The Washington State Freight Mobility Plan: Identifying and Managing Performance on the State's Truck Freight Corridors

Presenter Name 16 pt.
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Innovation in Urban Freight Workshop
Seattle, Washington
February 6, 2012

Washington State Department of Transportation

Washington's Economy Depends on a Stronger Freight Transportation System

Washington's investment in freight systems supports our growing economy, maintains freight access to our major markets and ports, lowers business costs, and sustains jobs.

- $37 million of freight moves on Washington roadways every hour of every day in 2010.
- Our system of roads, rails, ports, marine waterways and intermodal facilities supported total exports from Washington valued at $53 billion in 2010.
- In 2010, freight-dependent industries accounted for over 41% of Washington's jobs.
  - 625,101 jobs in retail and wholesale trade.
  - 528,043 jobs supported by "Made in Washington" agribusiness, manufacturing, construction and timber/wood products sectors.

Source: WSDOT Freight Systems Division

What is the Purpose of the Washington State Freight Mobility Plan?

Goal: The Washington State Freight Mobility Plan will develop and prioritize freight transportation system improvement strategies that support and enhance trade and sustainable economic growth, safety, the environment, and goods delivery needs in the state.

Objectives:

- Urban goods movement systems that support jobs, the economy, and clean air for all, and provide goods delivery to residents and businesses.
- Washington's competitive position as a Global Gateway to the nation, and the state and national Export Initiatives.
- Rural economies' farm-to-market, manufacturing and resource industry sectors.

Washington Freight Mobility Plan Deliverables

Through the Freight Mobility Plan, Washington State will:

- Make a strong case for funding Washington state freight priority projects and programs in the reauthorization of the federal surface transportation bill and future state transportation packages.
- Guide capital and operating investments in the state's freight systems.

Transportation funding is limited, and we need sound, transparent methods to prioritize improvements on the state's important freight economic corridors.

The Freight Plan will:

- Integrate findings and recommendations from state highway, freight rail, ferries and aviation modal plans to address intermodal challenges.
- Recommend metrics to identify the state's essential truck freight corridors,
- Develop benefit/cost methodology to evaluate truck highway and intermodal improvement proposals, and
- Drive progress towards truck freight corridor performance targets.

How Can We Identify the State's Truck Freight Economic Corridors?

The state's freight corridors are multi-jurisdictional and may be intermodal. The Washington State Department of Transportation (WSDOT) has identified the state's backbone freight system based on volume, including interstate and state highways, local roads, freight rail lines and waterways.

But by definition, essential state freight corridors connect economically significant:

- Goods production centers such as agribusiness, timber/wood product and manufacturing centers, with
- Distribution, processing, and intermodal hubs, and
- Consumption centers in metropolitan areas.

So in addition to the freight volume threshold, we need to develop connectivity criteria to identify the state's freight corridors.

How is WSDOT Developing Freight System Connectivity Criteria?

- WSDOT worked with shippers, freight carriers, labor, local, regional and federal government, and environmental association representatives in three Washington State Freight Mobility Plan Technical Teams to develop a prioritized list of measurable truck freight system benefits.

- To reduce freight transportation costs and grow jobs and the economy, the Technical Teams recommended that the state freight corridors include truck freight connections, to-and-from:
  - Essential state intermodal facilities, goods processing and distribution centers to the interstate system and/or four-lane divided highways.
  - Essential state intermodal facilities to other essential state intermodal facilities.
  - Urban freight hubs such as the central business district, port or warehouse district, to regional destinations.
  - All urban industrial/commercial zoned lands and the interstate system.
  - Industrial/commercial lands within five miles of the interstate in rural areas, and the interstate system.

WSDOT Is Continuing to Develop Truck Freight Corridor Connectivity Criteria

WSDOT continues to work with Metropolitan Planning and Regional Transportation Planning Organizations, cities, counties, ports, Tribes, carriers and shippers to develop quantitative criteria to identify essential state truck freight connector routes.

They've suggested adding:

- Primary urban arterials in the Puget Sound Regional Council region that don't meet the state's truck volume threshold between designated:
  - Manufacturing Industrial Centers (MIC) and the interstate system,
  - Regional centers.
- Over-dimensional routes in urban areas.
- Agricultural, timber and natural resource routes that carry one million tons of truck traffic a minimum of three month per year, during harvest or other peak periods.
- Short links between lower-volume maritime ports and barge loaders and the interstate or four-lane highway system.

Once Identified, How Do We Measure Performance on the State's Truck Freight Corridors?

- By accurately tracking truck speed and reliability on the state's truck freight corridors, WSDOT's Truck Freight Performance Measure program will enable Washington State to meet the performance demands imbedded in the proposed "Moving Ahead for Progress in the 21st Century" (MAP-21) reauthorization of the federal surface transportation bill.
- MAP-21 consolidates the core highway programs from seven in SAFETEA-LU to five, including a new funded freight program.
- The new freight program directs states to:
  - Develop and periodically update performance targets for freight movement.
  - For every two-year period, submit to the U.S. Department of Transportation Secretary a report on the progress of the State towards meeting the targets and the ways in which the State is addressing congestion at freight bottlenecks within the State.
  - If States don't meet their performance targets, they must submit freight performance improvement plans to USDOT.
- The Washington, Oregon and California Departments of Transportation have jointly applied for a $1 million federal ITS grant to expand WSDOT's Truck Performance Measure program to the entire Interstate 5 corridor, from Canada to Mexico.

How Does Washington State's Truck Performance Measurement Program Work?

The Washington State Department of Transportation (WSDOT) and the University of Washington have developed new GPS data collection and analytic methodology to objectively identify and assess truck bottlenecks by:

1. Truck volume,
2. Reliability, and
3. Truck speed below a poor performance threshold, which WSDOT has defined as 60 percent of posted speed (35 miles per hour on urban freeways).

The method:

- Supports a transparent and defensible process to identify and rank truck bottlenecks on the state's major freight corridors.
- Is automated, in order to analyze millions of GPS data points drawn from over 6,000 trucks traveling on the state's major truck corridors each week.
- Accounts for the importance of high-volume truck corridors, while being flexible enough to identify both urban and rural truck highway bottlenecks.

WSDOT is Learning that Truck Bottlenecks and Solutions Fall into Three Categories

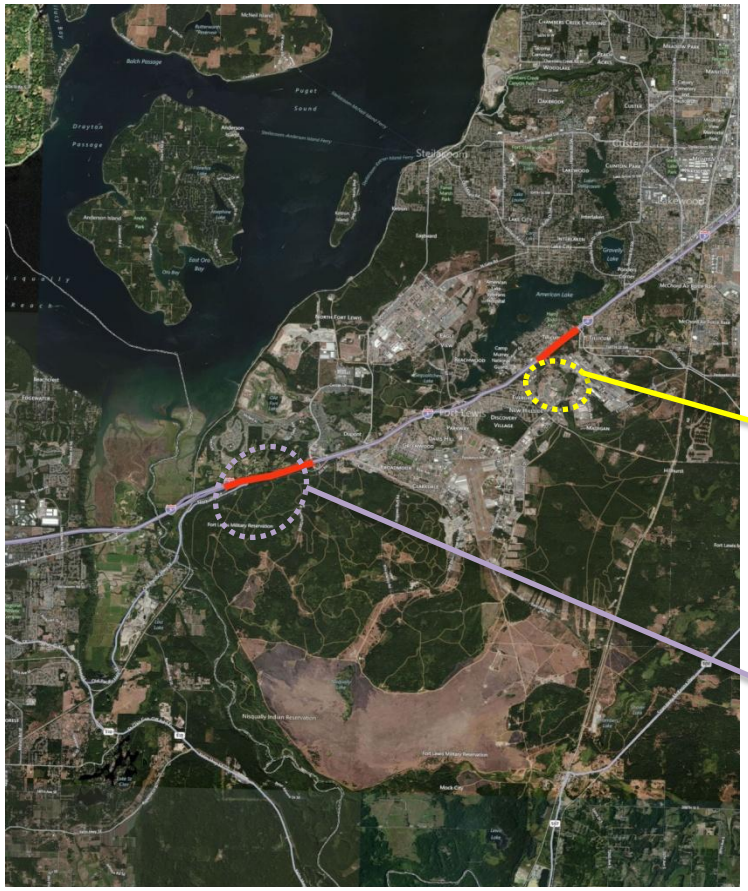
The Truck Performance Measure analysis shows that the state's truck bottlenecks fall into three categories that may require different solutions.

1. Cross-state freight corridors. Solutions may include adding capacity strategically, targeting the worst truck bottlenecks or filling critical system gaps to improve performance on entire corridors, as well as low-cost improvements.

2. Congested urban interstate highways. Strategies may include adding strategic capacity, and managing demand by using variable-rate tolling, improving the viability of alternate modes, and providing traveler information.

3. State highways in urban areas. Strategies may include improving efficiency by optimizing traffic signal timing to reduce delay, and implementing other low-cost and high-value enhancements.

Example of a Cross-State Truck Freight Corridor Bottleneck



Note: Designated T-1 Strategic Freight Corridors are those routes carrying more than 10,000,000 tons of freight per year.

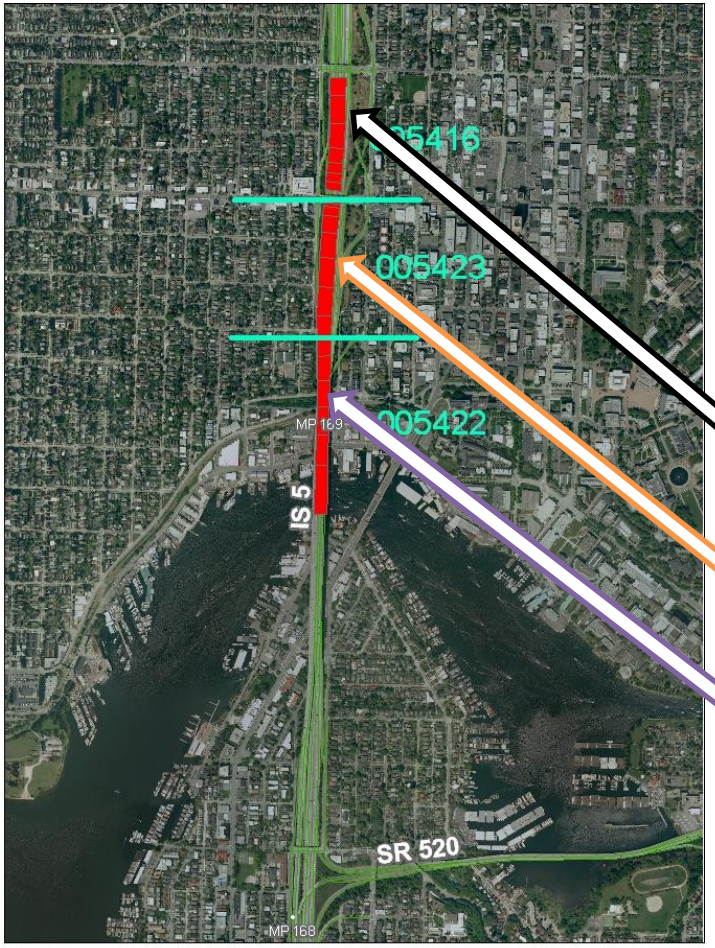
- Location: I-5, near Joint Base Lewis-McChord (JBLM), WA
- Lengths: 1.28 mile & 0.95 mile
- Daily truck volume: 14,000; T-1 corridor
- Posted speed: 60 mph
- Causal factor: lack of capacity

- Direction: southbound
- PM peak average truck speed: 38 mph
- Percentage of travel speed below 60% of posted speed limit in PM peak: 52%
- Truck percentage of total traffic: 9.7%

- Direction: northbound
- PM peak average truck speed: 43 mph
- Percentage of travel speed below 60% of posted speed in PM peak: 36%
- Truck percentage of total traffic: 11.5%

Time Period	Reliability
AM	Unreliable
Midday	Unreliable
PM	Reliable

Example of a Truck Bottleneck on a Congested Urban Interstate Highway



- Location: I-5 southbound, NE 50th St to the Ship Canal, Seattle, WA
- Length: 0.89 mile
- Daily truck volume: 11,000; T-1corridor
- Truck percentage of total traffic: 5.5%
- Causal factor: capacity issues
- Posted speed: 60 mph

- Average truck travel speed: 36 mph
- Percentage of travel speed below 60% of posted speed limit: 51%

- Average truck travel speed: 35 mph
- Percentage of travel speed below 60% of posted speed limit: 54%

- Average truck travel speed: 39 mph
- Percentage of travel speed below 60% of posted speed limit: 50%

Time Period	Reliability
AM	Unreliable
Midday	Unreliable
PM	Unreliable

Example of a Truck Bottleneck on a State Highway in an Urban Area

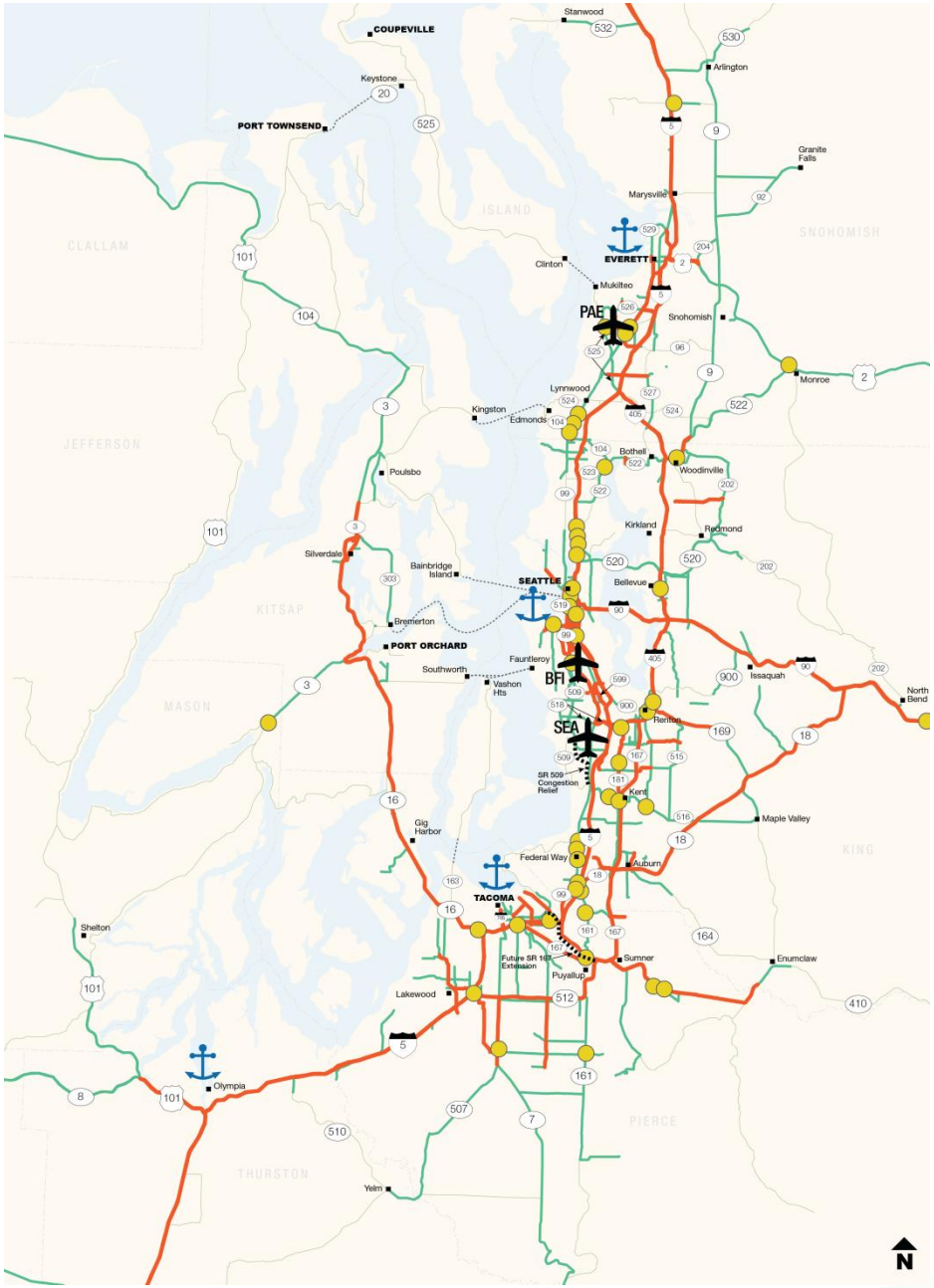
- Location: SR 99 southbound at E. Marginal Way, Seattle, WA
- Length: 0.33 mile
- Daily truck volume: 5,100; T-1 corridor
- Truck percentage of total traffic: 7.9%
- Average truck travel speed: 25 mph
- Posted Speed: 45 mph
- Percentage of travel speed below 60% of posted speed limit: 53%
- Causal factors: business access, signalized and un-signalized intersections within the segment slow truck flow.

Time Period	Reliability
AM	Unreliable
Midday	Unreliable
PM	Unreliable

Central Puget Sound Area Truck Bottlenecks in 2010 - 2011

WSDOT used volume data to identify the state's backbone truck freight corridors, and used the Truck Performance Measure program to identify the worst truck bottlenecks on those corridors.

When essential state connector routes are incorporated into the backbone system, WSDOT will be able to measure full truck corridor performance.



LEGEND

- **Primary freight corridors**: Freight corridors carrying more than 10 million tons per year.
- **Connector freight corridors**: Freight corridors carrying 4 million to 10 million tons per year. Also includes corridors serving as alternatives to primary freight routes (US 2, SR 7).

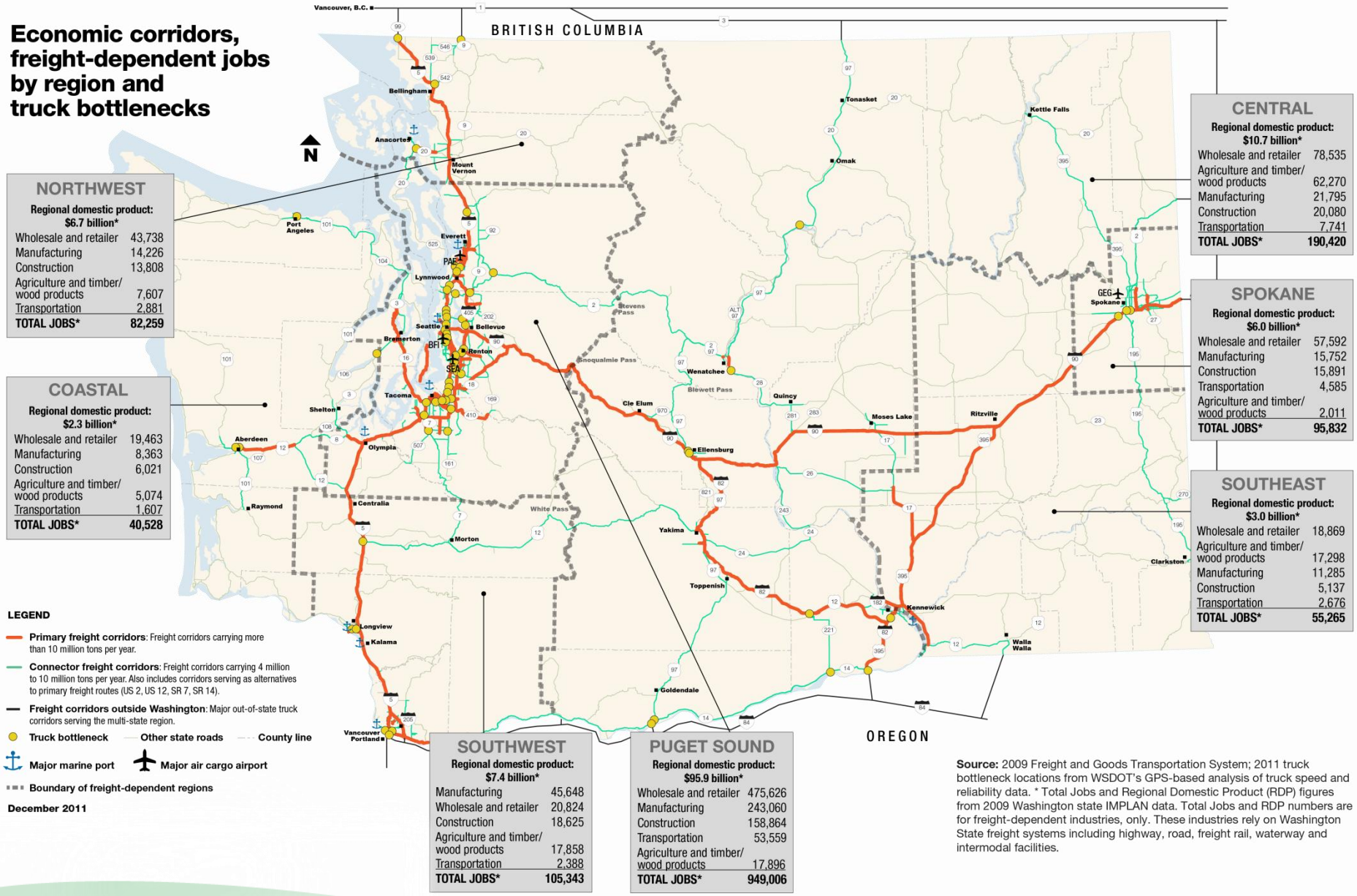
Truck bottleneck — **Other state roads** ····· **Ferry route** - - - **County line**

Major marine port **Major air cargo airport**

December 2011

Source: 2009 Freight and Goods Transportation System; 2011 truck bottleneck locations from WSDOT's GPS-based analysis of truck speed and reliability data.

Economic corridors, freight-dependent jobs by region and truck bottlenecks



NORTHWEST

Regional domestic product: $6.7 billion*

Wholesale and retailer	43,738
Manufacturing	14,226
Construction	13,808
Agriculture and timber/ wood products	7,607
Transportation	2,881
TOTAL JOBS*	**82,259**

COASTAL

Regional domestic product: $2.3 billion*

Wholesale and retailer	19,463
Manufacturing	8,363
Construction	6,021
Agriculture and timber/ wood products	5,074
Transportation	1,607
TOTAL JOBS*	**40,528**

CENTRAL

Regional domestic product: $10.7 billion*

Wholesale and retailer	78,535
Agriculture and timber/ wood products	62,270
Manufacturing	21,795
Construction	20,080
Transportation	7,741
TOTAL JOBS*	**190,420**

SPOKANE

Regional domestic product: $6.0 billion*

Wholesale and retailer	57,592
Manufacturing	15,752
Construction	15,891
Transportation	4,585
Agriculture and timber/ wood products	2,011
TOTAL JOBS*	**95,832**

SOUTHEAST

Regional domestic product: $3.0 billion*

Wholesale and retailer	18,869
Agriculture and timber/ wood products	17,298
Manufacturing	11,285
Construction	5,137
Transportation	2,676
TOTAL JOBS*	**55,265**

SOUTHWEST

Regional domestic product: $7.4 billion*

Manufacturing	45,648
Wholesale and retailer	20,824
Construction	18,625
Agriculture and timber/ wood products	17,858
Transportation	2,388
TOTAL JOBS*	**105,343**

PUGET SOUND

Regional domestic product: $95.9 billion*

Wholesale and retailer	475,626
Manufacturing	243,060
Construction	158,864
Transportation	53,559
Agriculture and timber/ wood products	17,896
TOTAL JOBS*	**949,006**

Source: 2009 Freight and Goods Transportation System; 2011 truck bottleneck locations from WSDOT's GPS-based analysis of truck speed and reliability data. * Total Jobs and Regional Domestic Product (RDP) figures from 2009 Washington state IMPLAN data. Total Jobs and RDP numbers are for freight-dependent industries, only. These industries rely on Washington State freight systems including highway, road, freight rail, waterway and intermodal facilities.

Questions?

For more information on the
Washington State Freight Mobility Plan,
please see http://www.wsdot.wa.gov/Freight/freightmobilityplan
or contact:

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