Washington State
Aviation Planning Council

Long-Term Air Transportation Study (LATS)

Museum of Flight
Seattle, WA

May 1, 2008
Workshop Objectives

- Briefing on general aviation and air cargo trends
- Discuss draft guiding principles
- Develop draft policies to address future statewide air transportation needs
General Aviation Overview

Sonjia Murray, SH&E
What is the Significance of General Aviation to Washington’s State Aviation System?

- General aviation provides a wide range of essential services to communities across the State
  - Personal and business transportation
  - Medical evacuation
  - Agricultural support
  - Search/Rescue
  - Pilot training

- General aviation operations represent 82 percent of 2005 total aircraft operations in Washington State

- GA represents the sole or predominant class of aviation activity at 122 of Washington’s 141 public use airports

- GA provides the benefits of aviation to communities not served by commercial airports
What Are General Aviation Levels Across the State?

- Over 8,100 general aviation aircraft are currently based in Washington.
- GA activity accounts for over 3 million annual operations across the State.
- GA airports across the State span a broad range of activity:
  - The number of GA based aircraft at individual Washington airports ranges from less than 5 to over 500.
General Aviation Growth in Washington State Forecast to Outpace the U.S. Average

Current / Forecast Washington Based Aircraft and GA Operations 2005 - 2030

<table>
<thead>
<tr>
<th>Year</th>
<th>Based Aircraft</th>
<th>GA Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>8,200</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>9,800</td>
<td>3.6M</td>
</tr>
<tr>
<td>2030</td>
<td>11,800</td>
<td>4.4M</td>
</tr>
</tbody>
</table>

Comparison of WA State and U.S. Based Aircraft Annual Growth 1997 - 2030

<table>
<thead>
<tr>
<th>Period</th>
<th>WA</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997-2005</td>
<td>2.27%</td>
<td>1.37%</td>
</tr>
<tr>
<td>2005-2030</td>
<td>1.14%</td>
<td>1.49%</td>
</tr>
</tbody>
</table>

Sources: LATS Phase II Forecast; FAA Aerospace Forecast
GA Activity Highly Concentrated in the Puget Sound Region

Puget Sound accounts for nearly half of the based aircraft in the Washington State

This is not expected to change through 2030, when Puget Sound will still account for:
- 46 percent of total statewide based aircraft
- 51 percent of total statewide GA operations

Washington State Based Aircraft by RTPO 2005

<table>
<thead>
<tr>
<th>Rank</th>
<th>RTPO</th>
<th>No. of Airports</th>
<th>Total Based A/C</th>
<th>% State Based A/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Puget Sound Regional Council</td>
<td>28</td>
<td>3,798</td>
<td>46.8%</td>
</tr>
<tr>
<td>2</td>
<td>Spokane RTC</td>
<td>5</td>
<td>579</td>
<td>7.1%</td>
</tr>
<tr>
<td>3</td>
<td>Benton-Franklin-Walla Walla RTPO</td>
<td>7</td>
<td>471</td>
<td>5.8%</td>
</tr>
<tr>
<td>4</td>
<td>Quad-County RTPO</td>
<td>19</td>
<td>413</td>
<td>5.1%</td>
</tr>
<tr>
<td>5</td>
<td>North Central RTPO</td>
<td>15</td>
<td>410</td>
<td>5.1%</td>
</tr>
<tr>
<td>6</td>
<td>Southwest Washington RTC</td>
<td>7</td>
<td>378</td>
<td>4.7%</td>
</tr>
<tr>
<td>7</td>
<td>Peninsula RTPO</td>
<td>7</td>
<td>345</td>
<td>4.3%</td>
</tr>
<tr>
<td>8</td>
<td>Skagit/Island RTPO</td>
<td>7</td>
<td>328</td>
<td>4.0%</td>
</tr>
<tr>
<td>9</td>
<td>Southwest Washington RTPO</td>
<td>13</td>
<td>327</td>
<td>4.0%</td>
</tr>
<tr>
<td>10</td>
<td>Thurston Regional Planning Council</td>
<td>4</td>
<td>254</td>
<td>3.1%</td>
</tr>
<tr>
<td>11</td>
<td>Whatcom Council of Governments</td>
<td>5</td>
<td>248</td>
<td>3.1%</td>
</tr>
<tr>
<td>12</td>
<td>Yakima Valley Council of Governments</td>
<td>3</td>
<td>146</td>
<td>1.8%</td>
</tr>
<tr>
<td>13</td>
<td>Palouse RTPO</td>
<td>7</td>
<td>112</td>
<td>1.4%</td>
</tr>
<tr>
<td>14</td>
<td>Northeast Washington RTPO</td>
<td>6</td>
<td>60</td>
<td>0.7%</td>
</tr>
<tr>
<td></td>
<td>No RTPO – San Juan Islands</td>
<td>6</td>
<td>246</td>
<td>3.0%</td>
</tr>
<tr>
<td></td>
<td><strong>Total Washington</strong></td>
<td><strong>139</strong></td>
<td><strong>8,115</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Source: WA 2006 Airport Inventory Survey
GA Activity Highly Concentrated in the Puget Sound Region (Ctd.)

Based Aircraft at WA State by Airport
2005 - 2030

<table>
<thead>
<tr>
<th>Rank</th>
<th>Airport</th>
<th>RTPO</th>
<th>WSDOT Service</th>
<th>Based Aircraft 2005</th>
<th>Based Aircraft 2030</th>
<th>% State 2030 Based A/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arlington Municipal</td>
<td>PSRC</td>
<td>Regional</td>
<td>592</td>
<td>905</td>
<td>7.7%</td>
</tr>
<tr>
<td>2</td>
<td>Snohomish County/Paine Field</td>
<td>PSRC</td>
<td>Regional</td>
<td>571</td>
<td>753</td>
<td>6.4%</td>
</tr>
<tr>
<td>3</td>
<td>Boeing Field/King County Int'l</td>
<td>PSRC</td>
<td>Commercial</td>
<td>501</td>
<td>1,128</td>
<td>9.6%</td>
</tr>
<tr>
<td>4</td>
<td>Felts Field</td>
<td>Spokane</td>
<td>Regional</td>
<td>345</td>
<td>452</td>
<td>3.8%</td>
</tr>
<tr>
<td>5</td>
<td>Harvey Field</td>
<td>PSRC</td>
<td>Regional</td>
<td>326</td>
<td>415</td>
<td>3.5%</td>
</tr>
<tr>
<td>6</td>
<td>Crest Airpark</td>
<td>PSRC</td>
<td>Recreation</td>
<td>325</td>
<td>361</td>
<td>3.1%</td>
</tr>
<tr>
<td>7</td>
<td>Auburn Municipal</td>
<td>PSRC</td>
<td>Regional</td>
<td>305</td>
<td>353</td>
<td>3.0%</td>
</tr>
<tr>
<td>8</td>
<td>Renton Municipal</td>
<td>PSRC</td>
<td>Regional</td>
<td>292</td>
<td>348</td>
<td>3.0%</td>
</tr>
<tr>
<td>9</td>
<td>Pierce County/Thun Field</td>
<td>PSRC</td>
<td>Community</td>
<td>233</td>
<td>267</td>
<td>2.3%</td>
</tr>
<tr>
<td>10</td>
<td>Bremerton National</td>
<td>PSRC</td>
<td>Regional</td>
<td>196</td>
<td>318</td>
<td>2.7%</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td></td>
<td></td>
<td>3,686</td>
<td>5,300</td>
<td>45.1%</td>
</tr>
<tr>
<td></td>
<td>All Other</td>
<td></td>
<td></td>
<td>4,429</td>
<td>6,455</td>
<td>54.9%</td>
</tr>
<tr>
<td></td>
<td>Total Washington</td>
<td></td>
<td></td>
<td>8,115</td>
<td>11,755</td>
<td></td>
</tr>
</tbody>
</table>

Source: LATS Phase II Forecast

*Nine of the ten busiest GA airports in Washington are in the Puget Sound Region*
The Trend of Strong Growth in the Business Jet Fleet Will Continue Over the Next 25 years

- Business jets in the U.S. are estimated to increase by 5.6% annually through 2025\(^1\)

- Business jet growth is fueled by fractional ownership programs, security processing time, and loss of commercial airline service to smaller cities

- In the future, the business jet will become the most demanding aircraft regularly using GA airports

- Bus. Jet activity has numerous implications on airport design
  - Runway requirements
  - Instrument approach facilities and standards
  - Increased types/quality of aviation services, e.g. jet fuel, FBOs
Very Light Jets Are Entering the Market and Could Introduce High-Performance GA to Numerous Small Communities

– Very light jets (VLJs) are a new class of small airplane that offers performance comparable to high-end business jets at a fraction of the price

– Most VLJ designs expect to operate safely from runways between 3,000 and 3,500 feet, lengths existing at most GA airports

– VLJs can potentially bring the virtues of business jets to small, underused airports that see no jet activity today

– VLJs may also redefine the air taxi industry, with a number of VLJ air taxi services planned in Eastern Washington
New Instrument Approaches and Other Technological Advances Expected to Emerge From Multi-Agency NexGen Initiative

- The FAA is involved in the Next Generation Airport Transportation System (NGATS or NexGen) initiative, an interagency and private industry effort initiated in 2004.

- NexGen will encompass advances in automation information systems, communications, navigation, surveillance, and weather by 2025.

- The new technologies being examined by NexGen can potentially impact all small airports that currently lack costly instrument landing systems:
  - Global positioning system (GPS) satellite technology.
  - Wide Area Augmentation System (WAAS) provides precise navigational guidance to supplement GPS.
What Are the Key Issues in General Aviation?

- The Puget Sound region will continue to represent the highest concentration of GA activity within the State through the next 25 years (46.1% of based aircraft in 2030), experiencing airport congestion and traffic delay issues.

- Strong growth in the business jet fleet will place additional demands in infrastructure, services, and design standards at GA airports across the State in the future.

- Emerging technologies that may relieve safety and congestion problems and extend air service to currently under-utilized airports need to be further understood and invested in as appropriate:
  - Introduction of VLJs
  - NexGen instrument approach developments
General Aviation Trends

John Shambaugh, WSDOT
World/Nationwide GA Statistics

- Over 320,000 GA aircraft worldwide, ranging in size and purpose; 221,000 based in US.

- GA contributes more than $150 billion to US economy and employs more than 1,265,000 people.

- In US, GA aircraft fly over 27 million hours and carry 166 million passengers annually.

- Nearly two-thirds of hours flown by GA aircraft are flown for business purposes.

- Primary training for most airline pilots.

Source: 2007 General Aviation Statistical Databook & Industry Outlook, General Aviation Manufacturers Association
2007 Statistics

- Historic year for GA manufacturers - GA billings reached all-time high of $21.9 billion, 16 percent increase over 2006.

- Business jet shipments reached all time high – 28.4 percent over last year.

- Piston engine market was stable – posted second best year in past two decades.

- Number of fatal GA accidents declined 6 percent.

Source: 2007 General Aviation Statistical Databook & Industry Outlook, General Aviation Manufacturers Association
Environmental Outlook

- In US, greenhouse gas emissions from GA aircraft is less than two-tenths of one percent of overall emissions.

- Efficiency and emissions of GA turbine engines have improved by over 50 percent since early 1960s.

- UN Panel on Climate Change estimated more efficient air traffic management alone could bring about 12 percent reduction in aviation emissions.
Discussion

What are the key issues relating to general aviation that should be addressed in the aviation system plan?
Air Cargo Overview

Sonjia Murray, SH&E
What is the Significance of Air Cargo to Washington State?

- Air cargo operations provide an essential service to local businesses, supporting manufacturing shipment, document exchange, and finished goods delivery
  - Typical shipments include high-tech, high-value goods such as computer chips, pharmaceuticals, and industrial machinery, or perishable commodities like fruit and fish
  - Need for swift transportation particularly important in today’s business environment, which is characterized by instant communications and just-in-time delivery, globalization

- Airmail provides fast, dependable mail service for all

- Air cargo operations drive employment at local airports, as well as in related trucking and courier organizations across the State
Air Cargo Activity Encompasses Three Components

- **Freight**: carried either by all-freight airlines or in the “belly” of scheduled passenger flights
  - Include heavy-weight items and routine palletized shipments
  - Examples of all-freight carriers: Kitty Hawk, Atlas, Gemini, Kalitta

- **Express Freight**: transported by integrated express carriers such as DHL, FedEx, and UPS
  - Principally overnight or deferred envelopes, pouches, and boxes, but some larger freight items also

- **Mail**: carried in the belly of commercial planes and as freight by FedEx under contract with USPS
What Are Air Cargo Levels Across the State?

Air cargo will grow by 3.5 percent annually, with total statewide air cargo growing from 600,000 tons in 2005 to 1.4 million tons in 2030.
What Does Washington’s Air Freight Activity Look Like?

- Air freight currently accounts for approximately 90 percent of total Washington air cargo volume.

- Nearly 85 percent of the State’s air freight activity is currently domestic activity (within the U.S.).

- Asia and Europe activity represent the two most significant international segments.

- Main commodities exported from Washington State include fruit and nuts, wood, industrial machinery, fish products, and photo and medical equipment.
What Does Washington’s All-Cargo Activity Look Like?

- All-cargo volume across the State expected to grow from 413,000 tons in 2005 to 1.0 million tons in 2030.
- Small aircraft operations will continue to account for the bulk of all-cargo operations.

**All-Cargo Operations by Aircraft Type**

- **Small**: 69%
  - 2005: 413,000 tons
  - 2030: 1,024,000 tons
- **Medium**: 17%
  - 2005: 51,000 operations
  - 2030: 75,000 operations
- **Large**: 4%
  - 2005: 51,000 operations
  - 2030: 75,000 operations
- **Widebody**: 24%
  - 2005: 51,000 operations
  - 2030: 75,000 operations
- **Narrowbody**: 13%
  - 2005: 51,000 operations
  - 2030: 75,000 operations

**WA State Air Cargo Volume And Operations Forecast 2005 - 2030**

- All-cargo volume across the State expected to grow from 413,000 tons in 2005 to 1.0 million tons in 2030.
- Small aircraft operations will continue to account for the bulk of all-cargo operations.
Air Cargo Activity Highly Concentrated at a Small Number of Washington Airports

- About 98.3 percent of the state’s air cargo activity is concentrated at three airports
  - Sea-Tac, Boeing Field, and Spokane International

- Out of twenty-four airports reporting air cargo activity in 2005, the top ten airports in terms of air cargo tonnage account for about 99.8 percent of the state’s air cargo activity

### WA State Air Cargo Tonnage by Airport 2005

<table>
<thead>
<tr>
<th>Rank</th>
<th>Code</th>
<th>Airport</th>
<th>Tons</th>
<th>Percent Of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SEA</td>
<td>Sea-Tac International</td>
<td>373,233</td>
<td>62.06%</td>
</tr>
<tr>
<td>2</td>
<td>BFI</td>
<td>Boeing Field/King County Int'l</td>
<td>124,620</td>
<td>20.72%</td>
</tr>
<tr>
<td>3</td>
<td>GEG</td>
<td>Spokane International</td>
<td>93,424</td>
<td>15.53%</td>
</tr>
<tr>
<td>4</td>
<td>PSC</td>
<td>Tri-Cities</td>
<td>3,377</td>
<td>0.56%</td>
</tr>
<tr>
<td>5</td>
<td>YKM</td>
<td>Yakima Air Terminal</td>
<td>2,268</td>
<td>0.38%</td>
</tr>
<tr>
<td>6</td>
<td>BLI</td>
<td>Bellingham International</td>
<td>1,215</td>
<td>0.20%</td>
</tr>
<tr>
<td>7</td>
<td>EAT</td>
<td>Pangborn Memorial</td>
<td>654</td>
<td>0.11%</td>
</tr>
<tr>
<td>8</td>
<td>MWH</td>
<td>Grant County International</td>
<td>530</td>
<td>0.09%</td>
</tr>
<tr>
<td>9</td>
<td>CLM</td>
<td>Wm. R. Fairchild International</td>
<td>519</td>
<td>0.09%</td>
</tr>
<tr>
<td>10</td>
<td>BVS</td>
<td>Skagit Regional</td>
<td>384</td>
<td>0.06%</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td>600,224</td>
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<tr>
<td>All Other</td>
<td></td>
<td></td>
<td>1,212</td>
<td>0.2%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>601,436</td>
<td>100%</td>
</tr>
</tbody>
</table>
What Are the Key Issues in Air Cargo?

- Generally, ample cargo capacity exists statewide to meet current demand

- Air Cargo activity is highly concentrated, however, at a small number of Washington airports
  - Sea-Tac, Boeing Field, and Spokane International account for 98.3 percent of the State’s air cargo activity

- Concentration of air cargo activity in the Seattle and Spokane areas may continue to drive infrastructure requirements in these regions

- Availability of off-airport properties for cargo processing facilities, though, have so far been a way around limitations on developable land at airports such as Sea-Tac and Boeing Field
Air Cargo Trends

Guest Speaker: Elizabeth Stratton
Freight Policy & Project Manager, WSDOT
Overview

- Washington State’s strategic freight plan
- The three components of Washington’s freight systems and air transportation
- Recommendations to consider for maintaining state’s economy and air cargo needs
Why does Washington State need a strategic plan for freight systems?

- There are investment constraints:
  - Political
  - Financial
  - Economic

- Washington State’s freight systems strategic plan must:
  - Balance the cost of investments with resulting economic output;
  - Direct limited resources to their most productive use; and
  - Set clear priorities linked to the growth of jobs and the state’s economy.
Washington State Freight Strategic Plan

WSDOT Work Program 2007-2009

Governor Christine Gregoire

Legislative Direction
- ESHB 1094 (Trans. Budget)
- Section 309 7 (a-c) & 7 (d)

WA State Transportation Commission (WSTC)

WA State Department of Transportation (WSDOT)

Freight Mobility Strategic Investment Board (FMSIB)

WA State Legislature Joint Transportation Committee (JTC)

Statewide Rail Capacity and System Needs Study
- Industry Supply Chains
- Rail Demand Forecasts
- Freight & Passenger Rail Systems
- General Rail B/C Methodology
- National Funding Opportunities

State Freight Strategic Plan
- Transportation and economic benefits
- Economic impacts
- External impacts
- Yearly maintenance costs
- Present value and net present value

Rail Benefit/Cost Analysis

2009/2011 Highway System Plan
- Quantify Industry Sector Req. of State Freight Systems: Road, Air, Barge and Rail
- Identify Performance Gaps
- Analyze Freight Data
- Future Freight Demand
- Economic Output
- Solution Proposals
- Evaluate and Prioritize Solutions

JTC Freight Investment Study
- Comparison of Freight Funding Sources
- Economic Impact
- Diversion of Marine Cargo
- ROI of Freight Infrastructure
- Project Recommendation Body
- Stakeholder/Legislator Groups

2009 Legislative Session
The Washington Transportation Plan Freight Report

Provides decision makers with a data-based rationale for strategic investment in Washington State’s freight system.

The report’s analysis explains:

- Who are the customers of the state’s freight system
- Why freight customers matter in terms of jobs and contribution to Gross State Revenues
- What performance the customers expect from the freight system
- Where key performance gaps are located
- How to make the most productive, strategic investments in Washington State’s freight system
The goal of Washington State’s freight systems strategic plan is to support broad industry sectors

I. Global Gateways
   International and National Trade Flows Through Washington

II. Made in Washington
   Regional Economies Rely on the Freight System

III. Delivering Goods To You
   Washington’s Retail and Wholesale Distribution System
Washington State Value of Freight Shipments
(2005: Billions of Dollars)

Made in Washington
Regional economies rely on the freight system

Delivering Goods to You
Washington's retail and wholesale distribution system

Global Gateways
International and national trade flows through Washington

Source: Washington State Department of Revenue and Washington State Department of Community, Trade and Economic Development
I. Global Gateways
International and National Trade Flows through Washington

- Washington State’s air cargo transportation system serves as a gateway for national and international trade.

- The vast majority of air cargo is handled at Sea-Tac International Airport, including international cargo. Future growth will be driven by Asian trade.

- Boeing Field/ King County International Airport is home to several express carriers.

- Spokane International is used by express carriers (Fed Ex, UPS, DHL) to serve the local market.

- Regional airports handle small volumes of express shipments.

Air Cargo Volumes at Washington State Airports
601,436 Total Annual Metric Tons, 2005

- Seattle-Tacoma International
- Boeing Field/ King County International
- Spokane International
- All Others

Source: Long Range Air Transportation Study (LATS), 2007.
Washington’s “Global Gateways” have created logistics, warehousing, and distribution networks centered in the Green River Valley

- Washington’s exporter and importer distribution facilities, logistics service providers, freight forwarders and consolidators are concentrated in the South Sound region.

- Shippers rely on this integrated network to deliver door-to-door service that is fast and reliable.

- Freight forwarders and consolidators must be able to consolidate multiple shipments to reduce shipping costs and obtain economies of scale. They ship out of Sea-Tac and Boeing Field because there is a high frequency of flights to multiple destinations.

- Fast and reliable travel is key. They locate as close as possible to airports providing a high frequency of flights to multiple destinations, established support networks, and strong local demand.

- If region cannot maintain airport capacity at required locations and with necessary service, providers will move or truck shipments to out of state airports.
How does freeway congestion and delay harm Washington’s air cargo dependent industries?

- Set departure times dictate the coordination of pickup and delivery at local and regional destination in order to meet shipping windows. Freight forwarders, express carriers, and shippers must hold their shipments as long as they can prior to flight.

- On time means no lead-time. The plane cannot wait for a delayed shipment.

- Washington’s exporter and importer distribution facilities are concentrated in the South Sound region. They have no practical alternative to the state’s most heavily used north-south freight routes: Interstate 5, Interstate 405/ Highway 167, and Highway 99/ Alaskan Way Viaduct/ Highway 509.

- Delay costs everyone. Consumer goods cost more. Carriers are forced to push back cut-off times for delivery of shipments. Shippers must adapt to earlier cut-off times and later delivery.
Central Puget Sound Freight Corridor Missing Links & Failing Structures
II. Made in Washington
Regional Economies Rely on the Freight System

**Agribusiness:** $6.9 billion in food and agricultural products in 2006. Freight transportation is especially important for Washington agriculture as the state produces up to twenty times as much food as it consumes, and is far from most of the nation’s consumers.

**Manufacturing:** $122.3 billion in Gross Business Revenues in 2006, 21.2 percent of the total State Gross Business Income.

**Construction:** Gross Business Revenues topped $42 billion in 2006.

**Forestry:** Value-added wood and paper products, forestry and logging produced $15 billion of Washington’s Gross Business Revenues in 2006.
Washington producers use air freight to ship fresh, high value product to distant consumers

- Washington grown high-value agricultural products are shipped to consumer markets by air.
  - Washington produces 91% of the nation’s red raspberries; valued at $39 million in 2005.

- Fresh fish and seafood caught or processed in Washington is shipped by air to distant consumers.
  - Seven of the 25 largest seafood companies in North America are headquartered in Central Puget Sound, with combined revenues of $2.91 billion in 2003.
  - The North Pacific fishing fleet based in Ballard catches 30 to 40 percent of the total U.S. domestic fish harvest. In 2001 the Alaskan and Washington catch value was $1 billion and totaled 5.4 million pounds; industry sources state that Washington-based vessels bring in about 80 percent of the Alaska catch.

- Product is usually shipped out of Sea-Tac or Boeing Field.
Washington producers use air freight to ship fresh, high value product to distant consumers

Example, Northwest Airlines:
- About 80 percent of cargo leaving Northwest Airlines’ Sea-Tac facility originates in Washington State.
- Perishables are one of the airline’s largest markets. Washington-grown cherries, blueberries, raspberries, blackberries, and asparagus all ship by air.
- Northwest Airlines also specializes in shipping seafood. Almost all of the seafood leaving Sea-Tac originates in Washington: either local catch, or Alaskan product caught by the North Pacific Fishing Fleet and processed in Seattle.
- Congestion on I-5 is a big problem for airfreight customers, as delays force Northwest to push back its cut-off time for accepting freight.
Washington high-tech, medical device, and aerospace manufactures rely on efficient air cargo system

- In 2006, there were over 7,200 manufacturing firms in Washington; employing over 281,500 and paying total wages of about $16.4 billion.

- Cost-cutting, inventory reduction and globalization strategies are underway at thousands of manufacturers and producers across the state.

- Without a fast and reliable air cargo system, aerospace, medical equipment, and high-tech manufacturers such as Intel, Medtronic, Hewlett Packard, WaferTech, and Boeing could not do business in Washington State.

- For air cargo, speed and on time delivery is critical. The majority of shipments are handled at Sea-Tac or Boeing Field.

- If trucks are delayed in congestion to the airport, or in long queues at airport gates, shippers will have to adjust to earlier cut-off times and later deliveries of express and air shipments. They may decide to relocate to another region, or absorb higher costs and lost sales.
Thousands of manufacturers and producers across the state rely on air cargo for expedited shipments

- In every region of the state, manufacturers and producers rely on fast shipment via air to deliver high value, time-sensitive products to consumers.

- High-tech manufacturers must be able to deliver faster and more reliably than competitors. They used to obtain competitive edge by producing superior quality, but more and more quality and speed of delivery are customer requirements.

- Washington industries also rely on inbound materials received by air:
  - Time sensitive, high value inputs to production.
  - Spare parts to prevent production line disruptions.

- For example, aluminum and alloy wheel manufacturers in Wenatchee will receive a spare part or critical raw material via air shipment to Pangborn Memorial Airport. Without this service, the production line would stop.
Regional economies rely on air freight system

Vancouver/ Southwest Washington Metro Area

- SW Washington high-tech industries value speed of transit to ship valuable, time-sensitive freight such as silicon chips and associated tooling to regional airports. Shipments are often routed to Sea-Tac because it draws more direct flights from Asia.

- For example, a silicon wafer manufacturer's one-million square foot semiconductor foundry in Clark County can’t function without fast and reliable air cargo. If a tool is delayed overnight in the supply chain from Taiwan, the plant will shut down and idle 1,000 employees.

Northwest Washington: Manufacturing Center and Border Region

- Northwest Washington manufacturers and producers rely on access to Central Puget Sound airports for inbound and outbound express shipments.

- Their highest priority transportation problem is I-5 congestion from Olympia to Everett delaying air freight to Sea-Tac, containers to Ports of Seattle and Tacoma, and fast truck service to California markets.
Spokane Region:
Eastside Center of Manufacturing, Commerce and Health Care

- Spokane’s diverse manufacturing sector produces a wide variety of products - metal parts for complex machinery and equipment, advanced medical devices, and much more.

- In 2006, over 540 manufacturing firms in Spokane employed 18,000 with total wages of $774 million.

- Unless speed of delivery is critical to their customers, Spokane manufacturers rarely use air (only for late shipments) due to the high cost.

- High-tech, air-cargo-dependent firms in Spokane value speed of transit and source from Asia. Currently, product is flown to Sea-Tac and trucked to Spokane. As a regional air services market, Spokane draws far fewer flights than Sea-Tac International and therefore often loses the value of air speed for delivery.

Spokane manufacturers goals:
On-time delivery: 56%
Price: 26%
Central Puget Sound:  
Westside Center of Manufacturing and Commerce

- Over 4,276 manufacturing firms in Central Puget Sound in 2006, employing over 184,812 at an average wage of $66,132.


- A large network of firms have clustered in the state to support aerospace industry.

- According to interviews conducted in 2006:
  - Boeing has 1,000 to 5,000 inbound, and 500 to 2,000 outbound, express/air shipments every week.
  - For another local aerospace manufacturer, inbound shipments are primarily 2nd day air/express through UPS, FedEx, and DHL into Sea-Tac or Boeing Field. They receive 1,000 to 3,5000 inbound express/air shipments weekly, and send out another 1,000 to 3,5000 shipment per week.

- Boeing Spares Division is located near Sea-Tac International Airport and provides global distribution of spare parts for Boeing Airplanes. They are located close to Sea-Tac for fast access to airport facilities and timely shipments.
III. Delivering Goods To You
Washington’s Retail and Wholesale Distribution System

- Over 732,000 jobs are involved in the distribution system; accounting for $221 billion in 2005 gross business revenues, equal to 71 percent of total state revenues.

- An enormous variety of goods are handled on this system;
  - office supplies and documents,
  - food and groceries,
  - retail stock,
  - pharmaceuticals and medical supplies,
  - fuel,
  - trash and garbage,
  - construction materials and equipment.

UPS driver delivers goods to consumers and businesses everyday.
Air cargo and express shipments support Washington’s modern service economy

- High-value, time-critical materials must move quickly and reliably through the freight system. There is no alternative to the region’s major north-south truck routes for access to the primary cargo airports.
  - Business documents and packages
  - Medical supplies and drugs

- Consumer demand drives requirements of the freight transportation system, and air cargo demand. Our modern consumer has come to expect:
  - Ability to buy imported fruits, vegetables, seafood, and flowers at local supermarkets.
  - Next day delivery of goods purchased on the Internet or from traditional catalogs.
  - Retail stores that have the exact product desired at reasonable cost.
  - Exotic foods available in local restaurants.

- To accommodate consumer needs, fast and reliable air shipments must be viable option for retailers, wholesalers, and food/restaurant establishments.
Integrators and express carriers serve retail, wholesale, and business services sectors

- Distribution companies must provide fast and ubiquitous service that is reliable under all conditions to support the service sectors.
  - FedEx and UPS drivers don't go home until every package is delivered.
  - Hospital patients can't wait for drug deliveries.

- Integrators such as FedEx, UPS, and DHL compete on drop-off times for customers. They need to be close to the metro centers and have fast access to airport capacity.

- Traffic congestion affects the setting of the last pickup time at urban locations where integrators collect shipments.

- Washington shippers must adjust to any shifts by package express companies to earlier cutoff times as a result of traffic congestion for trucks getting to airports, as well as from operational process changes downstream from pick up.
Big challenges facing Washington’s air freight dependent industries

Shippers and carriers will continue to rely on established Central Puget Sound airports.

- Timely and reliable access to the state’s major airports in Central Puget Sound is a top concern for shippers and carriers across the state.

- There are missing links, failing structures, and congestion on major freight corridors providing airport access.
  - I-5
  - Highway 509 – Alaskan Way Viaduct – Highway 99
  - Highway 405 – Highway 167
  - Highway 518

- Continued progress on operational improvements and active traffic management will help improve performance and reliability of existing system.

- There are deficiencies on local connectors linking industry with airport facilities, and community concerns over increased traffic.
Big challenges facing Washington’s air freight dependent industries

- There are capacity and facility constraints at the state’s major air cargo airports, which are geographically constrained. There are additional concerns over how new security requirements will impact space requirements, operations, and truck queuing.
  - Space for truck queuing and storage.
  - Airport facilities and adequate space for parking, processing, etc.

- Additional data and analysis is needed to fully understand air cargo system, user performance requirements, and future demand.
  - Truck to truck activities that occur within airport cargo complexes are unreported. This could underestimate volumes by 20 or more percent.
  - Full market analysis needs to be conducted for new facility proposals. Air cargo is driven by demand and location changes may not be feasible for industry.
For More Information:

- For a full copy of the Washington Transportation Plan Freight Report and other related research:
  [www.wsdot.wa.gov/freight](http://www.wsdot.wa.gov/freight)

**Washington State Department of Transportation**
**Freight Systems Division**
PO Box 47407, Olympia, WA 98504-7407
Phone: 360-705-7932
Fax: 360-705-6835
Email: freight@wsdot.wa.gov
Web: [www.wsdot.wa.gov/freight](http://www.wsdot.wa.gov/freight)
Discussion

- What are the key issues relating to air cargo that should be addressed in the aviation system plan?
Policy Development Process

Rita Brogan, PRR
Policy Development Process

Aviation Planning Council

- Purpose and Need
- Guiding Principles

Potential Policy Topics

- Coordination System Planning (state, regional & local): Full Council
- Capacity: Capacity & Technology subcommittee
- New Technology: Capacity & Technology subcommittee
- Environment: Land Use & Environment subcommittee
- Land Use: Land Use & Environment subcommittee
- Preservation: Full Council
- Economic Vitality: Full Council
- Funding: Full Council

Aviation Investment Alternatives

- No-Action (existing)
- Use Existing Facilities
- New Management
- New Facilities
Guiding Principles

- Designed to articulate overarching values to help guide the Council’s recommendations
- To be reviewed by the public at regional meetings this summer
- The policy basis for the guiding principles and policy gaps is provided in the Draft Policy Assessment Worksheet (Appendix B of the “Proposed Policy Development Process” document)
- Guiding principles will be finalized after this summer’s public outreach events
Draft Guiding Principles

- Washington’s communities depend on their ability to access Washington State’s aviation system to move people and goods safely and securely. Washington’s aviation system is an essential and integral component of local, state and national economies and must be sustained.

- It will take strong partnerships to effectively address the challenges facing Washington’s aviation system between airports, the aviation industry, local and regional government, educational institutions, Washington State, and the Federal Aviation Administration.

- To safeguard Washington State’s aviation system for future generations, the Long-term Air Transportation Plan must address multiple challenges in a timely manner including: capacity exacerbated by growing demand, delayed maintenance, incompatible land use, and the special needs of small communities.

- Washington’s aviation system currently suffers from a significant funding shortfall that is leading to deferred maintenance that will cost even more to address over the long run. Without adequate maintenance, Washington’s aviation system will crumble. Needed revenue for maintenance and preservation of airports should be collected and distributed in an equitable manner.

- To maximize value and impact of public investment in the aviation system statewide will require strategic and targeted investment that looks first to making the best use of our current assets. We must preserve the system we have in place, and then enhance the capacity of existing facilities with technological innovation and system management best practices. In doing so, we must take into account different roles of airports, serving Washington’s diverse communities.

- Washington’s aviation system should be planned to coordinate with other transportation modes to assure cost effective transportation options for people and goods.

- Capacity investments must be considered in the context of environmental and social impacts such as noise, air quality, water quality, impacts on adjacent communities, and climate change.

- The decision-making about the expansion or siting of airports should be made through an open and public process, taking into account the ultimate need to serve the broadest long term interest of the residents of Washington State and our national security.

Is this the right place to start?
Subcommittee Structure

- Each subcommittee will be led by a chair
- Chair to be selected by the subcommittee during this afternoon’s work session
- Staff support provided by John Shambaugh, WSDOT Aviation
- Support from other public agencies as needed

- Land Use and Environment
  - Juli Wilkerson
  - Paul Roberts
  - John Townsley
  - Jim McNamara
  - Carol Moser

- Capacity and Technology
  - Neal Sealock
  - Penni Loomis
  - Don Garvett
  - Dave Field
  - John Sibold

Does this work?
Opportunities for Public Input During Policy Development

- Preliminary guiding principles and initial policy recommendations will be presented for public comment at upcoming regional public meetings
  - July 22, 2008 (Mukilteo)
  - July 24, 2008 (Wenatchee)

- Draft recommendations will be discussed and approved by the full Council at regular Council meetings, which are open to the public

- Electronic Town Hall #1 (July 2008)
  - Obtain feedback on problems and opportunities facing the aviation system
Key Deadlines

- Subcommittee recommendations to be presented and reviewed by full Council at the June 5, 2008 Council meeting in Spokane

- Subcommittees work sessions:
  - This afternoon
  - Afternoon of June 4th, in Spokane, prior to June 5th full Council meeting
  - Need for additional work sessions to be decided by individual subcommittees
Subcommittee Charge

- Adopt statement of key findings
- Review and recommend changes to proposed guiding principles related to:
  - Land use and environment
  - Capacity and technology
- Review and recommend changes to existing aviation policies and strategies related to:
  - Land use and environment
  - Capacity and technology
- Consider new or revised policies for addressing issues related to:
  - Land use and environment
  - Capacity and technology
- Should other policy topics and related policies be discussed, subcommittees are encouraged to record them and report to full council

Tools:
- Policy Assessment Worksheet
- Key issues list
- Council staff can provide additional resources as needed – just ask!
This Afternoon

- Select a subcommittee chair
- Determination of subcommittee workshop dates
- Determine resource materials needed from staff
- Initial concurrence on proposed statement of key issues
- Time permitting, consider proposed guiding principles, policies and alternative strategies for addressing these issues
- Report to full Council at 2:30 pm

Tools:
- Policy Assessment Worksheet
- Key issues list
- Council staff can provide additional resources as needed – just ask!
Work Program Update

- **Revised language on program schedule and key milestone graphic**

- **Changes proposed to meeting content for meetings #2-5:**
  - Proposed additions are underlined
  - Proposed deletions are indicated by strikeouts

- **Council Actions column added to:**
  - Propose Council actions to be taken at meetings
  - Track actions taken at meetings (to be updated after each meeting)
Next Steps

- **Council Meetings**
  - Workshop #5: Policy Development
    - June 5, 2008 – Spokane
  - Meeting #6: Policy Adoption
    - August 7, 2008 – Vancouver

- **Public Involvement**
  - Electronic Town Hall
  - Regional Public Meetings