

Washington Transportation Plan Update

Freight Systems

Washington Trucking Associations

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**Washington State
Department of Transportation**

Topics For Freight Background Discussion

- I. Transportation Systems Carrying International and National Trade Through Washington Gateways**

- II. Transportation Systems Serving Washington State's Own Producers and Manufacturers**

- III. Transportation Systems Supporting Distribution and Service Industries, Wholesale and Retail**

- IV. Environmental, Safety and Security Issues**

- V. Thinking About Freight System Strategies and Priorities**

- VI. Soliciting Ideas for Additional Study**

How will we make good investment choices to address the needs of freight movement on our state's transportation systems and facilities?

Especially when there isn't nearly enough money to do everything that clearly needs to be done!

The components of Washington's freight system – international gateways, and transportation serving Washington's producers and manufacturers, retail and wholesale distribution systems - support one another.

International goods enter Washington state gateways and become part of Washington's manufactured output, or are distributed in our retail system.

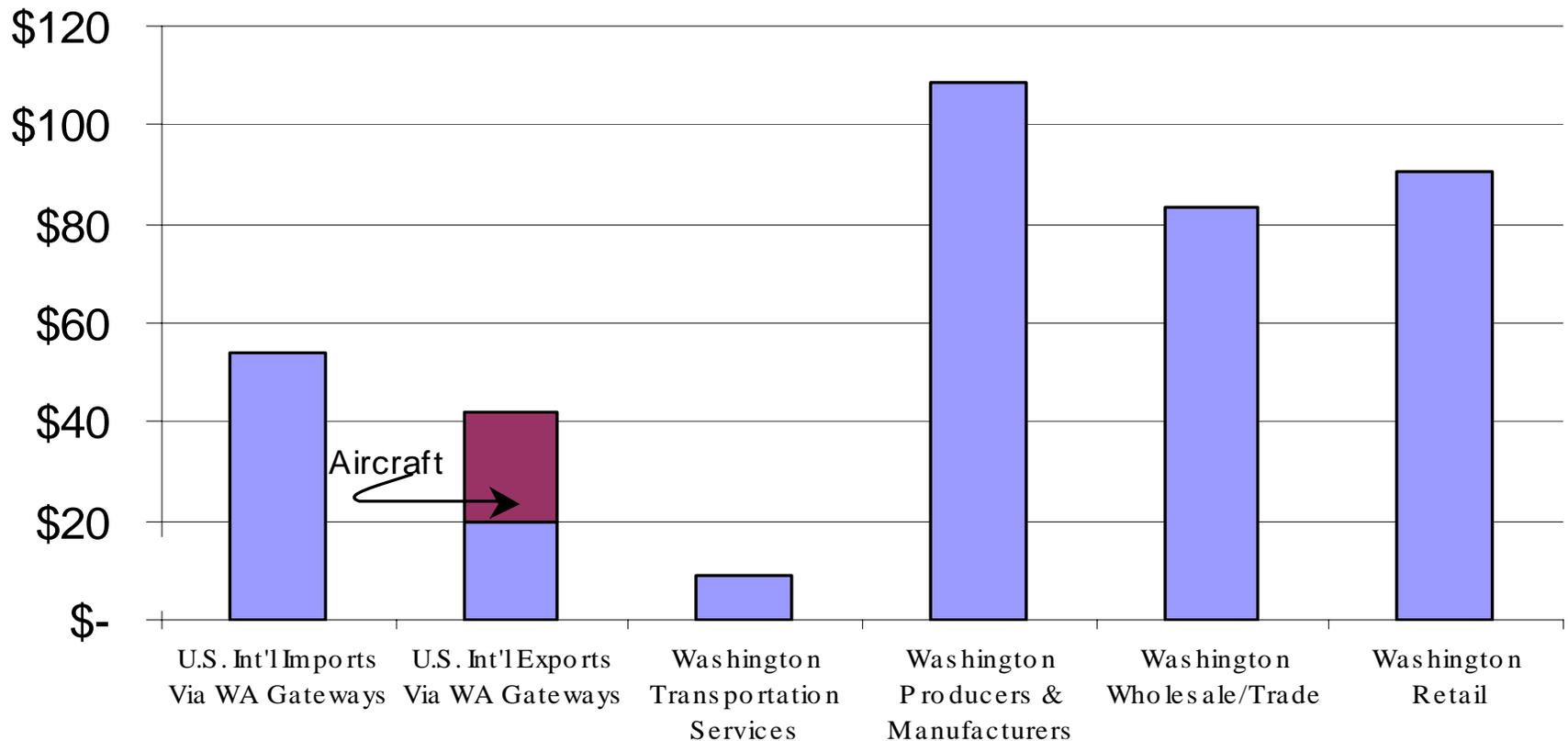
Washington manufacturers and farmers ship products directly to customers and to wholesalers in national and international markets.

Washington wholesalers supply retailers with goods from all over the U.S. and the world.

Washington's global gateways also carry national and international goods to and from the larger U.S. market.

Washington State Value of Freight Shipments

2002: Billions of Dollars



Source: U.S. Customs Bureau; WA State Dept. of Revenue.

I. Transportation Systems Carrying International and National Trade Through Washington's Gateways



Countries Linked to the U.S. Economy By Imports & Exports Through Washington State

2002 Value in Billions of Dollars

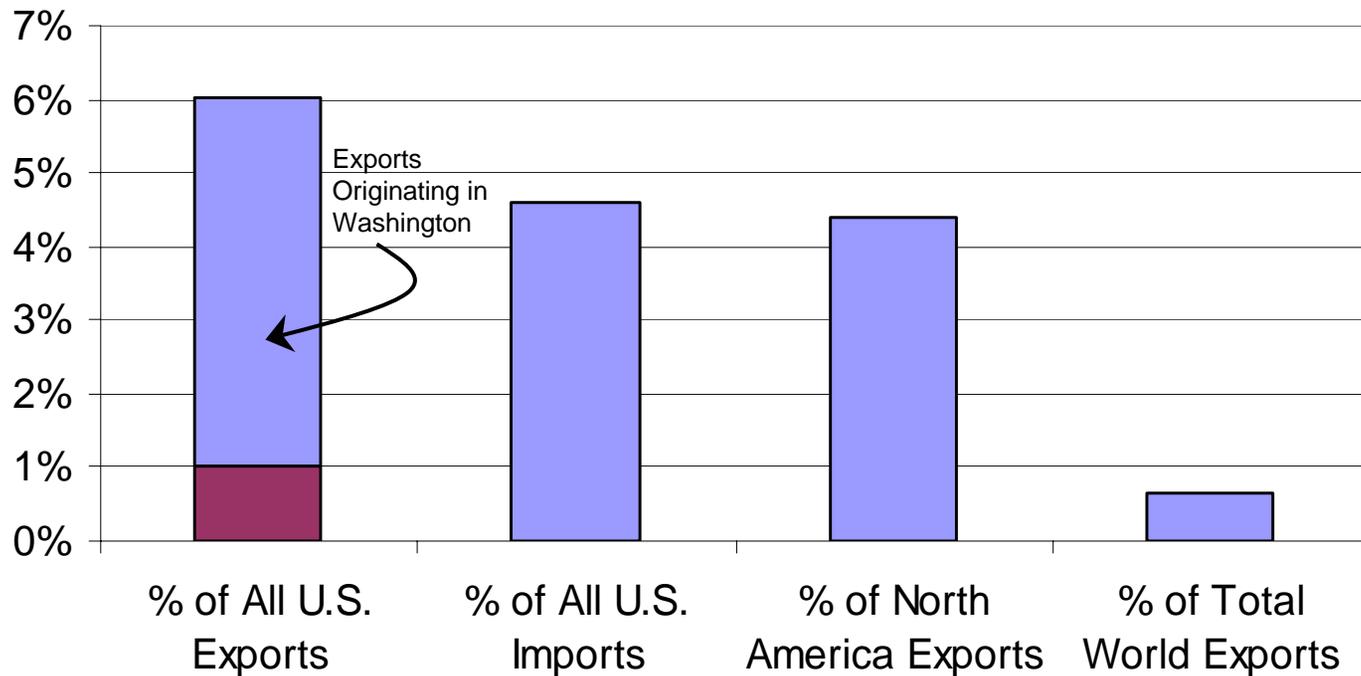
| Country | Billion \$ | Share of WA Total Trade | Share of U.S. Trade with Country | Aircraft Exported on Own Power | Net Trade Billion \$ |
|---------------------|-----------------|-------------------------|----------------------------------|--------------------------------|----------------------|
| Japan | \$ 22.52 | 23.5% | 13.2% | \$ 1.42 | \$ 21.10 |
| Canada | \$ 16.80 | 17.5% | 4.5% | \$ 0.34 | \$ 16.47 |
| China (Mainland) | \$ 15.19 | 15.9% | 10.3% | \$ 1.57 | \$ 13.61 |
| Rep. of Korea | \$ 6.35 | 6.6% | 11.1% | \$ 1.43 | \$ 4.92 |
| Taiwan | \$ 3.85 | 4.0% | 7.7% | \$ 0.20 | \$ 3.65 |
| Australia | \$ 2.86 | 3.0% | 14.9% | \$ 1.90 | \$ 0.96 |
| Singapore | \$ 2.82 | 2.9% | 9.2% | \$ 2.06 | \$ 0.75 |
| France | \$ 2.63 | 2.7% | 5.6% | \$ 1.64 | \$ 0.99 |
| United Kingdom | \$ 2.42 | 2.5% | 3.3% | \$ 0.55 | \$ 1.87 |
| Malaysia | \$ 1.66 | 1.7% | 4.8% | \$ 0.69 | \$ 0.97 |
| Hong Kong | \$ 1.56 | 1.6% | 7.2% | \$ - | \$ 1.56 |
| Italy | \$ 1.15 | 1.2% | 3.4% | \$ 0.92 | \$ 0.22 |
| Indonesia | \$ 1.11 | 1.2% | 11.2% | \$ 0.02 | \$ 1.09 |
| Thailand | \$ 1.06 | 1.1% | 5.4% | \$ - | \$ 1.06 |
| All Other Countries | \$ 13.81 | 14.4% | 1.8% | \$ 6.72 | \$ 7.09 |
| Total | \$ 95.79 | 100.0% | 5.2% | \$ 19.45 | \$ 76.34 |

* All data are based on goods laded or unladed in Washington State.

Sources: 2003 Washington Data Book, based on U.S. Department of Commerce Foreign Trade Statistics, and the U.S. Census Bureau Statistical Abstract of the U.S.

Trade Through Washington's Gateways

A Significant Share of the Nation's and World's Trade



Source: U.S. Census Origin of Movement Statistics

Washington's Rankings in Top U.S. International Freight Gateways

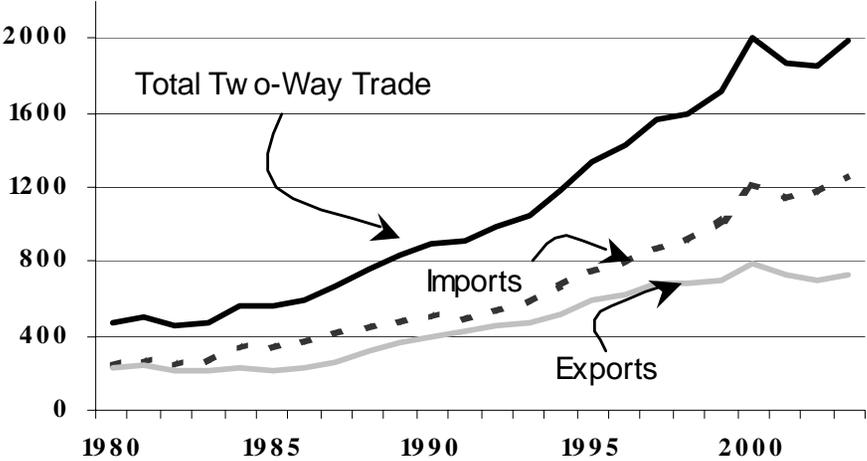
| By Tons Gateway | Mode | Rank | Tons in Millions |
|----------------------|------------|------|------------------|
| Seattle/ Tacoma, WA | Waterborne | 9 | 33.7 |
| Whatcom, WA (Blaine) | Surface | 10 | 30.7 |

| By Value Gateway | Mode | Rank | \$ in Billions |
|----------------------------------|------------|------|----------------|
| Seattle, WA | Waterborne | 15 | \$28.6 |
| Tacoma, WA | Waterborne | 25 | \$18.7 |
| Blaine, WA | Surface | 33 | \$11.7 |
| Seattle-Tacoma International, WA | Air | 43 | \$8.9 |

Sources: USDOT FHWA 1998 for tonnage and USDOT BTS 2001 for Value

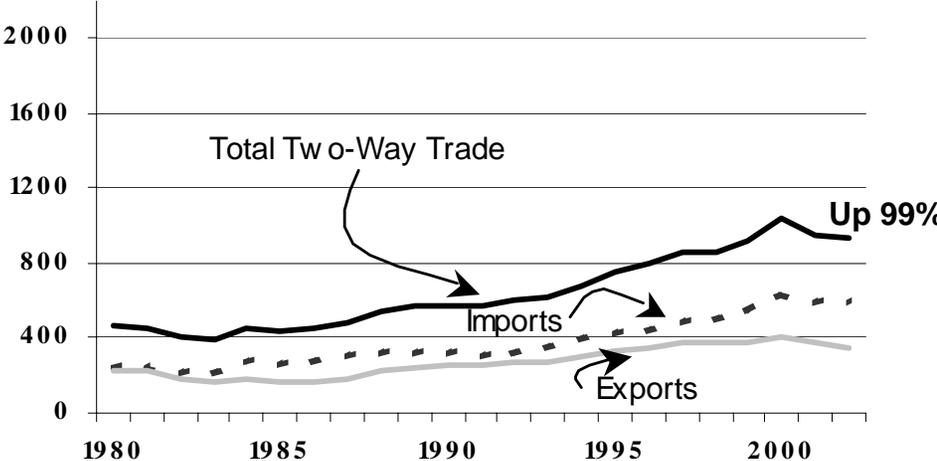
Value of Trade at the Gateways has Shown Increases

International Trade Entering and Leaving the United States
 Nominal Dollars in Billion \$



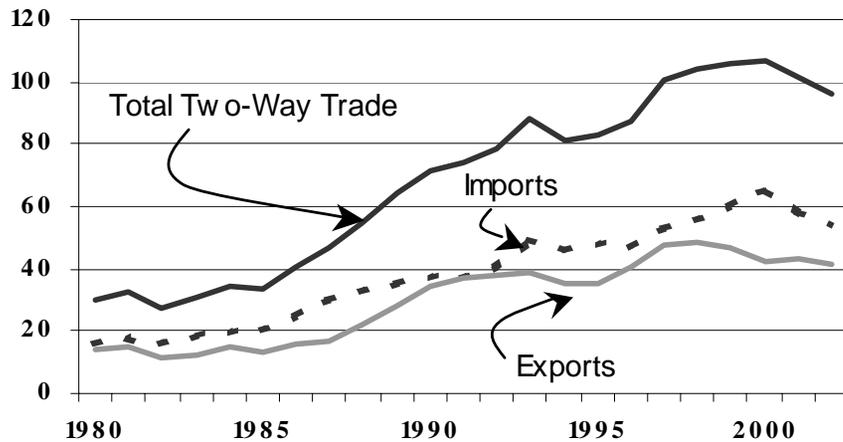
* Based on U.S. Census Bureau totals.

International Trade Entering and Leaving the United States
 Real Dollars in Billion \$

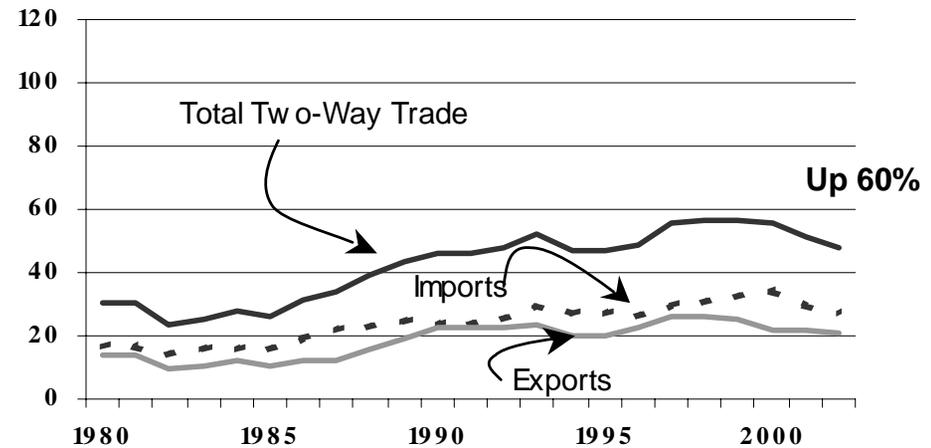


Value of Trade at the Gateways has Shown Increases

International Trade Entering and Leaving Washington State
Nominal Dollars in Billion \$



International Trade Entering and Leaving Washington State
Real Dollars in Billion \$



* Based on U.S. Census Bureau totals, as provided by the U.S. Department of Commerce and published in the 1995 and 2003 Washington State Data Book.

Washington 'Land Port' Gateways also Rank High in North American Trade

U.S.- Canada Merchandise Trade at Land Port Gateways, 2002

| Rank, by Value | Land Ports | Value (billion \$) |
|----------------|---------------------------|--------------------|
| 1 | Detroit, MI | 100.8 |
| 2 | Port Huron, MI | 57.4 |
| 3 | Buffalo-Niagara Falls, NY | 55.1 |
| 4 | Champlain-Rouses Pt., NY | 14.8 |
| 5 | Blaine, WA | 11.4 |

Source: U.S. Department of Transportation, Transborder Surface Freight Database (2002)

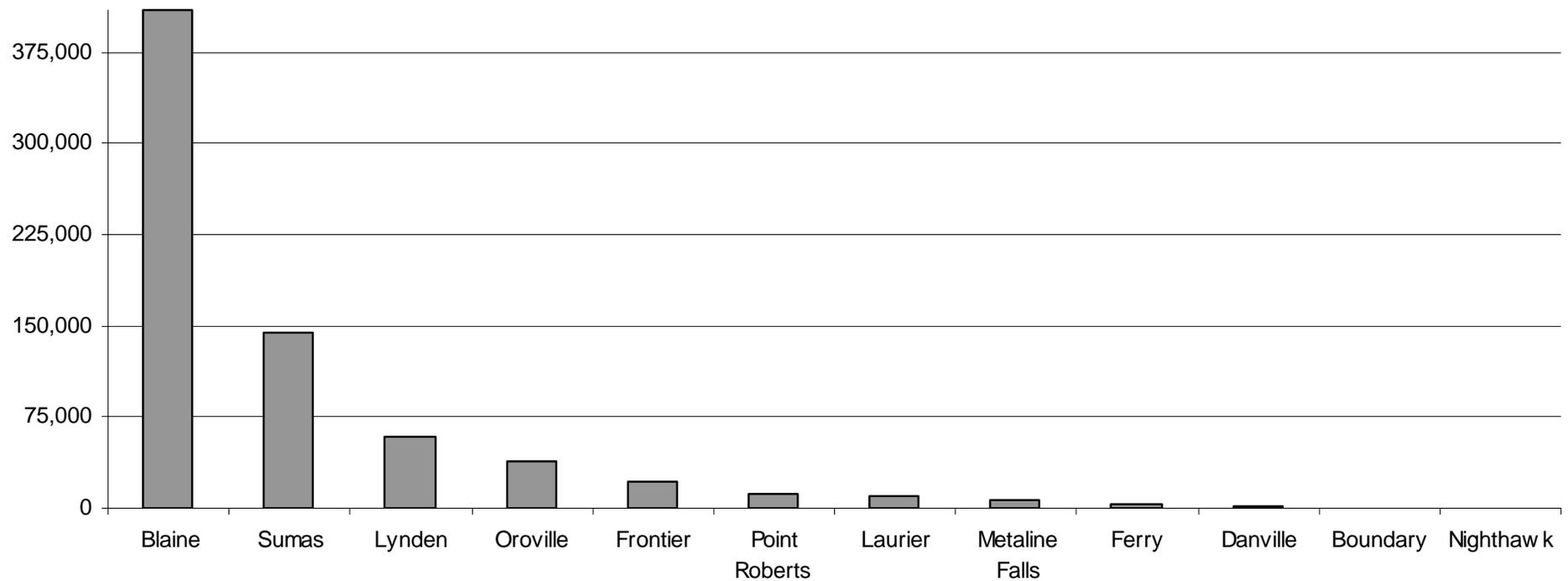
U.S.- Canada Incoming Truck Crossings, 2002

| Rank, by Trucks | Land Ports | Number of Crossings |
|-----------------|---------------------------|---------------------|
| 1 | Detroit, MI | 1,670,565 |
| 2 | Buffalo-Niagara Falls, NY | 1,208,095 |
| 3 | Port Huron, MI | 907,729 |
| 4 | Blaine, WA | 410,256 |
| 5 | Champlain-Rouse Pt., NY | 371,059 |

Source: U.S. Department of Transportation, Bureau of Transportation Statistics

Trucks Entering Washington from Canada

Trucks Entering Washington State From Canada
2002 By Number of Trucks



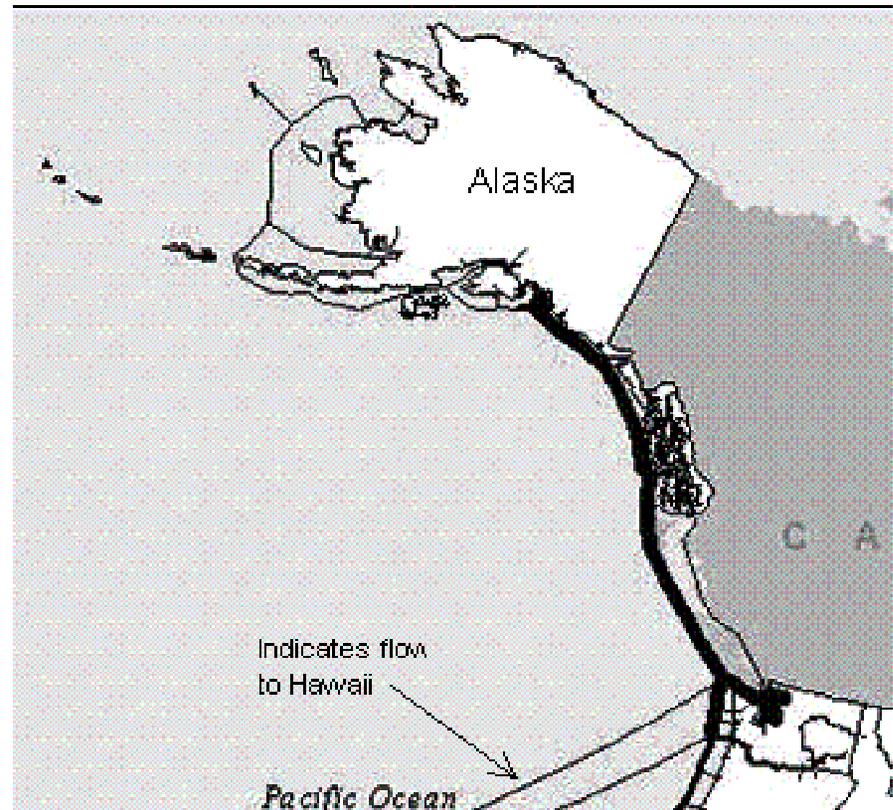
* Source: U.S. Department of Transportation, Bureau of Transportation Statistics, 2003

Washington is also the Gateway to Alaska

By value and volume – 24.62 million tons – the most significant commodity carried to Washington State from Alaska, using the inland waterway and landing at refineries, is crude petroleum.

Commodities shipped from Washington to Alaska include manufactured goods, as well as food and food products.

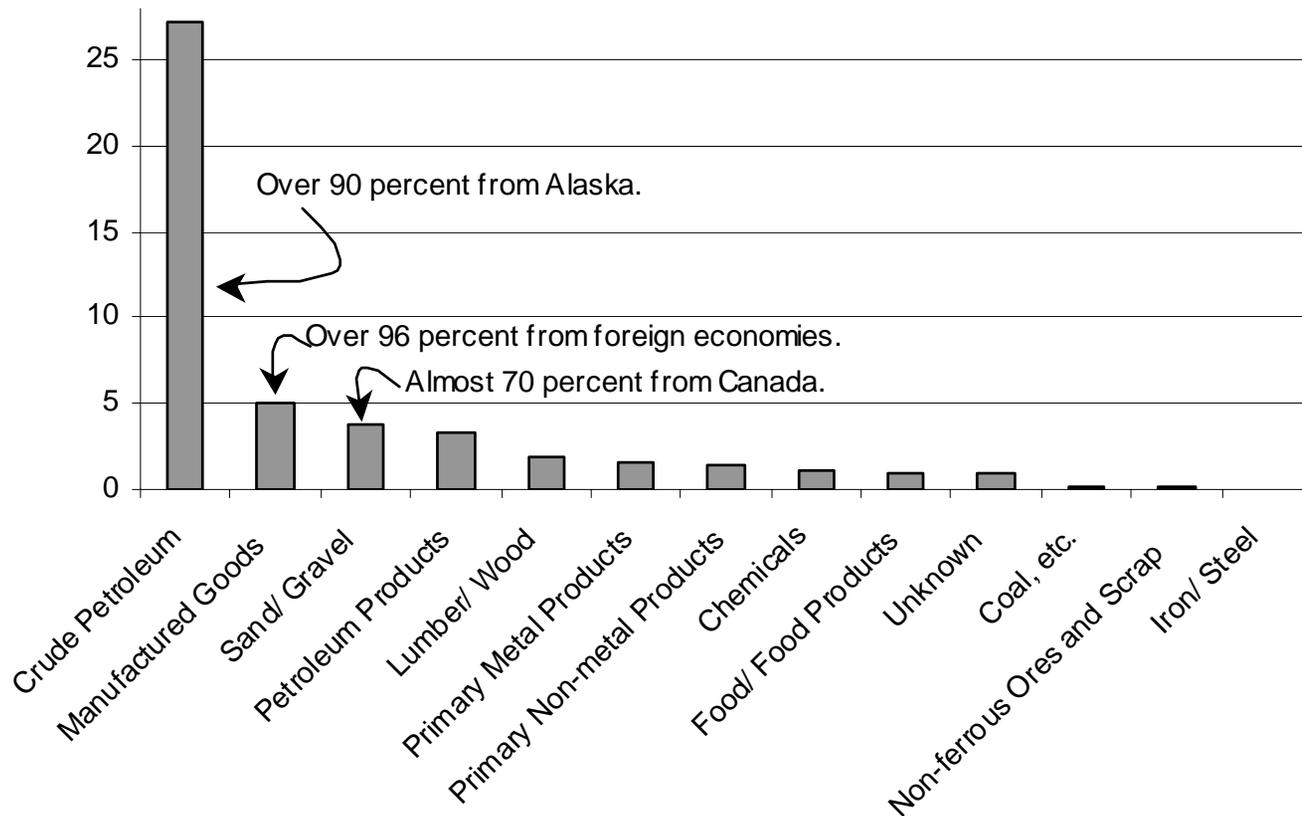
Domestic Freight Flows Moving By Water to and From Washington State



Source: Adapted from Washington: Total Domestic Water Flows, 1998 (US DOT)

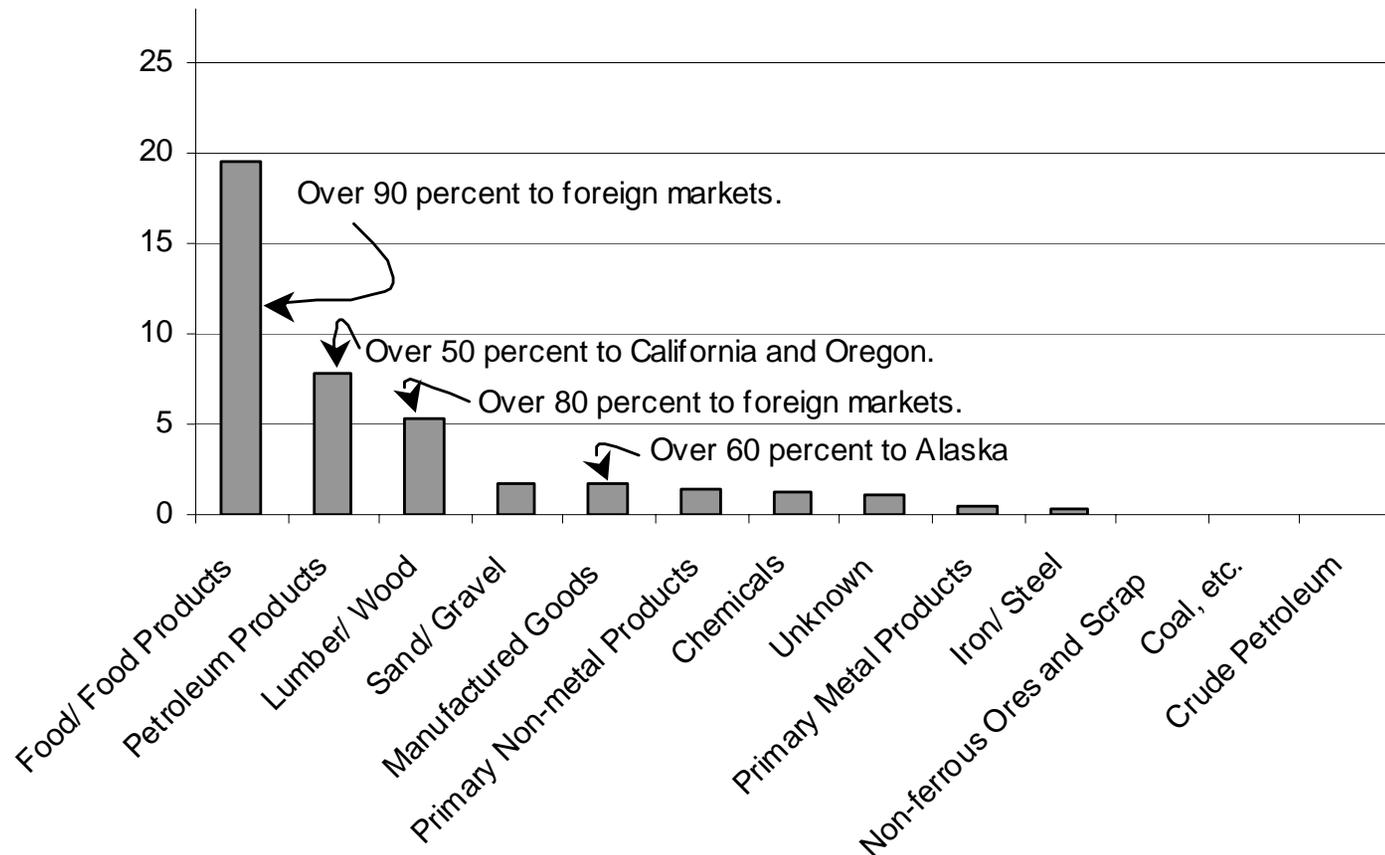
By Tonnage, Crude Petroleum Dwarfs All Other Waterborne Inbound Commodities

Goods Entering Washington State by Water
2002, Million Tons



By Tonnage, Food/ Food Products Outweigh Other Waterborne Outbound Commodities

Goods Leaving Washington State by Water
2002, Million Tons

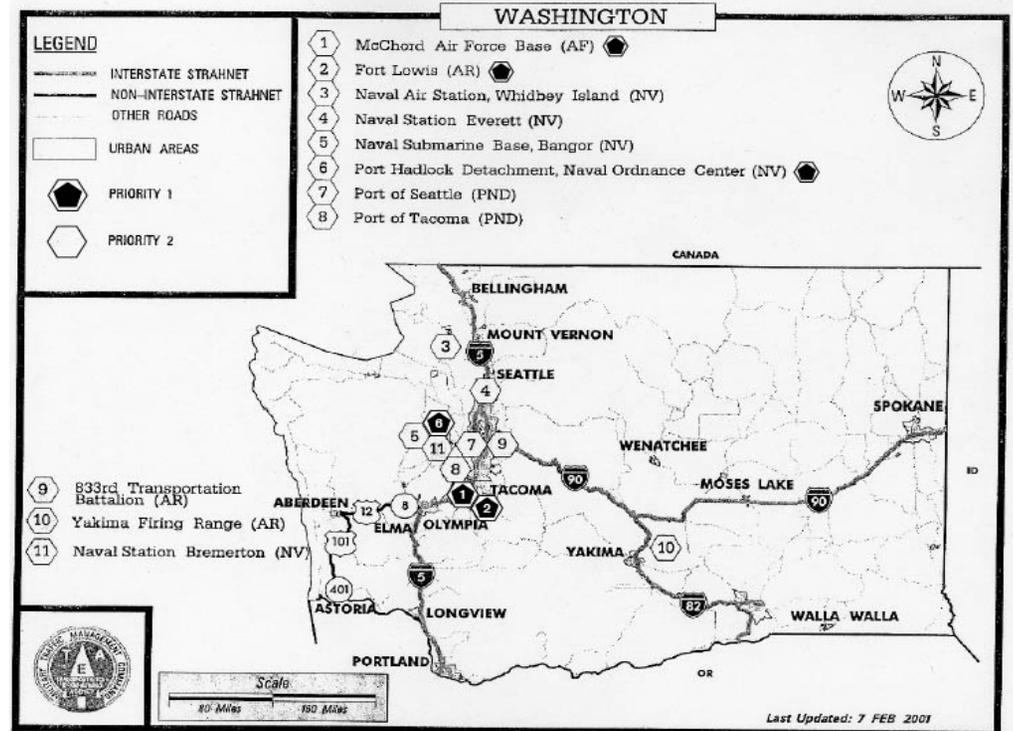


Washington Gateways Play an Essential Role in Supporting National Security

- Fort Lewis is a key location for gathering, staging and mobilizing forces and material.

During a major regional conflict, cargo from all over the United States will move by road and rail to Fort Lewis.

- The Port of Tacoma: PNW strategic port supporting Fort Lewis
- The Port of Seattle: sustainment port to ship supplies to troops
- Port Hadlock Naval Ordnance Center: one of nine national centers



Washington Gateways

Big Transportation Issues:

- **Solution to I-5 congestion** – bottlenecks and constraints from Olympia to Everett
- **Border delays** - Consolidate federal databases regulating freight transport
- **SR 167 and SR 509 connections to I-5**
- **Port of Vancouver rail yard:** congestion and capacity needs
- **Canada/U.S. border rail crossing delays:** Swift siding improvements
- **FAST projects including SR 519/Royal Brougham**
- **Columbia/Lower Snake River dredging and lock maintenance**

Washington Gateways

Big Transportation Issues (continued):

- **Air cargo capacity and access at SeaTac International and King County Airports**
- **SR- 518, 3rd lane**
- **Olympic Pipeline:** safety risks and capacity issues
- **I-5 Columbia River Bridge**
- **Columbia River rail bridge:** capacity and swing span
- **Rail bottlenecks and capacity: N-S and E-W**
 - 95% of BNSF cargo in and through Washington travels E-W and 5% N-S
- **Impacts on local communities:** Grade separations at high-impact locations

II. Transportation System Serving Washington State's Own Producers and Manufacturers Exports, plus much, much more!

Agriculture: \$5.6 billion in food and agricultural products in 2002. Washington agriculture produces three times as much food – and for some commodities up to twenty times as much on a tonnage basis – as it consumes. The transportation system must reach world and national markets.

Manufacturing: \$88.3 billion in Gross Business Revenues in 2003, 21.3 percent of the total State Gross Business Income.

The State's Regions Have Built Strong Economies Based on Industry and Agriculture



Southeast Washington: Wheat Producer for the World

- Washington ranked third in U.S. wheat production
- 130 million bushels grown on 2.7 million acres
- 85% is sold to international markets
- Contributed \$1.18 billion dollars to the state's economy in 2002, mostly to eastern Washington



Southeast Washington Freight System Views

Only 50% of wheat growers are highly satisfied with current performance of the freight system.

A very low 40% of grain associations are highly satisfied.

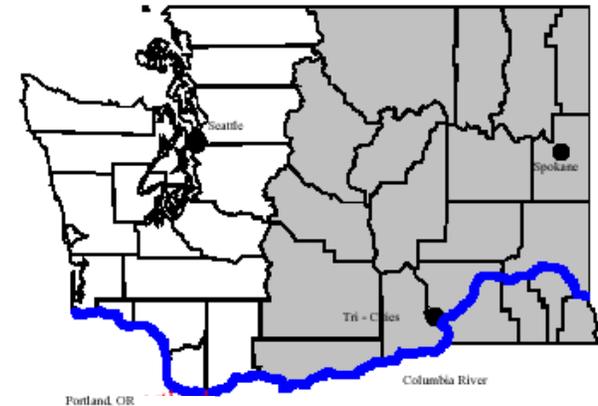
Big Transportation Issues:

- Columbia/Snake River channel and lock maintenance and preservation
- I-90 Snoqualmie Pass improvements to avoid winter weather closures
- Year-round freight corridor on county-state road system
- Adequate grain storage at the right locations

Columbia – Snake River Transportation System

92% of SE Washington wheat is shipped to Columbia River ports

51% by truck/barge; 19% by bulk rail, 30% truck to storage or non-bulk rail



Modal choices are at risk:

- Barge due to environmental issues and federal policies
- Truck due to weight restrictions on local roads during spring thaw
- Rail branch lines and short line rail that ship low volumes cannot recoup capital costs and may be short lined or abandoned, respectively

Columbia Basin and North Central Washington: Growing and Processing Apples, Potatoes, Onions and Hay

Washington ranks first in U.S.
apple production

- \$1.02 billion sales; 31% exported to international markets

Washington ranked second in U.S.
potato production

- \$3 billion annual sales of potatoes/products; 90% consumed in U.S.

Over 80,000 refrigerated truckloads of potatoes and 43,000 refrigerated truckloads of apples were shipped from Washington to east coast markets in 2000.



Columbia Basin and North Central Washington: Freight System Views

60% of Columbia Basin & N. Central Washington growers and processors are highly satisfied with the state's freight system.

50% say additional refrigerated capacity is most important freight service.

| 87,500 Jobs Rely on Freight | | |
|------------------------------------|-------------|---------------------|
| | Jobs | Average Wage |
| Agriculture | 42,013 | \$16,665 |
| Manufacturing | 22,993 | \$33,779 |
| Wholesale/Trade | 8,467 | \$31,051 |
| Transportation/Utilities | 13,984 | \$38,469 |

Big Transportation Issues:

- Solution to reposition refrigerated equipment
- I-90 Snoqualmie Pass improvements to avoid severe weather closures and to improve road conditions
- Develop Hwy 97 south to California markets
- Local roads program to connect highways to industrial areas
- Grade separations at high-impact crossings in TriCities, Yakima and Wenatchee

Central Puget Sound: Westside Center of Manufacturing and Commerce

Freight System Views

- The Boeing Company employs 53,000 in Washington State in 2004
- Boeing Aircraft reported \$22.4 billion revenues in 2003
- There were 4,433 small and medium-sized manufacturing firms in King, Pierce and Snohomish Counties in 2003

| 484,000 Jobs Directly Depend on Freight | | |
|--|-------------|---------------------|
| | Jobs | Average Wage |
| Construction | 92,406 | \$36,551 |
| Manufacturing | 202,988 | \$44,625 |
| Wholesale/Trade | 94,311 | \$41,883 |
| Transportation/Utilities | 94,040 | \$44,752 |

Central Puget Sound: Freight System Views

Sixty-five percent of South Sound manufacturers, and 63 percent of East Side manufacturers are very satisfied with current freight system performance.

Only fifty percent of Central Puget Sound trucking companies are very satisfied with the current performance of the freight system.

What is the Freight Users' Goal?

▪ Eastside Manufacturers:

On-time: 56%

Predictable trip time: 20%

Price: 17%

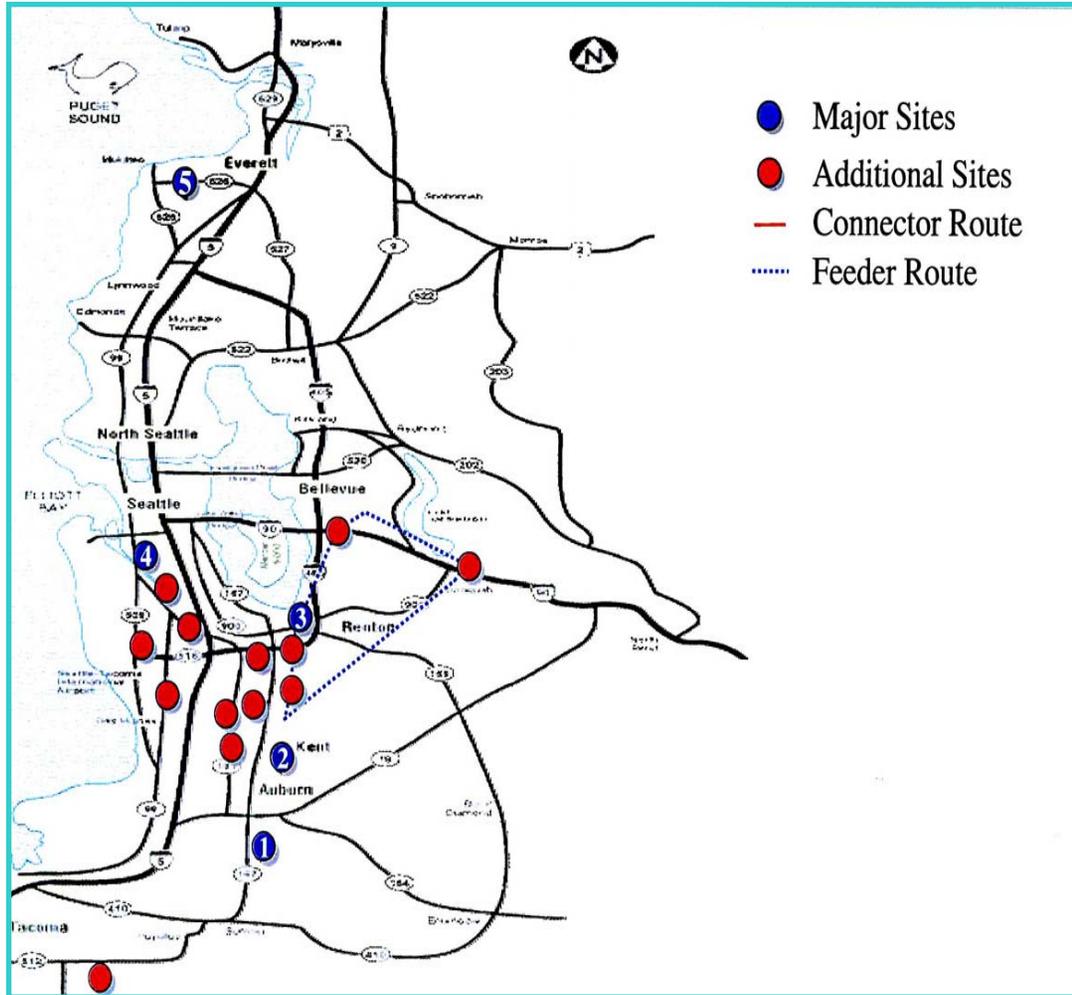
▪ South Sound Manufacturers:

On-time: 52%

Price: 31%

Predictable trip time: 7%

Central Puget Sound: The Boeing Company



Moving by night four times a week starting in 2006, the entire oversize 7E7 empennage (horizontal and vertical tail surfaces) will be trucked up Hwy 167, I-405 and I-5 from the Structural composites plant in Frederickson to final assembly in Everett.

Central Puget Sound

Big Transportation Issues :

- Solution to I-5 congestion – bottlenecks and constraints from Olympia to Everett. No redundancy in the major freight corridors.
- Solution to I-405 congestion: From Tukwila to Renton, and I-405/Hwy 167 Interchange.
- Complete major freight corridors by connecting:
 - Hwy 167 to I-5 in South Sound
 - SR 18 to Hwy 167 in Auburn
 - SR 509 to I-5
- Alaskan Way Viaduct
- Port connections to rail, I-5 & intermodal yards. Freight volumes to double at nexus of NAFTA and Asia-US freight corridors by 2030
- FAST projects including SR519/Royal Brougham
- Local truck route programs for thruput and metro delivery systems

Central Puget Sound

Big Transportation Issues (continued):

- SR 18 to I-90
- Cross Base Hwy: economic development in Pierce County
- Ferry system freight runs to serve Bremerton and the Olympic Peninsula
- Industry inventory reduction strategies are driving shorter on-time delivery windows for producers and carriers
- 95% of Washington State air cargo moves through SeaTac and King County Airports. I-5 congestion directly impacts reliability and on-time performance of air cargo system.

Spokane Region: Eastside Center of Manufacturing and Commerce

Freight System Views:

Seventy-nine percent of Spokane manufacturers and 62 percent of Spokane trucking companies are very satisfied with current freight system performance.

| 52,000 Jobs Rely on Freight | | |
|-----------------------------|--------|--------------|
| | Jobs | Average Wage |
| Agriculture | 1,768 | \$19,413 |
| Manufacturing | 18,035 | \$38,203 |
| Wholesale/Trade | 11,122 | \$34,766 |
| Transportation/Utilities | 7,549 | \$37,281 |
| Construction | 9,354 | \$32,581 |
| Military | 3,900 | na |

What is the Freight Users' Goal?

On-time: 56%

Price: 26%



Spokane Region

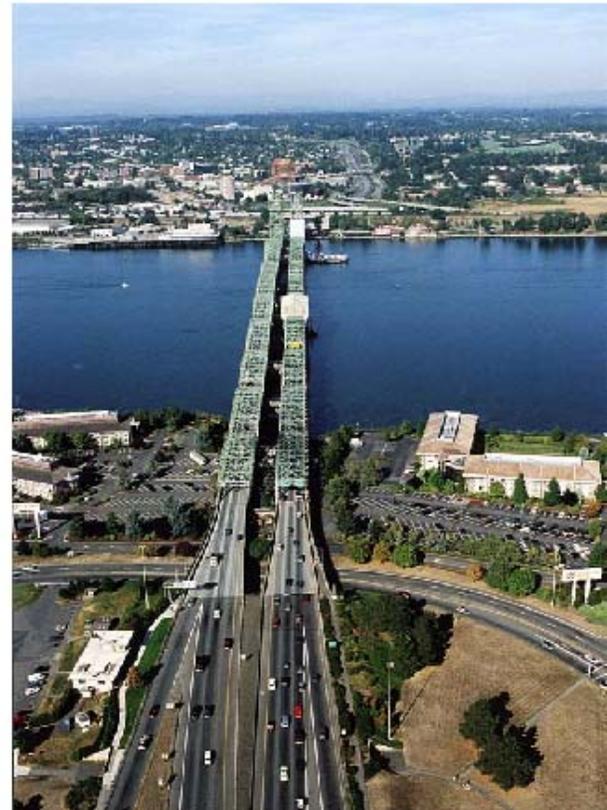
Big Transportation Issues:

- I-90 Snoqualmie Pass improvements to avoid winter weather closures
- I-405 Renton to Tukwila to ease congestion to Puget Sound
- I-90 Spokane – East: Correct pavement rutting
- Develop local truck route program
- Grade separations at high-impact crossings such as those found in the ‘Bridging the Valley’ project

Vancouver: Southwest Washington Metropolitan Area

Clark County (372,300 pop.) functions as one regional economy with Portland (1.92 million pop.)

Vancouver and Portland are connected by two bridges over the Columbia River, while comparable cities such as Kansas City (pop. 1.78 mil) has 10 bridges and Cincinnati (pop. 1.65 mil) has seven river bridges



Vancouver: Southwest Washington Metropolitan Area

Big Transportation Issues:

- Solution to I-5 congestion – bottlenecks and constraints from Olympia to Everett
- Corridor constraints at Columbia River Bridges: I-5, I-205 and Rail
- Port of Vancouver rail yard improvements
- Columbia River channel maintenance, deepening and barge access
- I-90 Snoqualmie Pass to avoid winter weather closures
- Fuel pipeline safety and capacity
- Local truck route programs for thruput and metro delivery systems
- Local roads program to connect highways to industrial areas

| 48,000 Jobs Rely on Freight | | |
|-----------------------------|--------|--------------|
| | Jobs | Average Wage |
| Construction | 11,275 | \$39,666 |
| Manufacturing | 23,939 | \$47,679 |
| Wholesale/Trade | 5,756 | \$41,242 |
| Transportation/Utilities | 7,141 | \$42,229 |

Northwest Washington: Diverse Economy, Future Vision

Freight System Views:

Seventy-one percent of NW Washington manufacturers are very satisfied with current freight system performance.

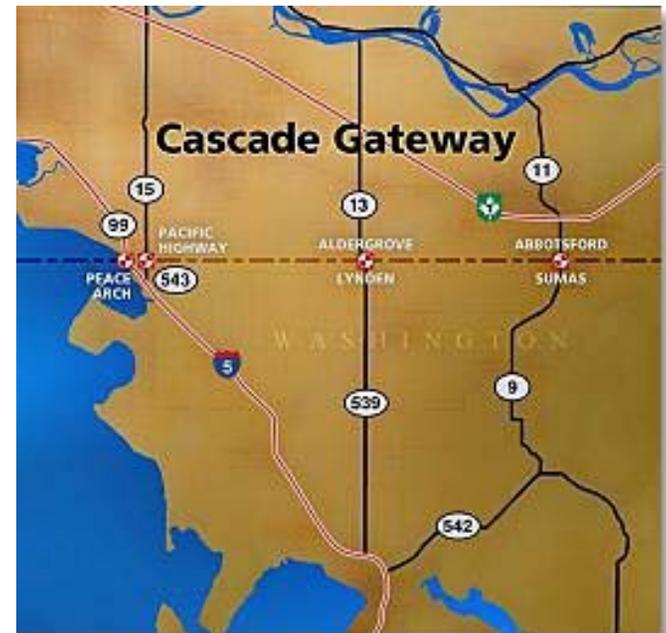
31,000 Jobs Rely on Freight

| | Jobs | Average Wage |
|--------------------------|--------|--------------|
| Construction | 7,985 | \$39,556 |
| Manufacturing | 14,353 | \$39,428 |
| Wholesale/Trade | 4,268 | \$33,969 |
| Transportation/Utilities | 4,551 | \$34,004 |

What is the Freight Users' Goal?

On-time: 50%

Price: 31%



Northwest Washington

Big Transportation Issues:

- **Solution to I-5 congestion** – bottlenecks and constraints from Olympia to Everett are delaying:
 - Air freight to SeaTac International
 - Containers to Ports of Seattle and Tacoma
 - One-to-two day truck service to California markets
- **Border delays** - Consolidate federal databases regulating freight transport
 - Blaine dedicated truck lanes will open in 2007: 2 northbound lanes, 0 southbound
 - Sumas has one truck lane, needs two lanes for FAST to function efficiently
- **All weather local roads:** weight restrictions
- **Canada/U.S. border rail crossing delays:** Swift siding improvements
- **Improve east-west connections** between I-5 and the Guide and Hwy 9

III. Transportation Systems Supporting Distribution and Service Industries, Wholesale and Retail

- Up to 80% of truck trips operate in the local distribution system
- The trip lengths are 100 miles or less daily, or in some cases up to 250 miles.
- Commercial truck registrations: 1994-2001 up 53%
- 80,000 people are employed in trucking or warehousing in Washington State

Enormous Variety of Goods and Services Are Handled in This Freight System

- Food and groceries
- Fuel
- Pharmaceuticals and medical supplies
- Retail stock, from furniture and appliances to clothing and books
- Cash and negotiable instruments (armored trucks)
- Office supplies and documents
- Trash and garbage (garbage trucks)
- Moving vans
- Construction materials and equipment

What is the Goal of the Freight System for the Distribution Sector?

| | |
|--------------------|-----|
| On-time | 50% |
| Price | 38% |
| Reliable trip time | 12% |

What Is Meant By “On-Time”?

| | |
|----------|--|
| 25% say: | Less than one-hour delivery window |
| 63% say: | Within one to two hours of appointment |
| 12% say: | Within two to three hours |

Distribution Centers: Case Studies

Food Services of America

- Makes 1,200 deliveries per day from Kent and Everett centers
- Westside and Spokane facilities serve restaurants, health care facilities, schools
- 205 trucks are on the road six days a week, statewide

Key issues:

- Congestion on I-405, I-5, SR 167, SR 3
- Washington State Ferries – “the state highway that closes every night”
- Snoqualmie Pass closures
- Cities that don’t plan for truck movement

Wal-Mart

- By 2005, 200 inbound and 100 outbound truck loads per day at Grandview
- Dedicated fleet – Swift – prefers to use interstates whenever possible

Key issues:

- Congestion on I-5 in Central Puget Sound
- Develop Hwy 97 south to Oregon and California markets

Food and Grocery Delivery: Supports Every Citizen, Everyday

- **A Huge Volume of Freight Activity Serves the Daily Needs of Grocery Shoppers**

- **A typical large grocery store (Safeway has about 200):**

Receives two large semi-tractor trailer deliveries per day

Ten to twenty other specialized deliveries per day

- **Specialty markets such as Metropolitan Market on Seattle's Queen Anne Hill**

Receives three-hundred-seventy-five van and small truck deliveries per week

Fuel

- Washington has four refineries linked by Olympic Pipe Line. Yellowstone and Chevron pipelines also serve Eastern Washington from out-of-state refineries.
- **Almost all deliveries to market are made by truck to distribution centers located at:**
 - Renton
 - Tacoma
 - Moses Lake
 - Harbor Island
 - Anacortes
 - Pasco
 - Tukwila
 - Ferndale
 - Spokane
 - Tumwater
 - Vancouver
- 2,800 gas stations (now called “fuel outlets”). This number is up 43% from 1996 eight years ago. One to fifteen tanker deliveries per week go to each fuel outlet.
- Marine fueling: average fishing boat takes four tanker trucks (30,000 gallons)
- Agriculture and industry
- Home heating oil

Wholesale Distribution Centers Grow Across the Landscape

- **Green River Valley:** Land scarcity and traffic congestion are forcing private sector site selection to outlying areas.
- Distribution centers are spreading across the landscape. For example, there are 1,800 new jobs in these seven new centers:
 - **Home Depot:** Existing center in Kent. New 756,000 sq. ft. facility in Lacey taking 50-75 trucks inbound for Port of Seattle, Tacoma; 30-50 outbound loads, seven states.
 - **Target:** 1.5 million sq. ft. in Lacey
 - **Dollar Tree:** 665,000 sq. ft. in Ridgefield
 - **Wal-Mart:** 900,000 sq. ft. in Grandview
 - **Safeway:** 1.4 million sq. ft. in Auburn
 - **Ferguson Enterprises:** 340,000 sq. ft. in Richland
 - **Vanity Fair (Jansport):** Everett
- Commercial/industrial land use is a major transportation issue due to the inadequacy of core-area roadway infrastructure.

Distribution Center Trends

- Traffic congestion is driving distribution centers to undeveloped locations. New jobs aren't going to built-up areas; they're moving out.
- Economic development opportunities marketed by communities such as Sumner (Costco distribution warehouse in 2002).
- New intermodal terminals may change distribution patterns
- New stocking and inventory priorities are changing supply chain logistics.
- Big cities' regulations are creating more trips with smaller trucks

Bottom Line: More Trucks!

More Often!

Coming and Going More Places!

Cross-Currents in Distribution Developments

- **Traffic congestion:** Threat to supply chain management.
- **Off-peak movement?** Night time deliveries are inconvenient for many business owners, and night time truck noise is an environmental issue.
- **Hours of service requirements and congestion:** New trend to “dual distribution center” arrangements.

IV. Environmental, Safety and Security Issues

Environmental Issues

- Diesel particulate emissions
- Truck noise
- New logistics needs are driving an explosion of the number of trucks on the roads...requires new solutions.

Safety Issues

- Truck safety and inspection, enforcement
- Safety rest areas for driver pull-out

Security Issues

- Supply chain security
- Hazardous cargo

V. Thinking About Freight System Strategies and Priorities

- **Intermodal opportunities and interdependence:** Public investment roles to be determined.
- Critical bottlenecks and chokepoints
- Dedicated system improvements? Truck lanes? Freight corridors?
- Operational efficiencies
 - Weigh In Motion build out
 - Incident response, roadway information in the cab and for dispatchers
 - Snow clearance, pavement maintenance, signage
 - Roadway construction schedules and work zones
- Better local and arterial management for freight and trucks.
- Access to ports, industrial/warehouse areas.
- More ideas?

Sleeper question: Is freight paying its fair share of the costs of transportation infrastructure systems and facilities?

VI. Ideas for Additional Study?

- What Did We Miss?
- We Want the Conversation About Freight Strategy To Involve All the Players.