
Mead Airport	18	20	13	33	15	55%
Spokane International^1	114	32	22	114	0	100%
Total in Region	**541**	**192**	**314**	**566**	**25**	**93%**

^1 Aircraft at air-carrier airports generally park at gates or remote overnight parking areas and do not utilize tie-downs or hangars. Facility appears to have additional aircraft capacity.

Key Highlight:

The Spokane Region is approaching complete utilization of its existing aircraft storage capacity.

Spokane Region Aircraft Operations Capacity

The aircraft operations capacity for the Spokane Region, as delineated under ESSB 5121, is presented in Figure 40 below. Spokane International Airport is the only Commercial Service facility in the Spokane Region. Based on 2005 activity levels, Spokane International has ample reserve operations capacity available. The remaining airports in the Spokane Region also have significant operations capacity beyond 2005 activity levels.

Figure 39: Aircraft Operations Capacity in Spokane Region

		2005 Demand	Operations Capacity	Percent Utilization	Reserve Capacity
Spokane International	Commercial Service	91,354	215,000	42.5%	57.5%
	Subtotal by Service Class	**91,354**	**215,000**	**42.5%**	**57.5%**
Deer Park Municipal	Regional Service	34,650	230,000	15.1%	84.9%
Felts Field	Regional Service	68,649	230,000	29.8%	70.2%
	Subtotal by Service Class	**103,299**	**460,000**	**22.5%**	**77.5%**
Cross Winds	Recreation/Remote	500	120,750	0.4%	99.6%
Mead Airport	Recreation/Remote	6,300	120,750	5.2%	94.8%
	Subtotal by Service Class	**6,800**	**241,500**	**2.8%**	**97.2%**
	Total by Region	**201,453**	**916,500**	**22.0%**	**78.0%**

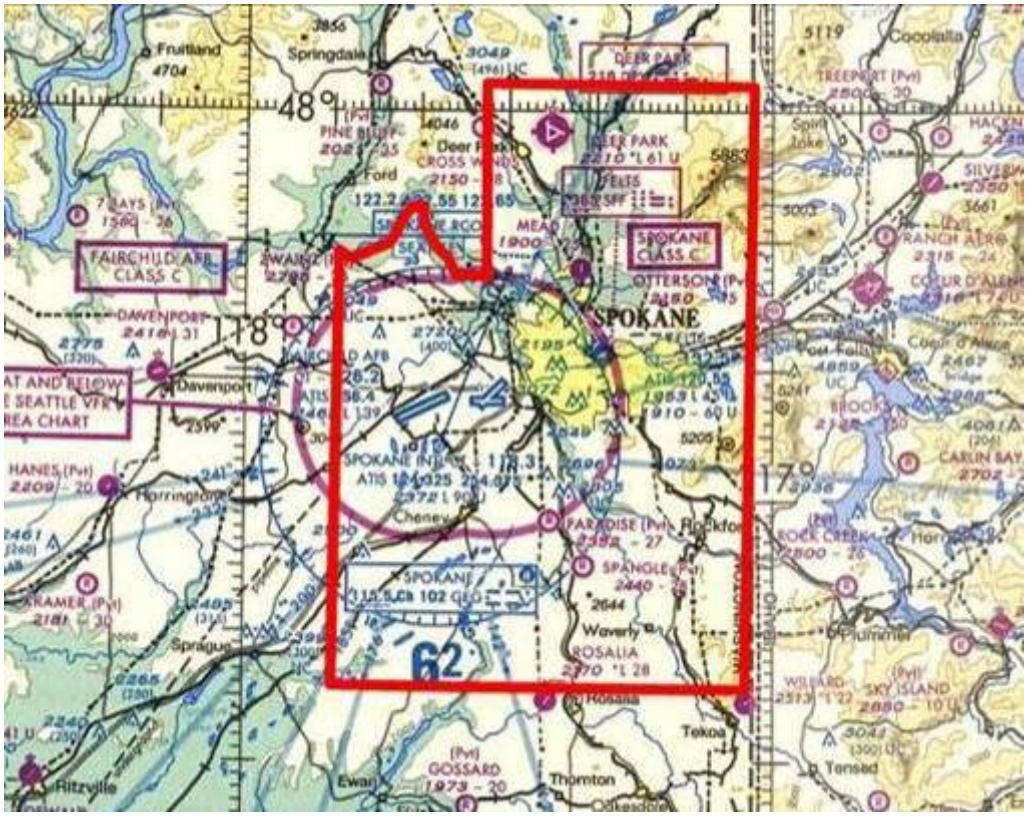
Key Highlight:

Spokane International has ample reserve operations capacity available, and remaining airports in the region also have significant operations capacity beyond 2005 activity levels.

Spokane Region Airspace

The airspace within the region (Figure 41) has no conflicts other than the shared airspace of Spokane International and Fairchild AFB. The Spokane Airport Board commissioned a study of regional airspace relative to a new runway alignment in 1994 for the purpose of assuring that all this air traffic interaction was adequately considered prior to constructing a parallel runway. The resulting report looked at traffic in the regional airspace and concluded that approach and departure paths for Runway 3/21 at Spokane International and Runway 5/23 at Fairchild Air Force Base did not operate independent of one another. It is possible that some coordinated airspace study of both facilities will be necessary prior to determining the optimum alignment of any new runway at Spokane International but that current operations can continue without capacity impacts.

Figure 40: Spokane Airspace



Spokane Region Undeveloped Land Capacity

Although the Spokane Region only consists of five airports, it currently has almost 20 percent of Washington State's undeveloped land capacity adjacent to airports. Both Deer Park Municipal Airport and Spokane International Airport have over 1,000 acres of undeveloped land.

Figure 41: Undeveloped Land Capacity in Spokane Region

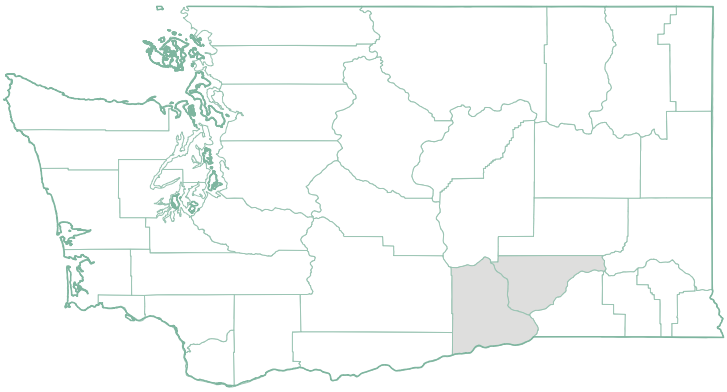
Airport	Undeveloped Land (acres)
Cross Winds	0
Deer Park Municipal	1,100
Felts Field	50
Mead Airport	10
Spokane International	1,189
Total	**2,349**

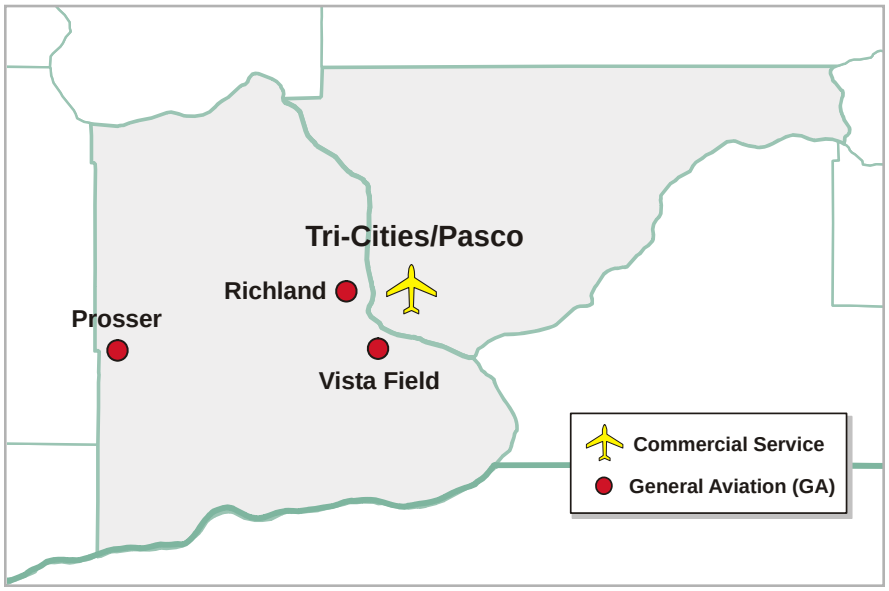
Key Highlight:

Spokane Region currently has almost 20 percent of Washington State's land capacity adjacent to airports.

Tri-Cities Region

Figure 42: The Tri-Cities Region





The Tri-Cities Region includes four airports located within Franklin and Benton Counties.

Tri-Cities Region Passenger Capacity

Pasco/Tri-Cities Airport is the only facility within the Tri-Cities Region Special Emphasis Regions with scheduled commercial passenger service. Based on current flight schedules, peak hour enplanements constitute 68 percent of the terminal's theoretical capacity. This level of demand ranks the Pasco/Tri-Cities Airport terminal on par with Seattle-Tacoma International relative to reserve capacity available.

Figure 43: Passenger Capacity in Tri-Cities Region

Airport	Passenger Terminal Peak Hr Capacity	2005 Peak Hour Passengers	Capacity Utilization (%)	Reserve Capacity (%)
Tri-Cities	271	185	68%	32%
Total:	**271**	**185**	**68%**	**32%**

Key Highlight:

Based on current flight schedules, peak hour enplanements constitute 68 percent of the terminal's theoretical capacity.

Tri-Cities Region Cargo Capacity

No cargo tonnages were reported for airports within the Tri-Cities Region Special Emphasis Regions.

Figure 44: Cargo Capacity in Tri-Cities Region

Airport	Total 2005 Enplaned Cargo (in tons)	Estimated Cargo Building Capacity (in tons)	Capacity Utilization (%)	Reserve Capacity (%)
Tri-Cities	3,377	No Building	N/A	N/A
Total:	**3,377**			

Tri-Cities Region Aircraft Storage and Parking Capacity

In the Tri-Cities Region, the total aircraft storage capacity is 504. With only 280 based aircraft in the region, the airport system has plenty of reserve capacity to handle additional based or transient aircraft. Less than 50 percent of the aircraft storage facilities are occupied at Prosser and Richland. Tri-Cities Airport is at 70 percent capacity, while Vista Field is at 80 percent capacity with only nine remaining aircraft storage positions. This region has more tie-downs than hangars, however at Tri-Cities and Vista Field, the number of hangars and tie-downs in nearly equal.

Figure 45: Aircraft Storage and Parking Capacity in Tri-Cities Region

Airport	2005 Based Aircraft	Total Tie-down Capacity	Total Hangar Capacity	Total Aircraft Capacity	Reserve Capacity	Storage Capacity Utilization (%)
Prosser	46	74	20	94	48	49%
Richland	82	98	100	198	116	41%
Tri-Cities	117	132	36	168	51	70%
Vista Field	35	20	24	44	9	80%
Total in Region	**280**	**324**	**179**	**504**	**224**	**56%**

Key Highlight:

With only 280 based aircraft in the region, the airport system has plenty of reserve capacity to handle additional based or transient aircraft.

Tri-Cities Region Aircraft Operations Capacity

The aircraft operations capacity for airports under ESSB 5121's Tri-Cities Region are presented in Figure 47. Tri-Cities Airport is the only Commercial Service airport in this region. Tri-Cities airport, as well as the three remaining airports, Richland, Prosser and Vista Field, all have substantial reserve capacity over and above 2005 activity levels.

Figure 46: Aircraft Operations Capacity in Tri-Cities Region

		2005 Demand	Operations Capacity	Percent Utilization	Reserve Capacity
Tri-Cities	Commercial Service	90,260	260,000	34.7%	65.3%
	Subtotal by Service Class	**90,260**	**260,000**	**34.7%**	**65.3%**
Richland	Regional Service	28,700	115,000	25.0%	75.0%
	Subtotal by Service Class	**28,700**	**115,000**	**25.0%**	**75.0%**
Prosser	Local Community > 10	12,240	230,000	5.3%	94.7%
	Subtotal by Service Class	**12,240**	**230,000**	**5.3%**	**94.7%**
Vista Field	Local Community < 10	15,750	230,000	6.8%	93.2%
	Subtotal by Service Class	**15,750**	**230,000**	**6.8%**	**93.2%**
	Total by Region	**146,950**	**835,000**	**17.6%**	**82.4%**

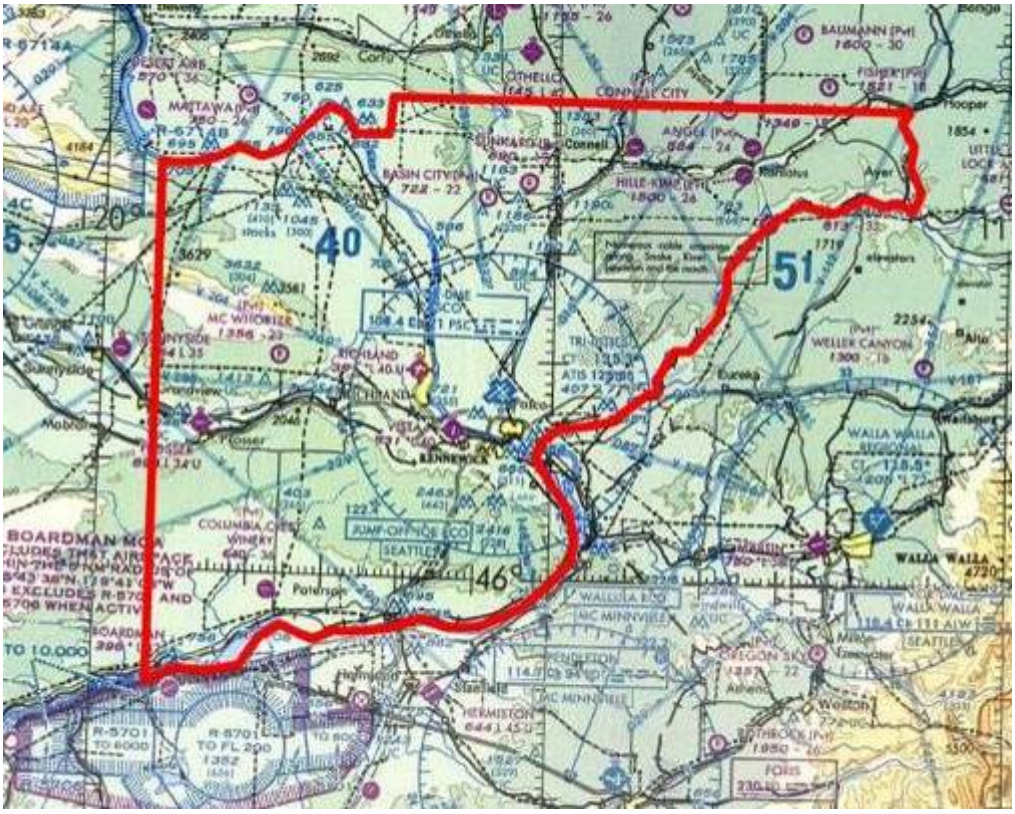
Key Highlight:

Tri-Cities, Richland, Prosser and Vista Field airports all have substantial reserve capacity over and above 2005 activity levels.

Tri-Cities Region Airspace

There are four active airports within the Tri-Cities Emphasis Area(Figure 48). A review of the current airspace procedures shows that there are no airspace conflicts among these facilities.

Figure 47: Tri-Cities Airspace



Tri-Cities Region Undeveloped Land Capacity

All four airports in the Tri-Cities Region have undeveloped land available. The total capacity is 1976 acres, with about 73 percent (1436 of 1976) from Tri-Cities Airport and about 20 percent (400 of 1976) from Richland Airport.

Figure 48: Undeveloped Land Capacity in Tri-Cities Region

Airport	Undeveloped Land (acres)
Prosser	90
Richland	400
Tri-Cities	1,435
Vista Field	50
Total	**1,975**

Key Highlight:

All airports in the Tri Cities Region have undeveloped land available, with at total of almost 2,000 acres.

What is the Existing Capacity of Each RTPO?

The airports within each RTPO are listed below in Figure 50.

Figure 49: Regional Transportation Planning Organization (RTPO) Regions

Regional Transportation Planning Organization (RTPO)	Counties Included	Airports	State Classification
Benton-Franklin-Walla Walla RTPO	Benton	Prosser	Local Comm more than 10 A/C
		Richland	Regional Service
		Vista Field	Local Comm less than 10 A/C
	Franklin	Tri-Cities	Commercial Service
	Walla Walla	Lower Monumental State	Recreation or Remote
		Martin Field	Recreation or Remote
		Walla Walla Regional	Commercial Service
Northeast Washington RTPO	Ferry	Avey Field State	Recreation or Remote
		Ferry County	Local Comm less than 10 A/C
	Pend Oreille	Ione Municipal	Recreation or Remote
		Sullivan Lake State	Recreation or Remote
	Stevens	Colville Municipal	Local Comm more than 10 A/C
		Sand Canyon	Local Comm more than 10 A/C
North Central RTPO	Chelan	Cashmere Dryden	Local Comm more than 10 A/C
		Chelan Municipal	Local Comm more than 10 A/C
		Lake Wenatchee State	Recreation or Remote
		Stehekin State	Recreation or Remote
	Douglas	Mansfield	Local Comm less than 10 A/C
		Pangborn Memorial	Commercial Service

Regional Transportation Planning Organization (RTPO)	Counties Included	Airports	State Classification
		Waterville	Local Comm more than 10 A/C
	Okanogan	Anderson Field	Local Comm more than 10 A/C
		Dorothy Scott Municipal	Local Comm more than 10 A/C
		Lost River Airport	Recreation or Remote
		Methow Valley	Recreation or Remote
		Okanogan Legion	Local Comm more than 10 A/C
		Omak	Regional Service
		Tonasket Municipal	Local Comm more than 10 A/C
		Twisp Municipal	Local Comm less than 10 A/C
Palouse RTPO	Asotin	Rogersburg State	Recreation or Remote
	Columbia	Little Goose Lock & Dam State	Recreation or Remote
	Whitman	Lower Granite State	Recreation or Remote
		Pullman/Moscow Regional	Commercial Service
		Rosalia Municipal	Local Comm more than 10 A/C
		Whitman County Memorial	Local Comm more than 10 A/C
		Willard Field	Local Comm more than 10 A/C
Peninsula RTPO	Clallam	Forks Municipal	Local Comm less than 10 A/C
		Quillayute	Recreation or Remote
		Sekiu	Local Comm less than 10 A/C
		Sequim Valley	Recreation or Remote
		Wm. R. Fairchild International	Commercial Service
	Jefferson	Jefferson County International	Local Comm more than 10 A/C
	Mason	Sanderson Field	Regional Service
Puget Sound Regional Council	King	Auburn Municipal	Regional Service
		Bandera State	Recreation or Remote
		Boeing Field/King County Int'l	Commercial Service
		Crest Airpark	Recreation or Remote
		Kenmore Air Harbor SPB	Seaplane Base
		Kenmore Air Harbor, Inc.	Commercial Service
		Lester State	Recreation or Remote
		Renton Municipal	Regional Service
		Seattle-Tacoma International	Commercial Service
		Skykomish State	Recreation or Remote
		Vashon Municipal	Recreation or Remote
		Will Rogers Wiley Post SPB	Seaplane Base
	Kitsap	Bremerton National	Regional Service
		Poulsbo SPB	Seaplane Base
	Pierce	American Lake SPB	Seaplane Base
		Pierce County/Thun Field	Local Comm more than 10 A/C
		Ranger Creek State	Recreation or Remote
		Shady Acres	Recreation or Remote
		Spanaway	Recreation or Remote
		Swanson Field	Recreation or Remote
		Tacoma Narrows	Regional Service
	Snohomish	Arlington Municipal	Regional Service
		Darrington Municipal	Local Comm less than 10 A/C

Regional Transportation Planning Organization (RTPO)	Counties Included	Airports	State Classification
		Firstair Field	Recreation or Remote
		Harvey Field	Regional Service
		Sky Harbor	Recreation or Remote
		Snohomish County/Paine Field	Regional Service
Quad-County RTPO	Adams	Lind Municipal	Local Comm less than 10 A/C
		Othello Municipal	Local Comm more than 10 A/C
		Pru Field	Local Comm less than 10 A/C
	Grant	Desert Aire	Recreation or Remote
		Ephrata Municipal	Local Comm more than 10 A/C
		Grand Coulee Dam	Local Comm less than 10 A/C
		Grant County International	Commercial Service
		Moses Lake Municipal	Local Comm more than 10 A/C
		New Warden	Local Comm less than 10 A/C
		Quincy Municipal	Local Comm less than 10 A/C
		Wilson Creek	Local Comm less than 10 A/C
	Kittitas	Bowers Field	Regional Service
		Cle Elum Municipal	Local Comm less than 10 A/C
		DeVere Field Easton State	Recreation or Remote
	Lincoln	Davenport Municipal	Local Comm more than 10 A/C
		J-Z	Recreation or Remote
		Odessa Municipal	Local Comm more than 10 A/C
		Wilbur Municipal	Local Comm more than 10 A/C
Skagit/Island RTPO	Island	Camano Island Airfield	Recreation or Remote
		Wes Lupien	Local Comm less than 10 A/C
		Whidbey Airpark	Recreation or Remote
	Skagit	Anacortes	Commercial Service
		Concrete Municipal	Local Comm more than 10 A/C
		Skagit Regional	Regional Service
		Skyline SPB	Seaplane Base
Spokane Regional Transportation Council	Spokane	Cross Winds	Recreation or Remote
		Deer Park Municipal	Regional Service
		Felts Field	Regional Service
		Mead Airport	Recreation or Remote
		Spokane International	Commercial Service
Southwest Washington Regional Transportation Council	Clark	Cedars North Airpark	Recreation or Remote
		Evergreen Field	Recreation or Remote
		Fly For Fun	Recreation or Remote
		Goheen Field	Recreation or Remote
		Grove Field	Local Comm more than 10 A/C
		Pearson Field	Local Comm more than 10 A/C
	Klickitat	Columbia Gorge Reg/The Dalles	Regional Service
		Goldendale Municipal	Local Comm more than 10 A/C
		Hillcrest	Recreation or Remote
Southwest Washington RTPO	Cowlitz	Kelso-Longview	Regional Service
		Woodland State	Recreation or Remote
	Lewis	Chehalis Centralia	Local Comm more than 10 A/C
		Packwood	Local Comm less than 10 A/C
		Strom Field	Local Comm less than 10 A/C
		Ed Carlson Memorial Airport	Local Comm more than 10 A/C

Regional Transportation Planning Organization (RTPO)	Counties Included	Airports	State Classification
	Pacific	Port of Ilwaco Willapa Harbor	Local Comm less than 10 A/C Local Comm less than 10 A/C
Thurston Regional Planning Council	Thurston	Hoskins Field Olympia R & K Skyranch Western Airpark	Recreation or Remote Regional Service Recreation or Remote Recreation or Remote
Whatcom Council of Governments	Whatcom	Bellingham International Blaine Municipal Floathaven SPB Lynden Municipal Point Roberts Airpark	Commercial Service Local Comm more than 10 A/C Seaplane Base Recreation or Remote Recreation or Remote
Yakima Valley Conference of Governments	Yakima	Sunnyside Municipal Tieton State Yakima Air Terminal	Local Comm more than 10 A/C Recreation or Remote Commercial Service
Airports Not in RTPO	San Juan	Friday Harbor Friday Harbor SPB Lopez Island Orcas Island Roche Harbor SPB Rosario SPB	Commercial Service Seaplane Base Local Comm more than 10 A/C Commercial Service Seaplane Base Seaplane Base

Passenger Capacity by RTPO Region

The capacity of the RTPOs aviation system was measured to determine whether each region possessed adequate capacity to meet their current needs for commercial airline service. The information shown in Figure 51 shows the year 2005 demand for passenger service (expressed as the number of enplaned passengers) compared with the capacity of the airports. It is noted that some of the RTPOs do not currently contain airports where commercial service is offered. In these cases both the demand and capacity have been registered as zero. In actuality, the area does produce demand for commercial service but that demand accesses passenger service in a neighboring district.

Figure 50: Passenger Capacity by RTPO Region

RTPO Region	Passenger Terminal Peak Hr Capacity	2005 Peak Hour Psgrs	Capacity Utilization (%)	Reserve Capacity (%)
Benton-Franklin-Walla Walla RTPO	1,015	215	21%	79%
North Central RTPO	480	30	6%	94%
Palouse RTPO	520	30	6%	94%
Puget Sound Regional Council	8,225	5,515	67%	33%
Quad-County RTPO	1,504	37	2%	98%
Spokane Regional Transportation Council	2,205	746	34%	66%
Whatcom Council of Governments	149	30	20%	80%
Yakima Valley Conference of Governments	176	30	17%	83%
Total	**14,098**	**6,640**	**47%**	**53%**

Key Highlights:

Peak hour passenger demand and terminal capacity are clearly the greatest within the PSRC region due to the area's population density and the presence of Seattle-Tacoma International Airport. The PSRC airports have the greatest capacity utilization and lowest reserve capacity of any airports within Washington State. All other RTPO regions have significant reserve capacity available to accommodate future passenger growth.

Cargo Capacity by RTPO Region

The capacity of the RTPOs to accommodate air cargo shipments was also recorded and is shown in the following Figure 52. Like commercial passenger service, air cargo facilities vary from RTPO to RTPO.

Figure 51: Cargo Capacity by RTPO Region

RTPO Region	2005 Demand (tons)	2005 Capacity (tons)	Capacity Utilization (%)	Reserve Capacity (%)
Benton-Franklin-Walla Walla RTPO	3,377	8,000	42%	68%
Northeast Washington RTPO	NA	NA	0%	0%
North Central RTPO	125	28,000	0.5%	99.5%
Palouse RTPO	NA	NA	0%	0%
Puget Sound Regional Council [1]	497,853	1,190,000	42%	68%
Quad-County RTPO	None	12,000	0%	100%
Skagit-Island RTPO	1,060	6,000	18%	82%
Spokane Regional Transportation Council [1]	93,424	4,280,000	2%	98%
Southwest Washington Regional Transportation Council	NA	NA	0%	0%
Southwest Washington RTPO	NA	NA	0%	0%
Thurston Regional Planning Council	NA	NA	0%	0%
Whatcom Council of Governments	NA	NA	0%	0%
Yakima Valley Conference of Governments	NA	NA	0%	0%
Total	595,839	5,524,000	11%	89%

1 Calculated based on dedicated apron and aircraft type rather than building size since cargo is processed off airport (ratio = 20 tons/sf/yr)

Key Highlights:

Similar to passenger activity, the PSRC RTPO airports also report the largest cargo volumes in Washington. King County International/Boeing Field Airport and Seattle-Tacoma International Airport accommodate the majority of the cargo activity within the Puget Sound RTPO and Washington State. The reserve capacity of cargo facilities in the PSRC region is limited, but is much higher in other regions.

Aircraft Storage and Parking Capacity by RTPO Region

This section describes the existing capacity for aircraft storage and parking throughout the individual RTPOs. It also reviews number of based aircraft to determine reserve capacity available by RTPO. The information provided in Figure 53 lists the number of based aircraft, aircraft storage capacity, and hangar wait list totals in each of the RTPOs in the state of Washington. As of 2005, aircraft storage capacity in Washington State totals 9,772, of which 4,503 are aircraft tie-downs and 5,314 are hangars. Since there is a total of 7,969 aircraft based in the state, the airport system as a whole has reached 82 percent of its existing aircraft storage capacity. In fact, 29 percent of all RTPOs (4 out of 14 RTPOs) have either exceeded or are approaching their existing based aircraft storage capacity. These include the Spokane Regional Transportation Council RTPO, the Southwest Washington RTPO, the Thurston Regional Planning Council RTPO, and the Whatcom Council of Governments RTPO. The remainder of the RTPOs has a greater reserve capacity to store aircraft; however, most pilots and owners in Washington prefer secure, weather-proof storage facilities for their aircraft. As such, the actual demand for hangars is far greater than demand for tie-downs.

Of the 4,503 aircraft tie-downs available in Washington State, 29 percent are designated for transient aircraft. Only the Quad County RTPO, the Spokane Regional Transportation Council RTPO, and the Southwest Washington RTPO have more tie-downs designated for transient aircraft than based aircraft. Information on waiting list for hangars was also provided by airport managers as available. A total of 686 people are on wait list at airports to obtain a hangar rental. The PSRC accounts for 60 percent of the total number of people on the wait list, while the Yakima Valley Council of Governments RTPO has not reported any people on a hangar wait list. It is unknown whether these people are existing airport tie-down tenants or how many are trying to move their aircraft from one airport to another. Nonetheless, it gives a representation of hangar demand for future planning purposes.

Figure 52: Aircraft Storage and Parking Capacity by RTPO Region

RTPO	2005 Based Aircraft	Total Tie-down Capacity	Total Hangar Capacity	Total Aircraft Capacity	Reserve Capacity	Storage Capacity Utilization (%)
Benton-Franklin-Walla Walla	467	393	259	652	185	72%
Northeast Washington	61	49	47	96	35	64%
North Central	403	287	228	515	112	78%
Palouse	111	99	45	144	33	77%
Peninsula RTPO	339	294	233	527	188	64%
Puget Sound Regional Council	3,691	1,620	2,753	4,373	682	84%
Quad-County	406	287	202	489	83	83%
Skagit/Island	299	206	212	418	119	72%
Spokane Regional Transportation Council	541	192	314	566	25	93%
Southwest Washington Regional Transportation Council	448	389	363	752	304	60%
Southwest Washington	344	193	212	405	61	85%
Thurston Regional Planning Council	198	77	109	186	-12	106%
Whatcom Council of Governments	244	121	145	266	22	92%
Yakima Valley Council of Governments	166	121	124	245	79	68%
Airports not in RTPO	251	175	68	243	-8	103%
Total in Washington State	7,969	4,503	5,314	9,772	1,803	82%

Key Highlight:

Twenty-nine percent of all RTPOs (four out of 14 RTPOs) have either exceeded or are approaching their existing based aircraft storage capacity.

Aircraft Operations by RTPO Region

Aircraft operation capacities by RTPO region are summarized in Figure 54 below. When aircraft operations and airport capacity are aggregated at a regional level, significant reserve capacity is available throughout Washington State. The airports within the PSRC planning area have the least overall reserve capacity at 55 percent. This data suggests that airports in the Puget Sound area are generally the busiest airports in Washington. Given that Figure 54 data reflects all airports within a specific planning area, significant differences in activity levels and reserve capacity may exist between individual airports.

Figure 53: Aircraft Operations Capacity by RTPO Region

	2005 Demand	Operations Capacity	Percent Utilization	Reserve Capacity
Benton-Franklin-Walla Walla RTPO	195,668	1,386,500	14.1%	85.9%
Northeast Washington RTPO	27,945	943,000	3.0%	97.0%
North Central RTPO	162,992	2,466,750	6.6%	93.4%
Palouse RTPO	59,104	1,138,000	5.2%	94.8%
Peninsula RTPO	170,832	1,092,500	15.6%	84.4%
Puget Sound Regional Council	1,591,971	3,705,459	43.0%	57.0%
Quad-County RTPO	294,486	3,307,950	8.9%	91.1%
Skagit/Island RTPO	106,316	1,017,500	10.4%	89.6%
Spokane Regional Trans. Council	201,453	916,500	22.0%	78.0%
Southwest Washington Regional Transportation Council	164,985	1,629,000	10.1%	89.9%
Southwest Washington RTPO	124,719	1,883,000	6.6%	93.4%
Thurston Regional Planning Council	98,927	575,000	17.2%	82.8%
Whatcom Council of Governments	93,310	690,000	13.5%	86.5%
Yakima Valley COG	47,982	580,750	8.3%	91.7%
Airports Not in RTPO	115,573	598,000	19.3%	80.7%
	3,456,263	**21,929,909**	**15.8%**	**84.2%**

Figure 54: Reserve Airport Capacity by RTPO

	Reserve Capacity by RTPO
Benton-Franklin-Walla Walla RTPO	85.90%
Northeast Washington RTPO	97.00%
North Central RTPO	93.40%
Palouse RTPO	94.80%
Peninsula RTPO	84.40%
Puget Sound Regional Council	57.00%
Quad-County RTPO	91.10%
Skagit/Island RTPO	89.60%
Spokane Regional Trans. Council	78.00%
Southwest Washington Regional Transportation Council	89.90%
Southwest Washington RTPO	93.40%
Thurston Regional Planning Council	82.80%
Whatcom Council of Governments	86.50%
Yakima Valley COG	91.70%
Airports Not in RTPO	80.70%

Key Highlight:

Airports within the PSRC planning area have the least overall reserve capacity at 55 percent.

Undeveloped Land Capacity by RTPO Region

Washington State currently has a total of approximately 15,000 acres available to accommodate airport development needs. Of this total, about 75 percent of the available land is located in five RTPOs: Benton-Franklin-Walla Walla RTPO, Peninsula, PSRC, Quad-County RTPO, and Spokane Regional Transportation Council. Benton-Franklin-Walla Walla RTPO alone has approximately 23 percent of the state's undeveloped land.

It is important to note that the physical location as well as the geography of the undeveloped land can significantly affect how it can be used. Also, a total of 82 airports either have no land capacity or did not provide any information in the undeveloped land inventory database survey. As a result, the reported acreage could be significantly less than the actual land available.

Figure 55: Undeveloped Land Capacity by RTPO Region

RTPO	Undeveloped Land (acres)
Benton-Franklin-Walla Walla RTPO	3,317
Northeast Washington RTPO	139
North Central RTPO	349
Palouse RTPO	355
Peninsula RTPO	930
Puget Sound Regional Council	1,689
Quad-County RTPO	2,664
Skagit/Island RTPO	453
Spokane Regional Transportation Council	2,349
Southwest Washington Regional Transportation Council	817
Southwest Washington RTPO	112
Thurston Regional Planning Council	885
Whatcom Council of Governments	567
Yakima Valley Council of Governments	55
Airports not in RTPO	33
Total	**14,714**

Key Highlights:

Approximately 75 percent of the available land is located in five RTPOs: Benton-Franklin-Walla Walla RTPO, Peninsula PSRC, Quad-County RTPO, and Spokane Regional Transportation Council.