

Understanding Freight Movement – Supply Chain 101

Kate Vitasek
Managing Partner, Supply Chain Visions
Faculty, University of Tennessee



**Washington State
Department of Transportation**

Welcome - Kate Vitasek



**Founder and Managing Partner,
Supply Chain Visions
and
Faculty,
University of Tennessee**

- Thought Leader in Supply Chain Management
 - “Woman on the Move in Trade and Transportation” by the Journal of Commerce
 - “Rainmaker” by DC Velocity Magazine
- Well-recognized authority on performance management and metrics implementation
- Served on Board of Directors for the Council of Supply Chain Management Professionals and Deliver Committee for Supply Chain Council
- Teaches a four-day course on Performance Based Logistics for the University of Tennessee’s Aerospace and Defense program
- Teaches an MBA class on performance management for Wright State University and seminars for the Warehouse Education Research Council.

Supply Chain Management (SCM) - Some Caveats

- **SCM is like art**
 - Multiple terms exist
 - Everyone has their own interpretation
 - The key is understanding the customer's own terminology

- **SCM is a strategy**
 - “It is not about moving stuff”

- **SCM is not a fiefdom**
 - It crosses organizations and functions and even companies

- **SCM is not rocket science**
 - Or is it?

The Evolution of Supply Chain Management

	Supply Chain	WSDOT
1940	<ul style="list-style-type: none"> WW II brought global logistics to the forefront to solve distribution problems. The heart of logistics is transportation. 	<ul style="list-style-type: none"> US highway system was a mix of state roads and crisscrossing the US. Amendment 18 limits highway tax revenue to highway use.
1950	<ul style="list-style-type: none"> The founding of corporate Transportation Departments. Focus on reducing cost per hundred weight. 	<ul style="list-style-type: none"> President Eisenhower signed the Federal-Aid Highway Act of 1956 establishing the interstate highway system. Established Washington State Ferries.

Adapted from *SCM: The past is Prologue*, D. Bowersox, CSCMP Quarterly 2007 and WSDOT Moving Washington for 100 Years

The Evolution of Supply Chain Management

	Supply Chain	WSDOT
1960	<ul style="list-style-type: none"> ▪ The age of Physical Distribution Management, a cross functional approach. ▪ The introduction of total cost concepts. 	<ul style="list-style-type: none"> ▪ 1960: first part of I-5 opens in Tacoma. ▪ 1969: final portion of I-5 completed.
1970	<ul style="list-style-type: none"> ▪ Total cost gained legitimacy and broad acceptance. ▪ The introduction of cost verses service trade off, top line revenue growth and bottom line profitability. ▪ Focus on finished goods distribution strategies. 	<ul style="list-style-type: none"> ▪ Sea containers become the preferred method for many imported products. ▪ OPEC oil embargo 1973-1974. ▪ 1973 HOV lanes.

Adapted from *SCM: The past is Prologue*, D. Bowersox, CSCMP Quarterly 2007 and WSDOT Moving Washington for 100 Years

The Evolution of Supply Chain Management

	Supply Chain	WSDOT
1980	<ul style="list-style-type: none"> Advent of Materials Management the focus on upstream from manufacturer to supplier. Balanced approach to both inbound and outbound inventory movement and positioning. “Supply Chain Management” coined by Booz Allen. 	<ul style="list-style-type: none"> First FLOW on-ramp meters are installed on I-5. Mount St. Helens erupts on May 18, 1980, temporarily closing more than 1,000 miles of state highways.
1990	<ul style="list-style-type: none"> Senior leaders embrace the concept of end-to-end integration. The introduction of supply chain collaboration and alignment. 	<ul style="list-style-type: none"> 1991: signing of the intermodal surface transportation efficiency act. Initiative 695 reduces taxes and WSDOT projects. 1990 passage of the State’s Growth Management Act linked transportation policies with land use and environmental quality.

The Evolution of Supply Chain Management

	Supply Chain	WSDOT
2000	<ul style="list-style-type: none"> ▪ Movement to customer centric supply chains that respond to customer demand verses anticipating it. ▪ Introduction of technology that allows collaboration, real-time responsiveness, operational excellence and interactive management. ▪ Council of Logistics Mgmt formally changes name to Council of Supply Chain Mgmt Professionals. 	<ul style="list-style-type: none"> ▪ September 11, 2001 attack closes many transportation systems and heralded new security measures. ▪ Earthquake near Olympia causes more than \$1 billion in damage to roads and infrastructure, 2001. ▪ Five-cent-per-gallon gas tax increase takes effect, 2003, to fund \$4.2 billion in priority Nickel projects. ▪ President Bush signed Recommendations of the 9/11 Commission Act of 2007 into law.

The Evolution of Supply Chain Management

	Supply Chain	WSDOT
New Frontiers	<ul style="list-style-type: none">▪ Information-driven supply chains.▪ Development of supply chains with a net-zero environmental impact.▪ The development of interactive business models and extreme postponement strategies.	<ul style="list-style-type: none">▪ Exploring new technologies and techniques.▪ Accelerating the movement of freight.▪ Seeking new public-private partnerships.▪ Supporting public transit, car- and vanpooling.▪ Others?

Supply Chain Management (SCM) Defined

Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all Logistics Management activities.

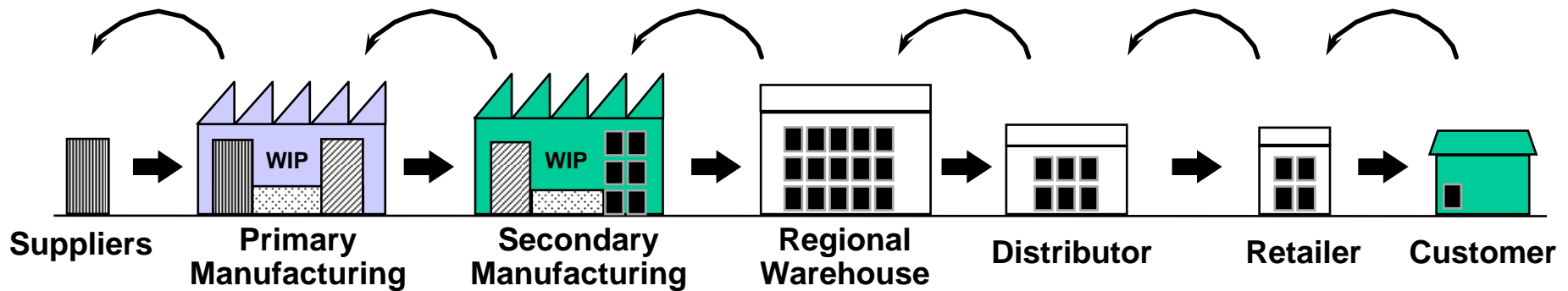
Importantly it also include coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers.

In essence, Supply Chain Management integrates supply and demand within and across companies.

Source: The National Council of Supply Chain Management Professionals

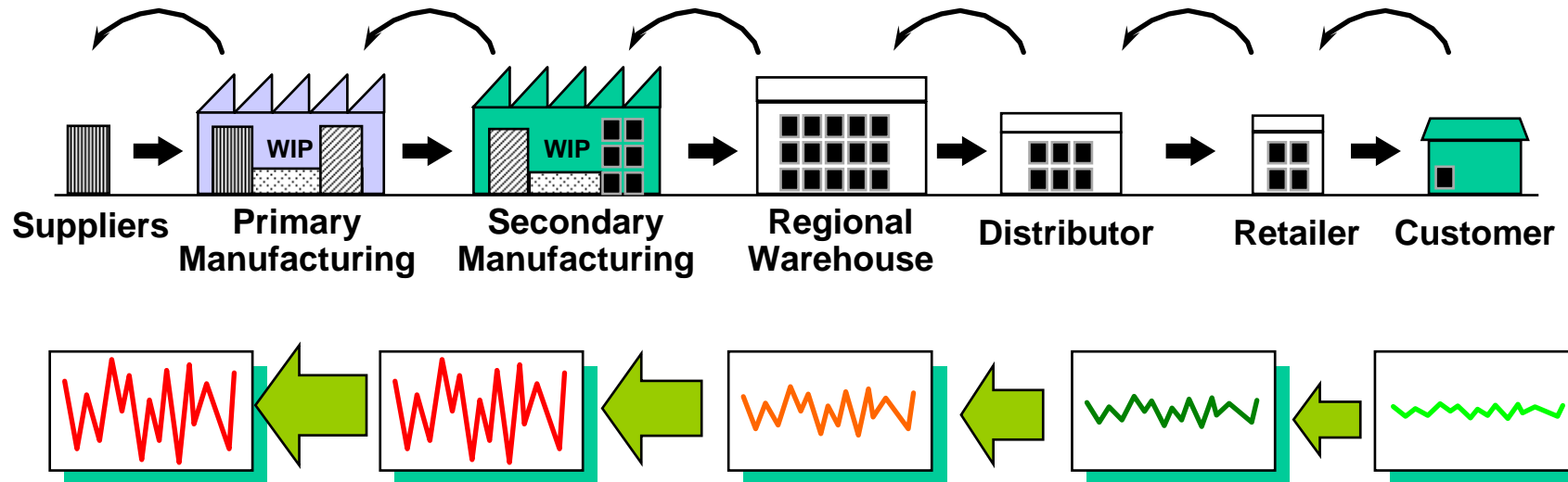
A Typical Supply Chain

Traditionally, businesses “PUSH” their products down the customer channels.



The “Bullwhip” Effect

These traditional supply chains amplify instability of demand at each stage



Why is this?

....And It Gets Even More Confusing When Companies Go Global

Global Virtual Factory Example



Source: ChainLink Research

The Problem

As customers expand worldwide, the supply chain requirements and capabilities expand.

- Lead times expand
- More costs are embedded into the enterprise
- Information flow is more complex and prone to error
- Working capital needs increase

As companies outsource, there are more and more touch points.

How Can Focusing on the Entire Supply Chain Help?

What's the Big Deal?

What makes SCM so different from good old Transportation and Warehousing?

- ✓ It's much broader and more complicated – due to more 'players' and more functions.
- ✓ It involves precise coordination and lots of cooperation and collaboration among firms and functions.
- ✓ It requires an entirely new mindset of how to do things: focused on speed, quality, working together, sharing costs and savings.
- ✓ It requires that functional silos be torn down.

The Evolution Will Continue

“I really do believe that supply chain management will be the defining discipline in the 21st century.”

**--Ralph Drayer
Former P&G Logistics Officer**

Supply Chain Management Processes and Participants

Supply Chain Participants

*SCM is made up of many **participants** that must work together within the supply chain*

- **Suppliers.** Source of raw materials, component parts, semi-manufactured products, and other items that occur early in the supply chain - unfinished or non-consumable products.
- **Manufacturers.** Makers of products. Many consider them to be the heart of the supply chain.
- **Distributors.** Responsible for the packaging, storing, and handling of materials at receiving docks, warehouses, and retail outlets.
- **Retailers.** These are the manufacturer's customers - the stores that buy the actual products. Throughout this course, retailers will also be referred to simply as customers.
- **Consumers.** This is the ultimate user - the person who goes into a store and buys the product.

Who controls the supply chain?

Supply Chain Partners

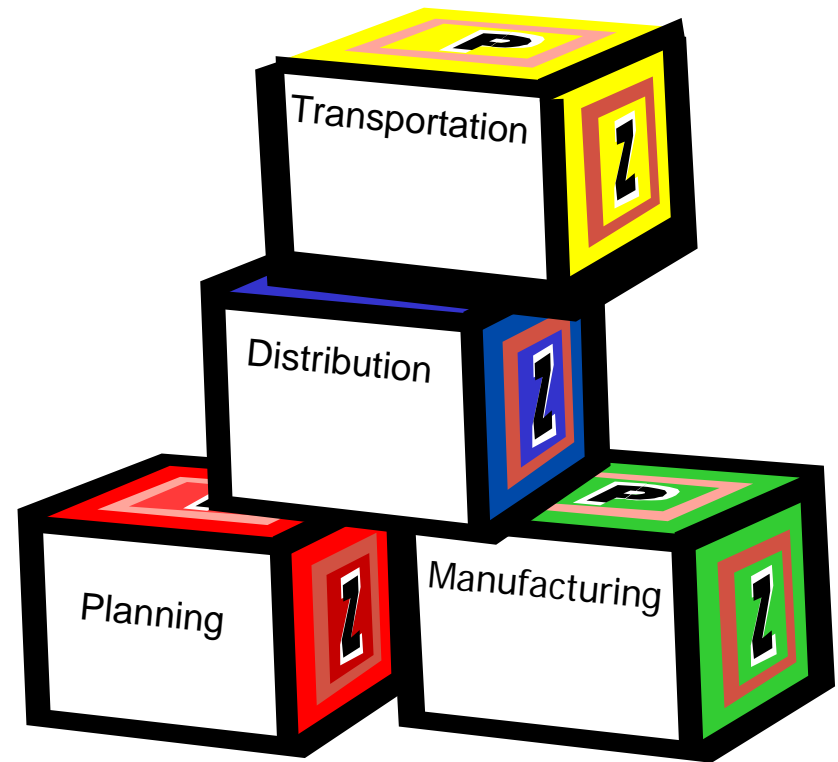
Partners help Participants by providing infrastructure, equipment and labor when needed.

- Freight Companies (local and national)
- Railroads
- Ocean Cargo Companies
- Package and Parcel Companies
- 3PL/4PLs
- Brokers/Forwarders/Consolidators
- Ports
- Inland Drayage Companies
- Air Cargo Companies

Supply Chain Processes

SCM is made up of many **processes** that must be performed within the supply chain. These form the foundational building blocks for the work to be done.

- Forecasting
- Purchasing
- Production Planning
- Inventory Control
- Warehousing
- Order Management
- Distribution
- Transportation



Supply Chain Processes - Defined

- **Forecasting:** The process of *estimating future demand* using various techniques and methods.
- **Purchasing:** The functions associated with *buying the goods and services* required by the firm.
- **Production Planning:** The process that creates *detailed plans and schedules* to produce product, taking into account resource, material, and dependency constraints to meet deadlines.

Supply Chain Processes - Defined

- **Inventory Control:** The process of ensuring the availability of products through **inventory administration** (accuracy, strategy & optimization).
- **Warehousing:** The **storing of goods** and warehouse activities (receiving, put-away, picking, shipping, and inventory control).
- **Order Management:** The planning, directing, monitoring, and controlling of the **processes related to customer orders**, manufacturing orders, and purchase orders.
- **Distribution: Outbound logistics**, from the end of the production line **to the end user**. It includes all activities related to physical distribution, as well as the return of goods to the manufacturer.

Supply Chain Processes - Defined

- **Transportation:** The *movement of goods* by land, sea, or air shipment. Activities, including managing shipment scheduling through inbound, out-bound, intra-company shipments, documentation management, and third party logistics management.

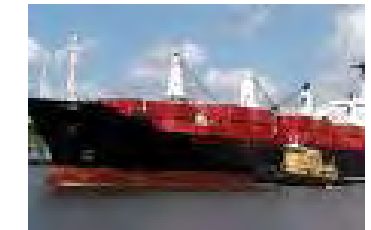
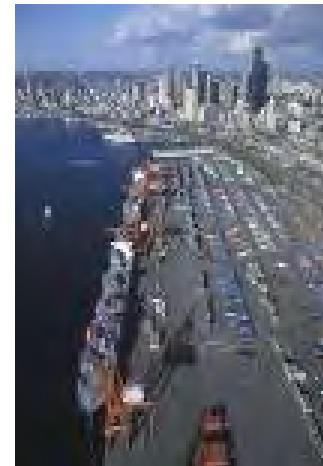
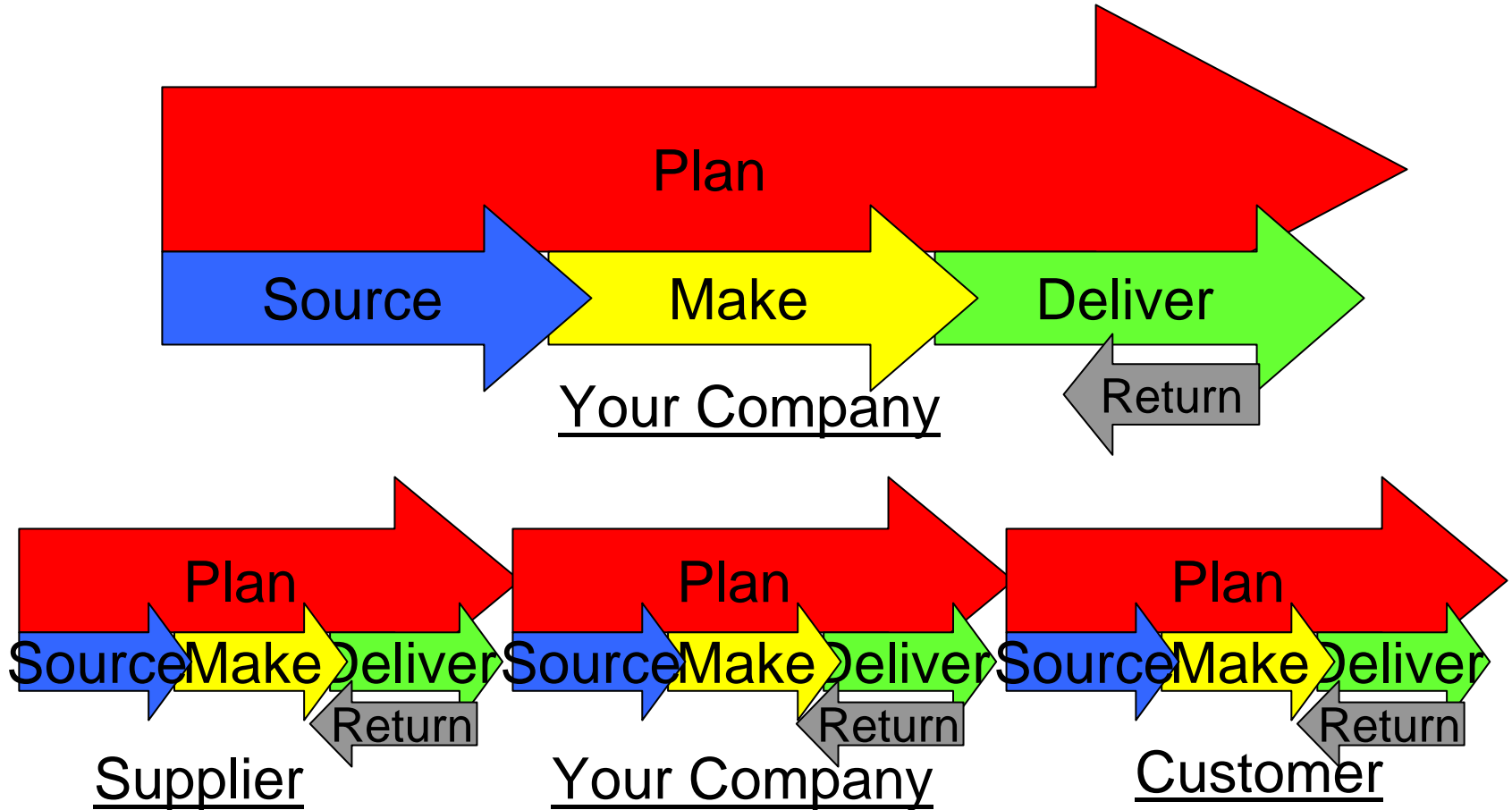


Photo Source: Google

**The Key is Figuring Out the Best Way
That Participants and Processes
Should Work Together**

Sample Framework: SCOR Model Linking Processes and Participants



Source: Supply Chain Council

How Do You Apply These Principals to the Three Components of Washington State Freight Systems?

Three Components of Washington State's Freight System

I. Global Gateways

Int'l and National Trade Flows Through Washington

II. Made in Washington

Regional Economies Rely on the Freight System

III. Delivering Goods To You

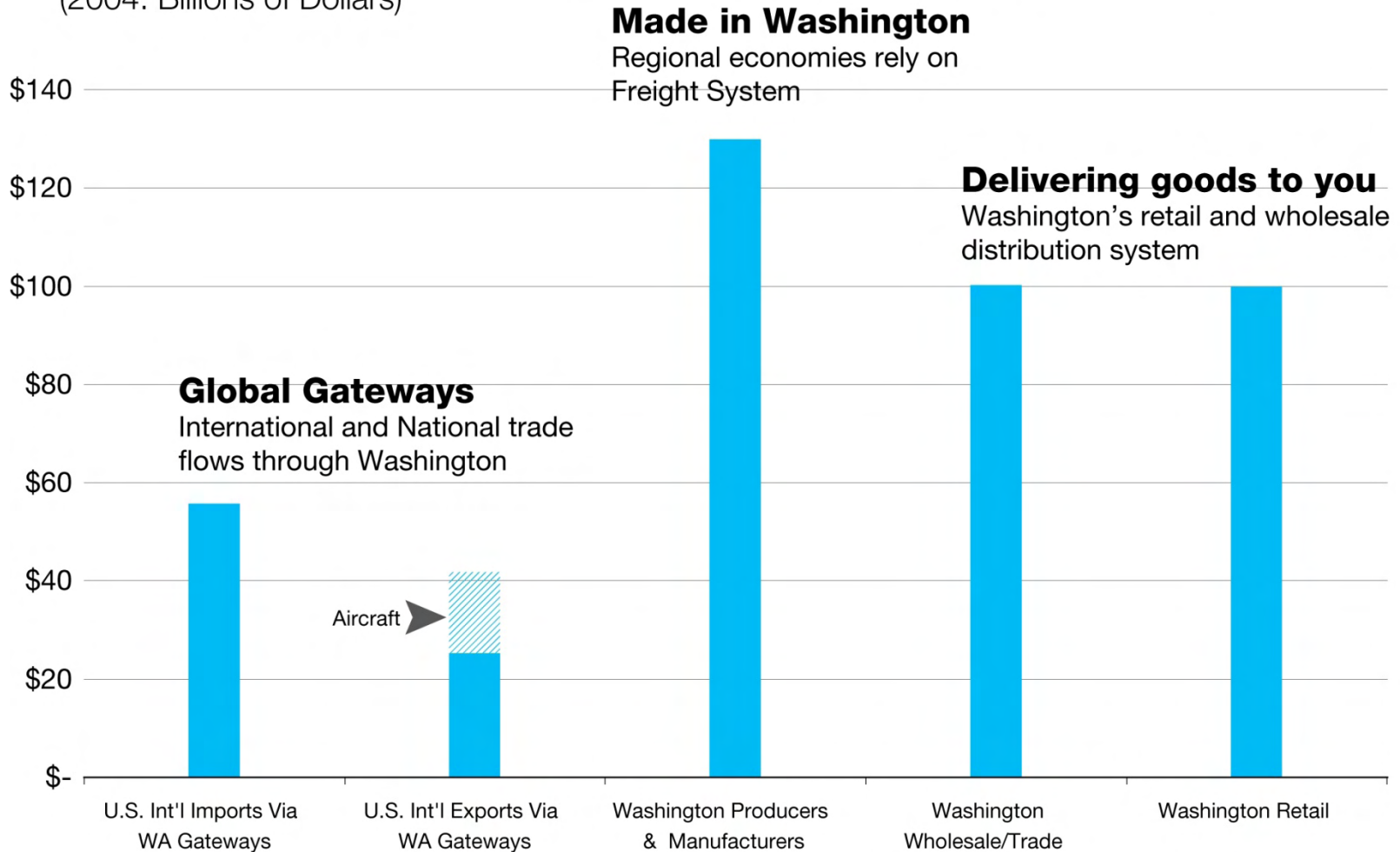
Washington's Retail and Wholesale Distribution System

What are some typical "freight customers" for each?

What is Being Shipped?

Washington State Value of Freight Shipments

(2004: Billions of Dollars)



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

Washington is a Global Gateway

Goal:

- Increase import/export volumes.

Requirements:

- Port infrastructure that pulls from other west coast port options.
- Access to ports with the least amount of delay.
- Highways that are not congested or restricted.
- Regulation and weigh stations that minimize delay.
- Rail access into and out of state.
- Available land and facilities to support operations.
- Northern border crossings that are not congested.

Made In Washington

Goal:

- Increase manufacturing and agricultural volumes and lower operating costs.

Requirements:

- Reliability and access throughout the road system.
- Rural roads that are all-weather accessible.
- Rail access into and out of the state.
- Inland waterways and ports to handle growing volumes.
- Low-cost freight options (rail, water).
- Regulations and weigh stations that minimize delay.

Delivering Goods To You

Goal:

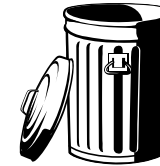
- Ease of local truck delivery.

Requirements:

- Reliability and access throughout the road system.
- Regulations and weigh stations that minimize delay.

Supply Chain Management Goals

1. WASTE ELIMINATION



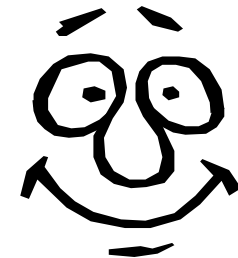
2. TIME COMPRESSION



3. FLEXIBLE RESPONSE



4. CUSTOMER SATISFACTION =
REVENUE GROWTH



5. UNIT COST REDUCTION



Which is the most important?

Which SCM Goal Does Each of These Companies Rank as #1?

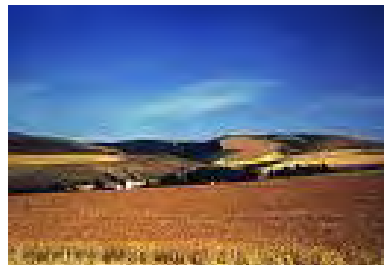
I. Global Gateways



Gap Inc.

Gap
Banana Republic
Old Navy
FORTH & TOWNE

II. Made in Washington

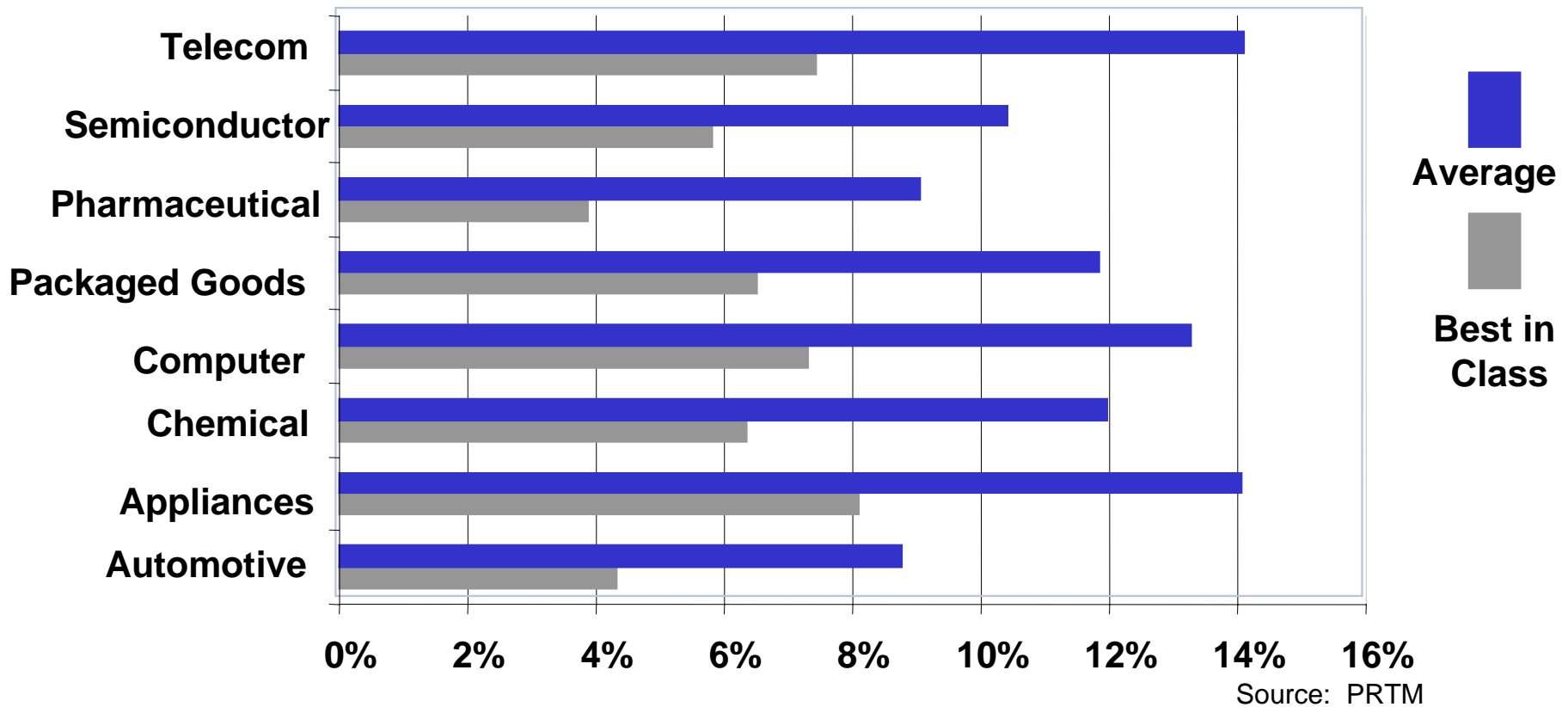


III. Delivering Goods To You



Companies Who Manage Total Supply Chain Costs Well Have a Real Advantage

Percentage of Company Revenue Spent on Supply-Chain Activities



Efficient Supply Chains Increase Profit

Thank You!

Kate Vitasek
Managing Partner, Supply Chain Visions
Faculty, University of Tennessee

kate@scvisions.com

www.scvisions.com

Developing Washington State's Strategic Plan for Freight Systems

Barbara Ivanov
Director
Freight Systems Division

**WSDOT Transportation Planning Conference
November 16, 2007**



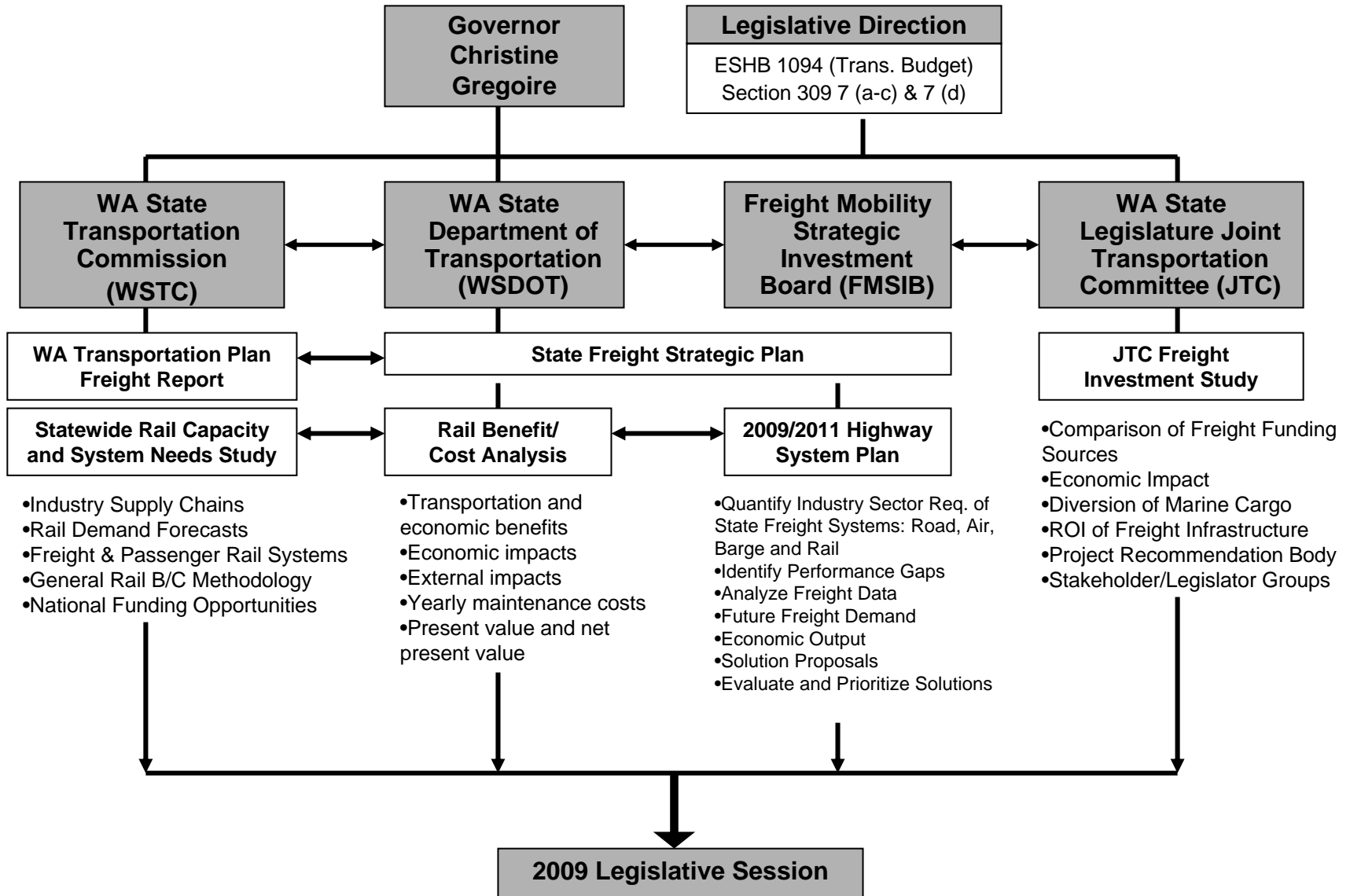
**Washington State
Department of Transportation**

Why Does Washington State Need a Strategic Plan for Freight Systems?

- **There are investment constraints: political, financial and 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



Washington State Freight Strategic Plan

Highway Strategic Planning Timeline

2007 Transportation Budget Section 309 7(d) states that: “The department (WSDOT) and the freight mobility strategic investment board (FMSIB) shall submit a report to the office of financial management and the transportation committees of the legislature by September 1, 2008, listing proposed freight highway and rail projects. The report must describe the analysis used for selecting such projects...”



JUNE 2008

WSDOT Freight Systems Division identifies current freight system deficits and determines future demand.

WSDOT Regions develop highway solution proposals for consideration.

AUGUST 2008

WSDOT executive team, working with OFM, sends 2009/11 Highway System Plan proposals to the Governor's Office.

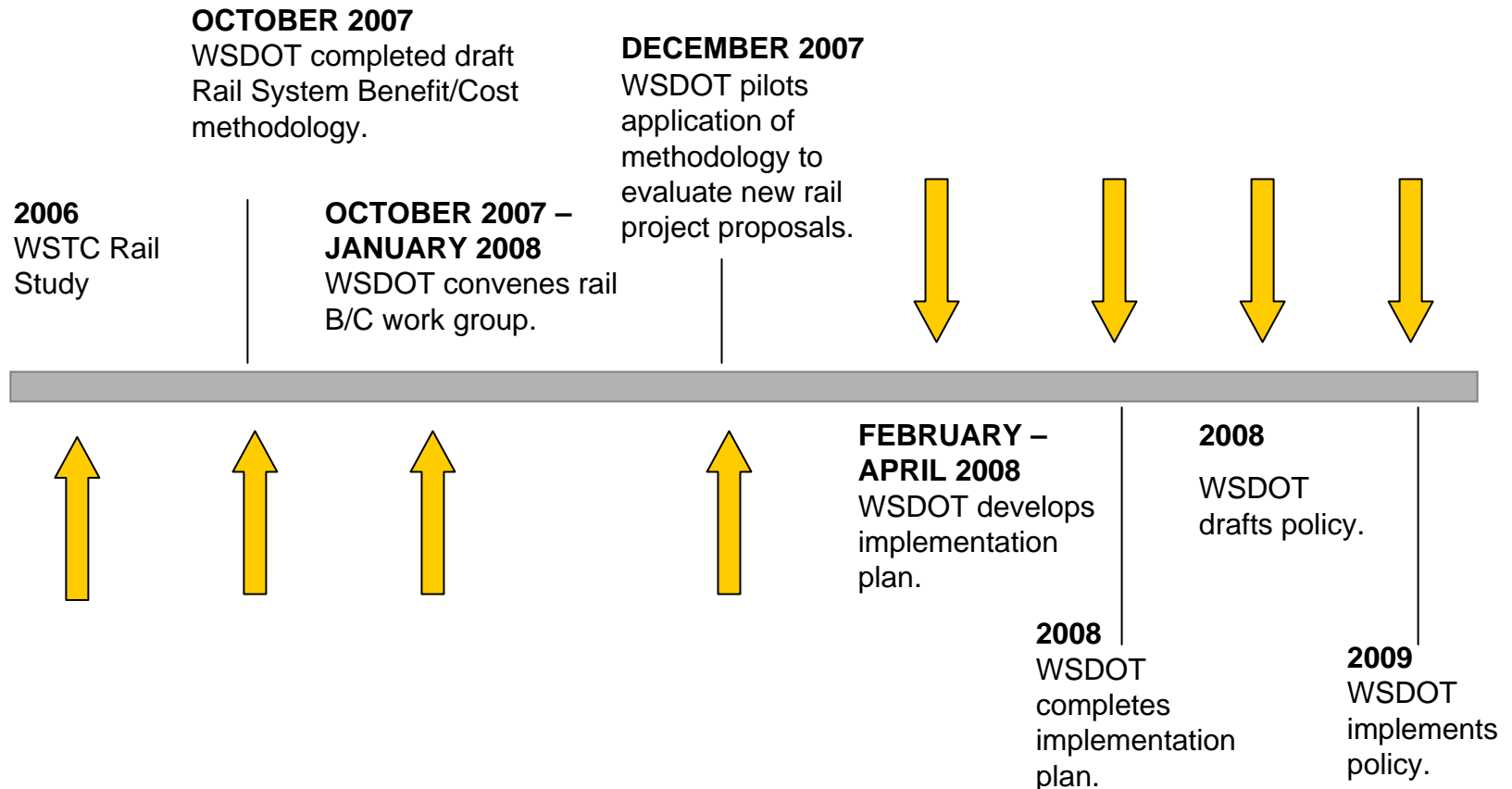
SEPTEMBER 2008

Joint WSDOT and FMSIB report describing analytic method and listing proposed freight highway and rail projects to OFM & Transportation Committees.

Washington State Freight Strategic Plan

Freight Rail Cost/Benefit Analysis Timeline

2007 Transportation Budget Section 309 7(a)-7(c) states that: “The department (WSDOT) shall develop a standardized format for submitting requests for state funding for rail projects that includes an explanation of the analysis undertaken, and conclusions derived from the analysis.”



Next steps.....

For more information:

For a full copy of the WTP Freight Report:

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