

2014

Washington State Freight Mobility Plan



Barbara Ivanov
Director, Freight Systems Division

**Washington Transportation
Commission**

July 16, 2014

Washington State Freight Mobility Plan

Guided by three 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 with intermodal freight corridors serving trade and international and interstate commerce, and the state and national Export Initiatives.



Rural economies' farm-to-market, manufacturing and resource industry sectors.

Truck Freight Economic Corridors



March 2013

LEGEND

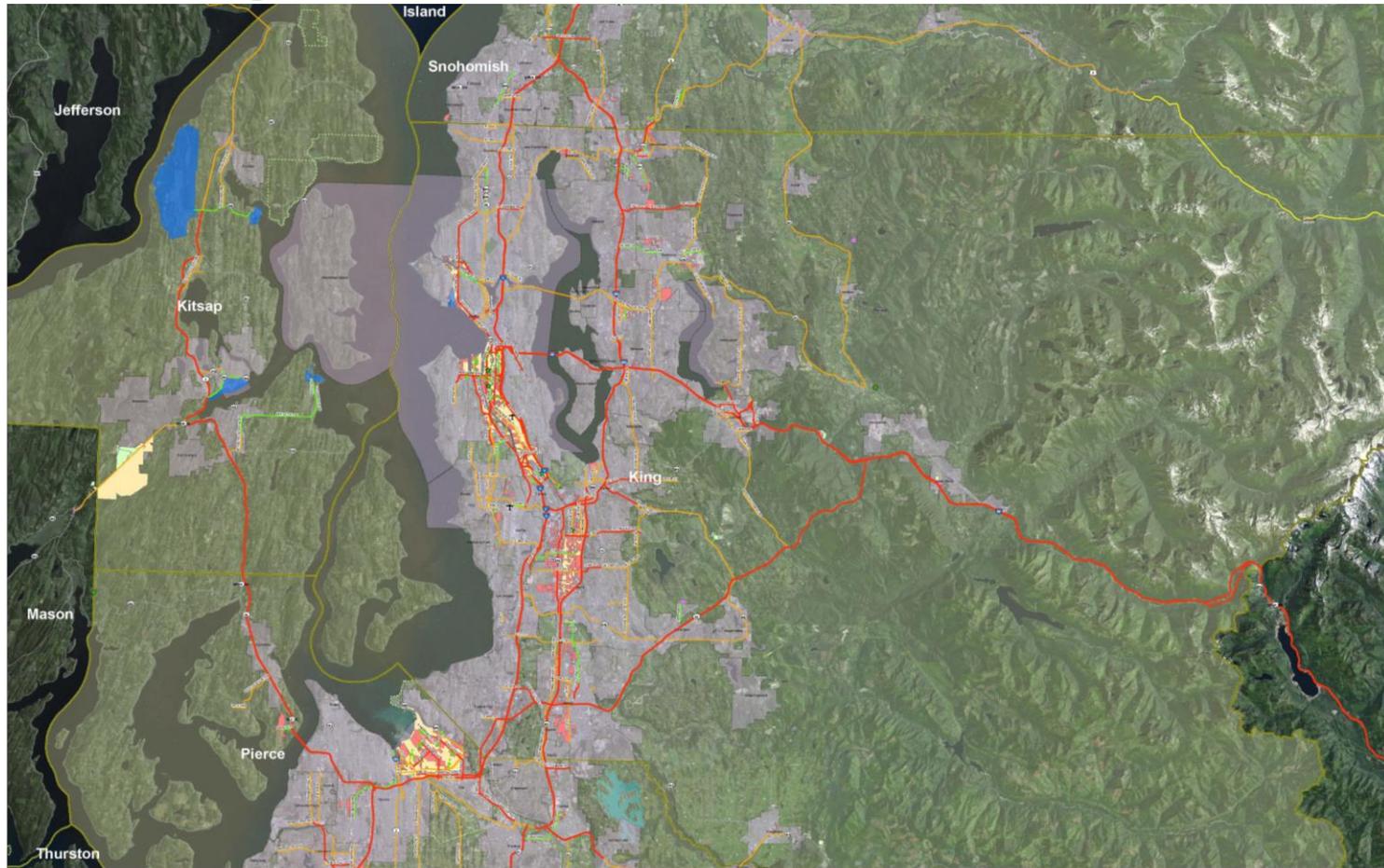
- **T1 Truck Freight Economic Corridors:** Freight corridors carrying more than 10 million tons per year.
- **T2 Truck Freight Economic Corridors:** Freight corridors carrying 4 million to 10 million tons per year. Also includes corridors serving as alternatives to primary freight routes (US 2, US 12, SR 7, SR 14).
- Major marine port** **Major air cargo airport** **Other state roads** **County line**

Source: 2011 Freight and Goods Transportation System.

Truck Freight Economic Corridor and First/Last Mile Connector Route Criteria

1. T-1 freight corridors that carry more than 10 million tons per year
2. T-2 freight corridors that carry 4 to 10 million tons per year
3. Alternative freight routes that serve as alternatives to T-1 truck routes that experience severe-weather closures, and carry 300,000 to four million tons per year
4. First/last mile connector routes between freight-intensive land uses and T-1 and T-2 freight corridors. These criteria were used to identify the connector routes:
 - Statewide:
 - To-and-from T-1 and T-2 truck routes and strategic U.S. defense facilities
 - Over-dimensional truck freight routes that connect the state's significant intermodal facilities to the T-1 and T-2 highway system
 - In urban areas:
 - To-and-from the Interstate system and the (1) closest major airport with air freight service, (2) marine terminals, ports, barge loaders and other intermodal facilities, and (3) warehouse/industrial lands
 - From high-volume urban freight intermodal facilities to other urban intermodal facilities, e.g. from the Port of Seattle to the BNSF rail yard in Seattle
 - In rural areas:
 - To-and-from state freight hubs located within five miles of T-1 and T-2 highways; freight hubs are defined as: (1) agricultural processing centers, (2) distribution centers, (3) intermodal facilities, and (4) industrial/commercial zoned land
 - Routes that carry one million tons during three months of the year (reflecting seasonality) of agricultural, timber or other resource industry sector goods

One Example of a First/Last Mile Connector Route Map: PSRC – King and Kitsap Counties



- Legend**
- Intermodal Facilities**
 - Major Air Cargo Airports
 - Rail Intermodal Terminals
 - Waterfront Terminals
 - Water Port Terminals
 - Freight Economic Corridors**
 - T1 Corridors
 - T2 Corridors
 - Alternative Freight Routes
 - First/Last Mile Connector Routes to T1/T2 Corridors
 - Agricultural Processing Facilities of WA's top 4 agricultural products by value**
 - Apple Packing Plant
 - Beef Plant
 - Dairy Plant
 - Poultry Processing Facility
 - Industrial/Commercial Zoned Land
 - Industrial Zoned Land in Urban Area
 - Commercial Zoned Land within 5 miles of T1 and T2 Highways in Rural Area
 - Industrial Zoned Land within 5 miles of T1 and T2 Highways in Rural Area
 - PSRC Manufacturing and Industrial Center
 - Agricultural Processing Facility Clusters**
 - < 2
 - 2-3
 - 3-4
 - 4-5
 - 5-6
 - 6-7
 - 7-8
 - 8-9
 - City Limits**
 - Military Installations**
 - County Boundary**
 - MARSHFIELD Boundary**
 - Indian Reservations**

**Truck Freight Economic Corridors
in Puget Sound Regional Council (RTPO)
- King County and Kitsap County**



Note: Agricultural processing facility cluster shows facility density and miles indicates number of facilities within 2-mile radius.

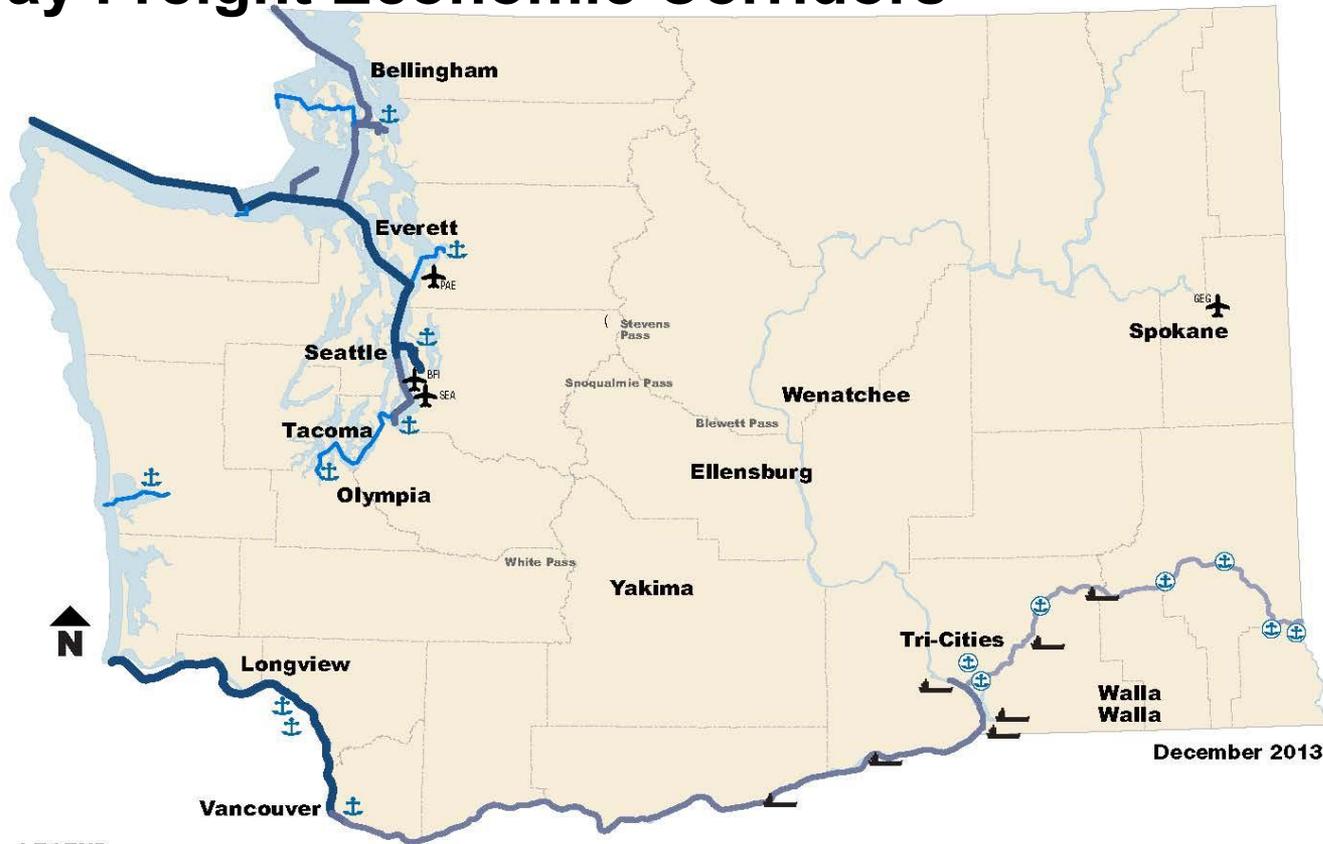
Rail Freight Economic Corridors



March 2013

Source: WSDOT Freight Systems Division – 2012 Freight Rail Data.

Waterway Freight Economic Corridors



December 2013

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Waterway economic corridors:

- W1 - Greater than 25 million tons
- W2 - 10 million to 25 million tons
- W3 - 5 million to 10 million tons
- W4 - 2.5 million to 5 million tons
- W5 - 0.9 million to 2.5 million tons

- County line
- Major air cargo airport
- Major marine port
- Barge ports
- Barge intermodal facility (non-port)

Source: US Army Corps of Engineers, Navigation Data Center – 2011 Waterway Commodity Data.

Truck Freight Performance Measures

The Washington State Department of Transportation (WSDOT) will use six measures to track the performance of the Truck Freight Economic Corridors.

Reducing:

1. Truck travel time
2. Direct truck operating costs
3. Truck engine emissions

Improving:

4. Economic output
5. Network resiliency
6. Reliability

WSDOT organized and supported three Technical Teams focused on Urban Goods Movement, Rural Economies, and the state's Global Gateways to identify and prioritize the state's truck freight performance goals.

They determined that these six performance goals are strongly aligned with both state and federal freight policies, and are the most important to freight system customers in Washington State.

Truck Freight Bottleneck Categories

Slow Speed

- More than 50 percent of sampled trucks are traveling below 60 percent of the posted speed (35 mph on urban freeways)

Reliability

- 80th percentile

Resiliency

- Disruptions caused by severe weather, natural disasters (earthquakes), or other causes
- Minimum average of at least 5,000 trucks per day on the freight corridor
- Truck corridor has had at least one full closure lasting longer than 24 hours in a rolling 20-year period

Restricted Access for Legal Loads

- Facility has a posted weight limit below the legal gross vehicle weight of 105,500 pounds or the facility has a posted height limit below 14 feet, the legal height limit for trucks

Clearance restriction for over-height loads

- Facility has a height clearance less than 17 feet

Implications for Freight

- Travel time increases
- Travel times are hard to estimate, leading to poor on-time performance
- Facility failure causes large statewide economic impacts for shippers, goods receivers, and carriers
- Legal truck loads cannot travel on the state truck freight economic corridors
- Over-height loads have to take detour routes adding too many additional miles to the trip

Freight Rail Challenges

Rail System Capacity

- Future growth could overwhelm rail system capacity

Community Impact

- Increased delays at highway-rail grade crossings and increased noise through communities

Maintenance of Short-line Railroads

- Challenge of deferred maintenance and modernization

Freight Waterway Challenges

Maintenance of Navigation Channel Depth

- High sustained river flows made maintaining Columbia River navigation channel depth a challenge

Lack of Columbia River Anchorages

Implications for Freight

- Could not meet future freight rail demands
- Negatively affect traffic congestion and safety at at-grade crossings
- Could not attract new businesses or encourage past shippers to return to rail transportation
- Unable to meet future navigation needs for large ships
- Unable to meet increased need for safe places to anchor ships

Preservation is the Greatest Need



Over 3,700 highway lane miles are due or past due for preservation projects, but WSDOT will only be able to repave about 1,100 in 2013-15. There are nearly 3,800 state owned bridges; without new revenue 71 steel bridges could become structurally deficient due to lack of painting in the next ten years.

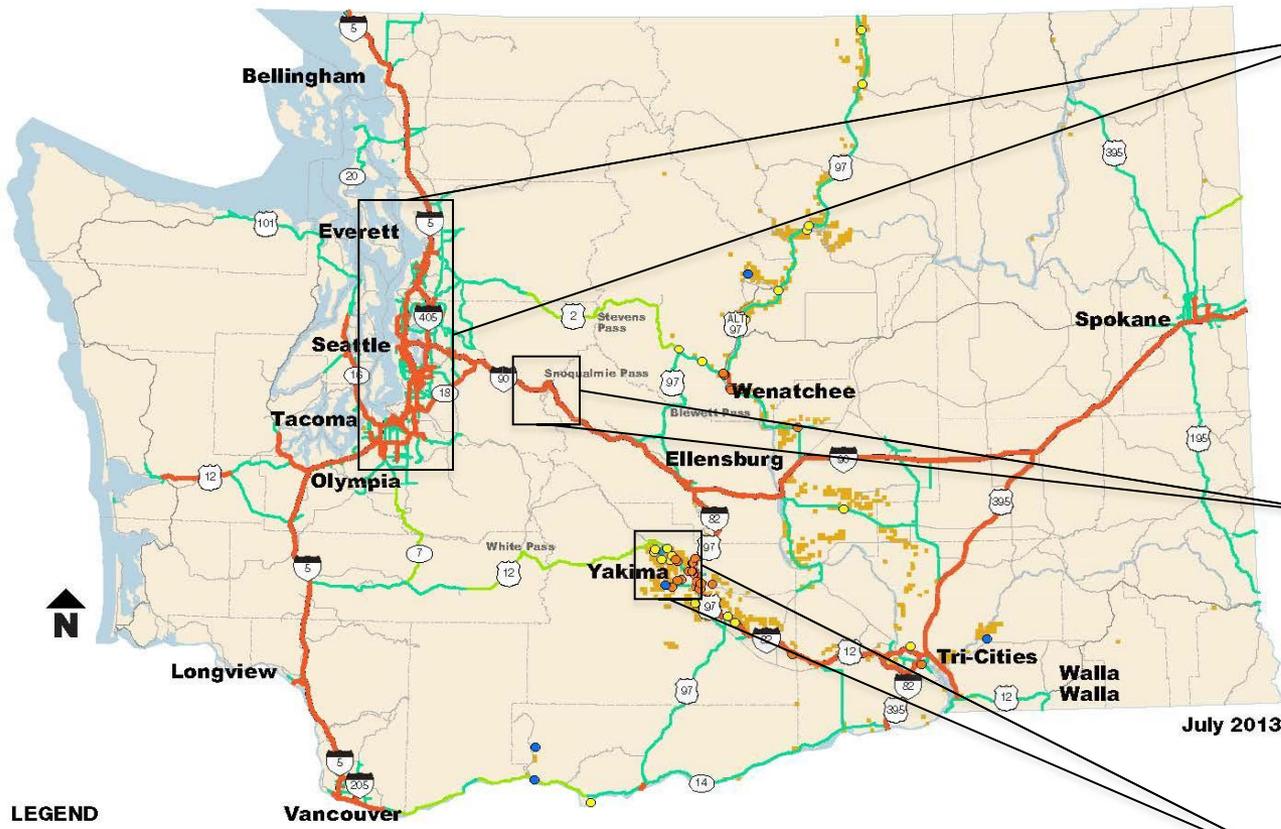


There is a need to preserve critical freight-intensive land uses at both marine and air cargo ports, and in the state's major warehouse district in the Green River Valley.



Deferral of freight rail maintenance can lead to equipment and track deterioration that requires substantial investment to repair. Short-line operators named bridge repairs as one of their highest priorities.

Apple Supply Chain: Example Freight Mobility Improvements



I-5 Tacoma to Everett mobility improvements
Multiple improvements to I-5.

I-90 Snoqualmie Pass--widen to Easton
Widening and interchange improvements.

US 12/Old Naches Highway
New interchange to improve mobility and safety.

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Apple Packing Facilities

- In Urban Area
- In Rural Area: within 5 mile radius of T1/T2 highways
- In Rural Area: outside 5 mile radius of T1/T2 highways

■ Apple Orchard

Freight Economic Corridors

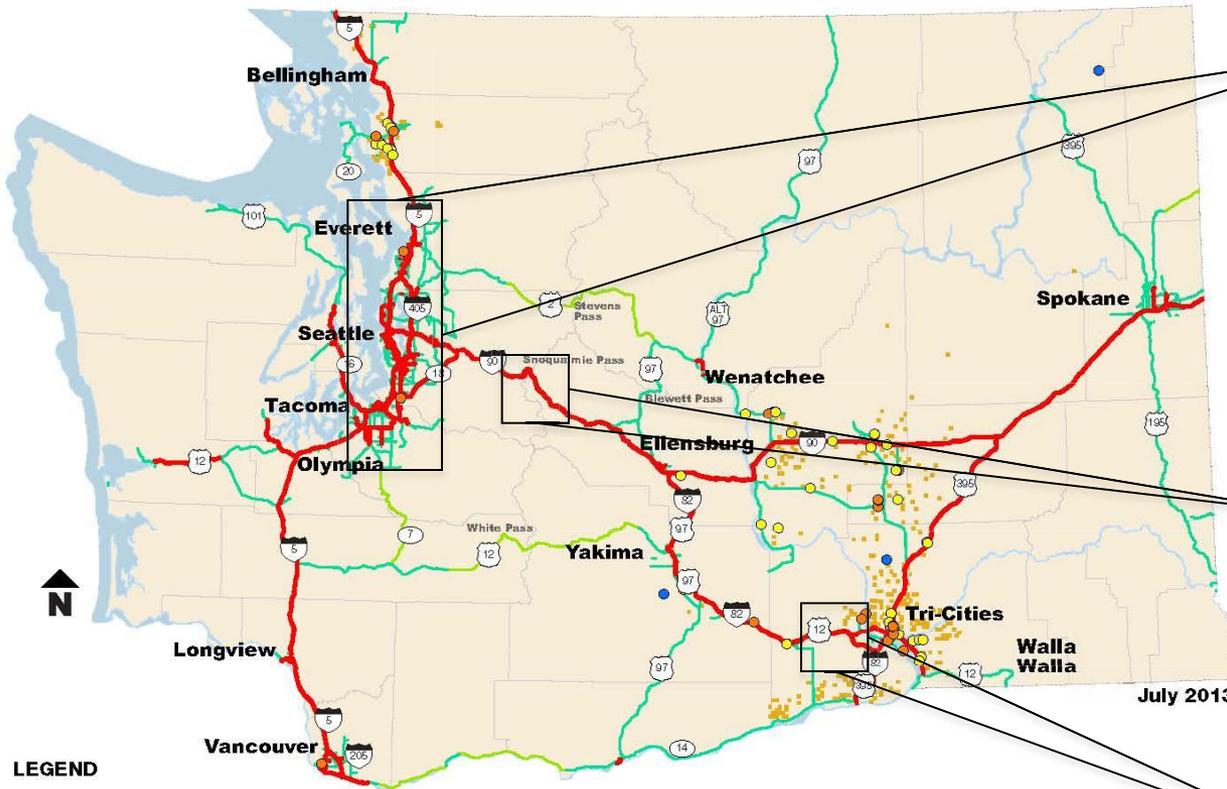
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- T2 Truck Freight Economic Corridors: Freight corridors carrying 4 million to 10 million tons per year.
- Alternative Freight Economic Corridors: Corridors carrying 600,000 to 4 million tons per year and serve as alternatives to T1 freight routes

Source: Washington State Apple Commission; Washington State Freight and Goods Transportation System

¹ Tonnage is the gross truck weight moved by the corridors, not tied to specific commodities.

Apples are a \$1.83 billion industry in Washington State

Potato Supply Chain: Example Freight Mobility Improvements



LEGEND

Potato Processing/Packing Facilities

- In Urban Area¹
- In Rural Area: within 5 mile radius of T1/T2 highways
- In Rural Area: outside 5 mile radius of T1/T2 highways

■ Potato Field

Freight Economic Corridors

- T1 Truck Freight Economic Corridors: Freight corridors carrying more than 10 million tons per year²
- T2 Truck Freight Economic Corridors: Freight corridors carrying 4 million to 10 million tons per year.
- Alternative Freight Economic Corridors: Corridors carrying 600,000 to 4 million tons per year and serve as alternatives to T1 freight routes

I-5 Tacoma to Everett mobility improvements
Multiple improvements to I-5.

I-90 Snoqualmie Pass--widen to Easton
Widening and interchange improvements.

I-82 West Richland - Red Mountain interchange
Multi-phase improvements to Improve intersection safety and access.

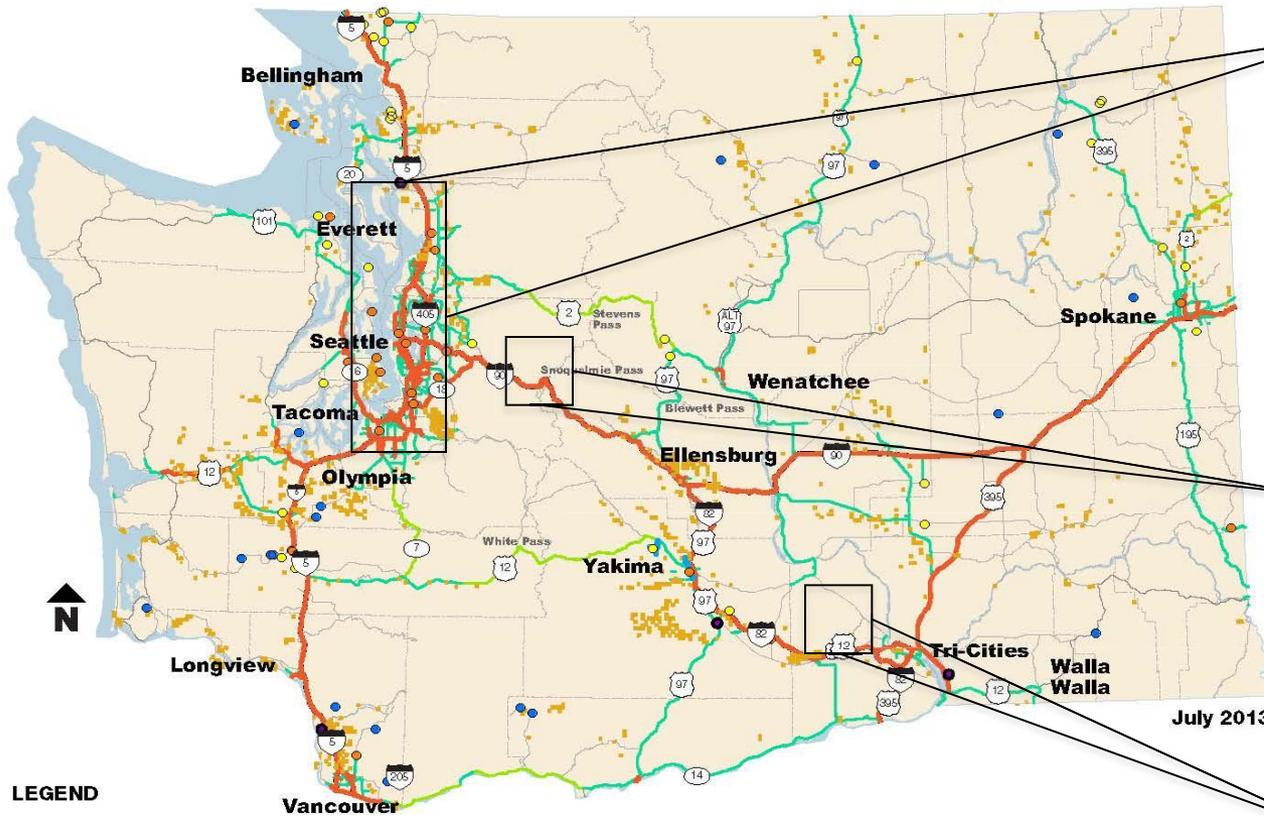
Source: Washington State Potato Commission; Washington State Freight and Goods Transportation System 2011 Update

¹ The term 'urban area' means the highway urban and urbanized areas defined by FHWA after each decennial US Census. It includes all areas with 50,000 or more people by the Census bureau, and urban areas of 5,000 through 49,999 people, using city limits or Census Designated Place boundaries with some adjustments.

² Tonnage is the gross truck weight moved by the corridors, not tied to specific commodities.

Potatoes are a \$771 million industry in Washington State

Milk Supply Chain: Example Freight Mobility Improvements



I-5 Tacoma to Everett mobility improvements
Multiple improvements to I-5.

I-90 Snoqualmie Pass--widen to Easton
Widening and interchange improvements.

I-82 West Richland - Red Mountain interchange
Multi-phase improvements to Improve intersection safety and access.

LEGEND

Dairy Plants

- In Urban Area
- In Rural Area: within 5 mile radius of T1/T2 highways
- In Rural Area: outside 5 mile radius of T1/T2 highways

Beef Packing/Processing Facilities

- In Rural Area: within 5 mile radius of T1/T2 highways
- Pasture

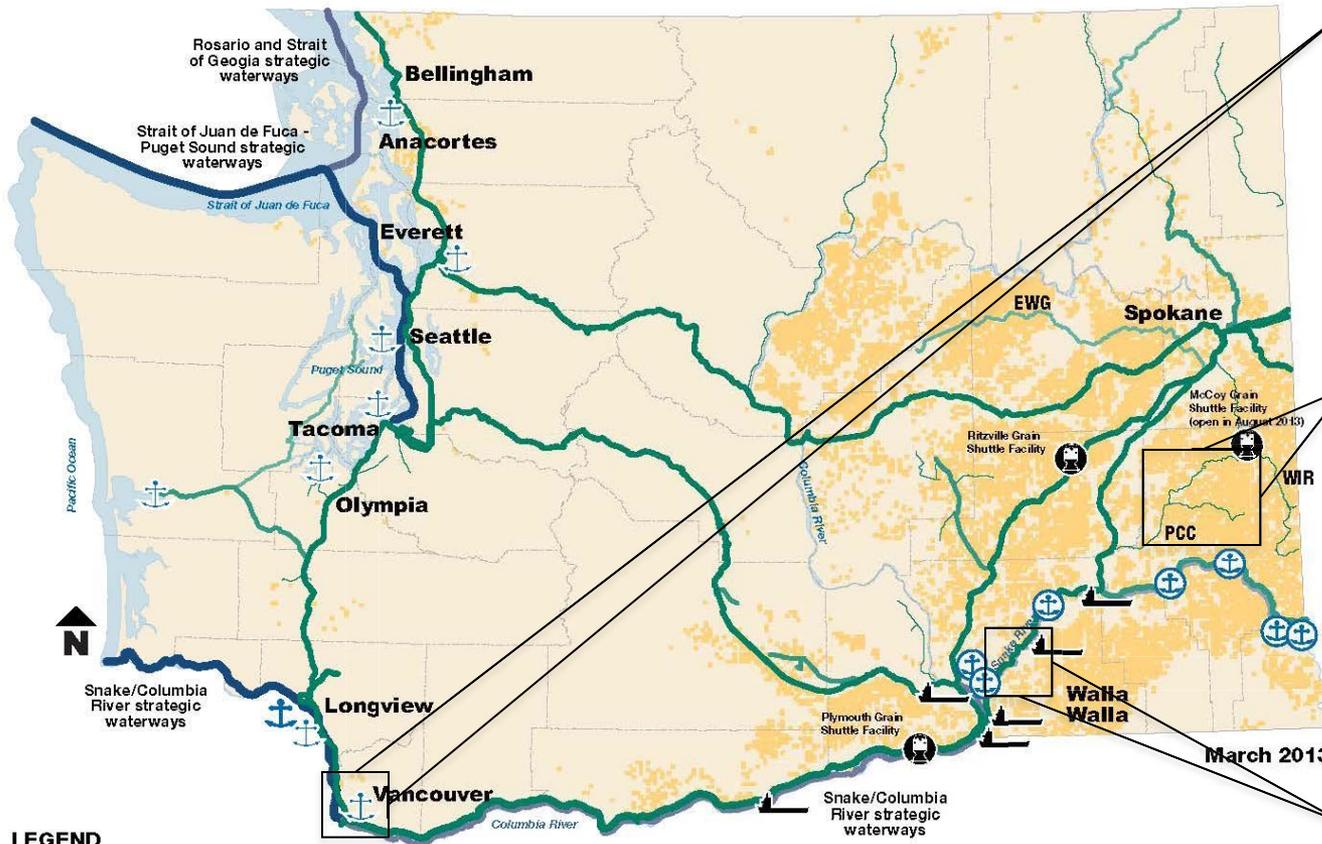
Freight Economic Corridors

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Source: Washington State Department of Agriculture; Washington State Freight Goods Transportation System

Milk is a \$1.28 billion industry in Washington State

Wheat Supply Chain: Example Freight Mobility Improvements



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Economic rail corridors:

- R1 - Greater than 25 million tons
- R2 - 1 million to 5 million tons
- R3 - 5 hundred thousand to 1 million tons
- R4 - 1 hundred thousand to 5 hundred thousand tons

Economic waterway corridors:

- W1 - Greater than 25 million tons
- W2 - 10 million to 25 million tons
- W3 - 5 million to 10 million tons
- W4 - 2.5 million to 5 million tons

- Major marine port
- Barge ports
- Grain Shuttle facilities
- Barge intermodal facility (non-port)
- Cereal Grain Production Field
- County line

Source: WSDOT Freight System Division – 2012 Freight Rail Data.

West Vancouver Freight Access

New freight rail entrance to the Port of Vancouver from the mainline and internal rail track storage to accommodate unit trains.

PCC Freight Rail Preservation

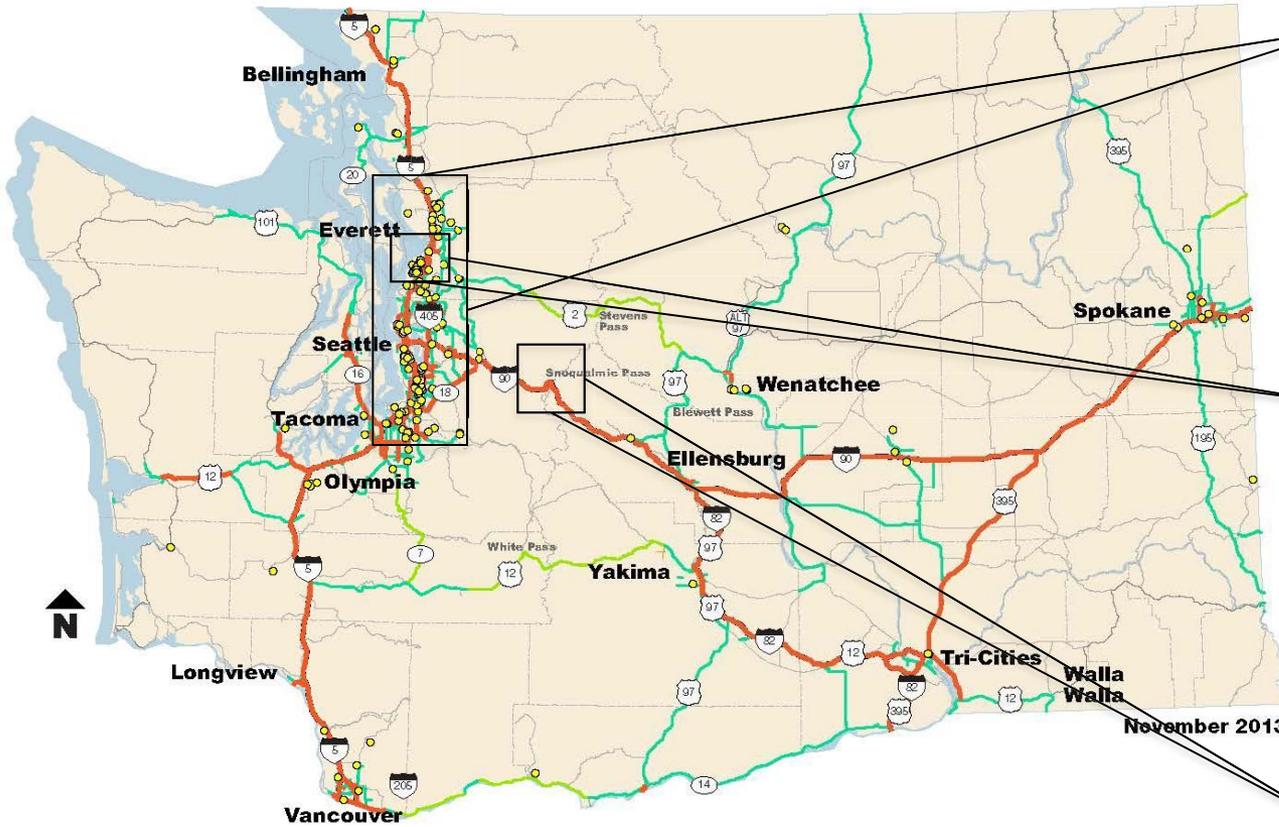
Multiple preservation and rehabilitation projects.

Ice Harbor Lock & Dam

Lock and dam maintenance project.

Wheat is a \$1.14 billion industry in Washington State

Aerospace Supply Chain: Example Freight Mobility Improvements



I-5 Tacoma to Everett mobility improvements
Multiple improvements to I-5.

Phase I -Re-designation of SR 529 & Improvements
Access improvements from Port of Everett to I-5 and intersection improvements to better accommodate over-dimensional freight traffic.

I-90 Snoqualmie Pass--widen to Easton
Widening and interchange improvements.

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● Aerospace Product and Parts Manufacturing Business Locations

Freight Economic Corridors

— T1 Truck Freight Economic Corridors: Freight corridors carrying more than 10 million tons per year

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— Alternative Freight Economic Corridors: Corridors carrying 600,000 to 4 million tons per year and serve as alternatives to T1 freight routes

Source: Washington State Department of Revenue; Washington State Freight and Goods Transportation System

Aerospace products and parts are a \$52.2 billion industry in Washington State

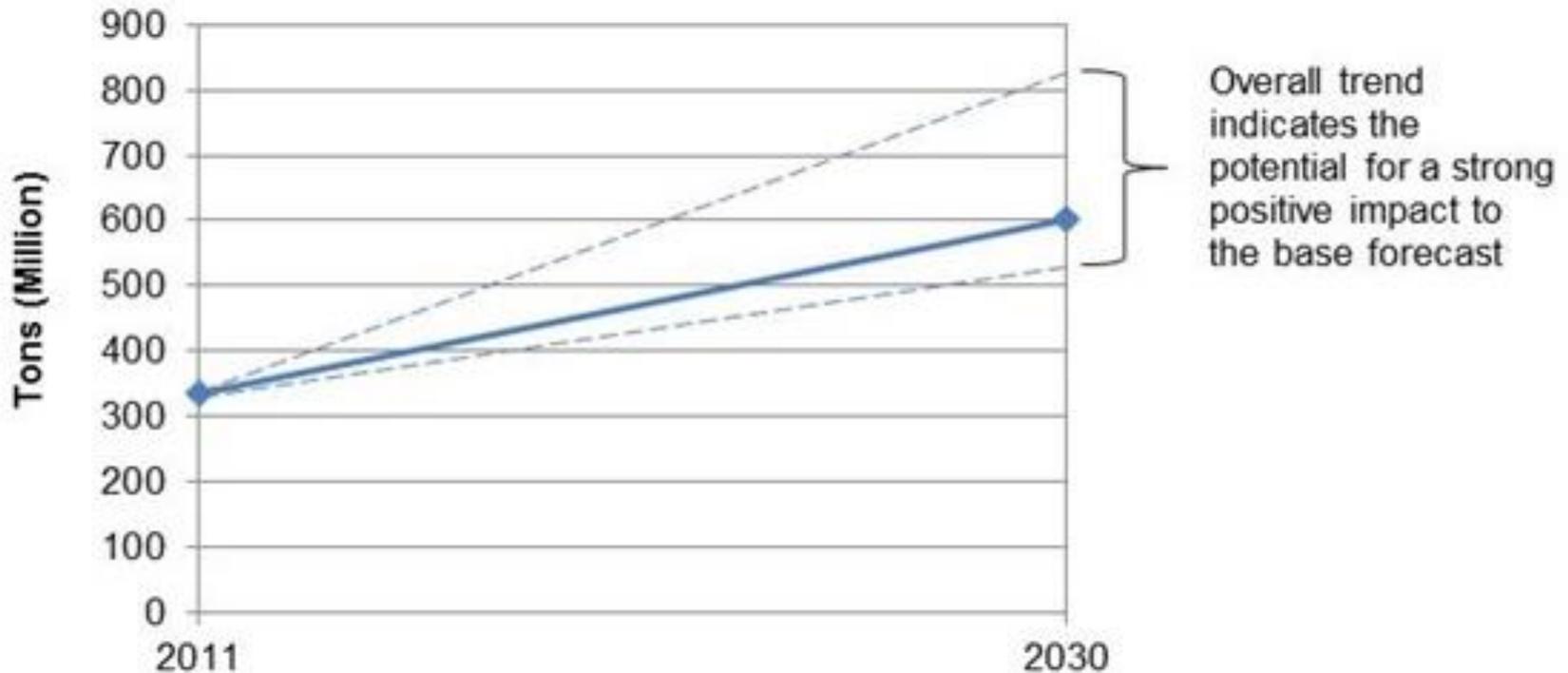
Washington State is Growing

By 2030 the central Puget Sound region alone will add another 760,000 residents. Clark County is expected to add over 110,000 and Spokane over 87,000 residents by 2030.

- Washington's population was 6.7 million in 2010 and is expected to climb to over 8.1 million by 2030 according to the Washington State Office of Financial Management.
- As population rises, there will be more pressure on the public and private sectors to lower freight emissions near workers and residents.
- Business growth will drive demand to move goods at the right cost and right time on the state's freight economic corridors.

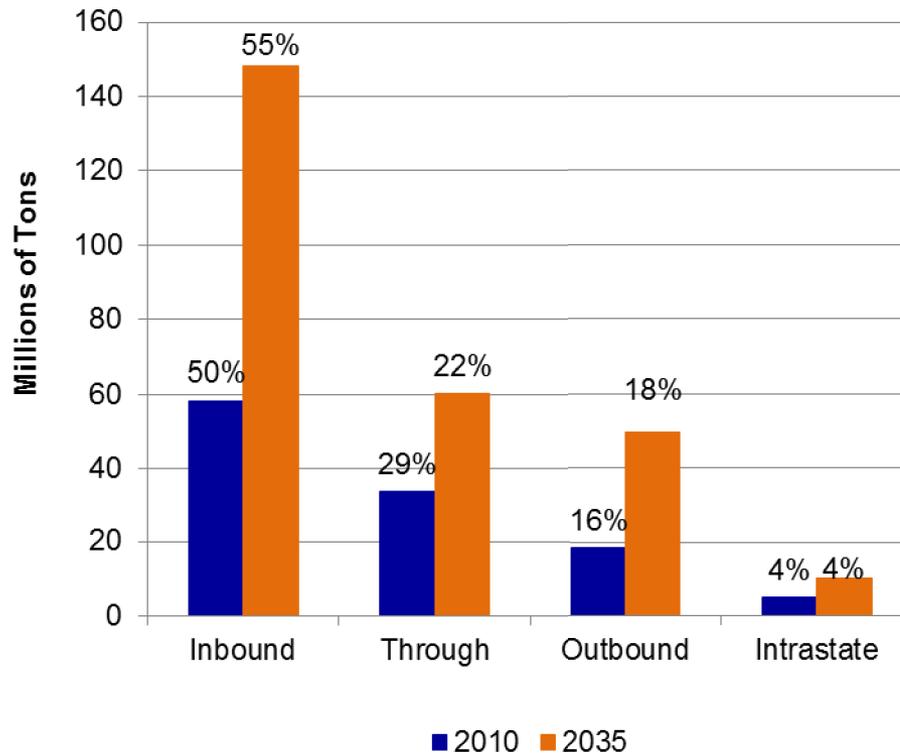
Truck Freight Growth Through 2030

Base Truck Forecast with Trend Analysis Applied



Rail Freight Growth Through 2035

Rail Volumes by Direction of Travel 2010 to 2035



We can meet the challenge together...

- The Washington State Freight Plan addresses the period from 2014 to 2030 and contains both near- and long-term policy, operational and project investment strategies.
- The Freight Plan is multimodal, and incorporates freight rail recommendations from the State Rail Plan.
- Policy recommendations came from WSDOT, the Washington State Freight Advisory Committee, and discussions with other freight stakeholders.
- The WSDOT recommendations on State Truck and Freight Rail Economic Corridors are drawn from the WSDOT 2013 Unfunded System Investments list found at <http://www.wsdot.wa.gov/Funding/SystemInvestments.htm>. WSDOT's recommended freight highway project list may be subject to revision as the department is currently undertaking a rigorous practical design process to continue to seek the lowest-cost and highest-value solutions for freight and passenger needs on the highway system.
- Project recommendations on the State Waterway Freight Economic Corridors are based on information provided by the Pacific Northwest Waterways Association and state ports.
- WSDOT and FMSIB joined together to gather regional and local freight project recommendations from MPOs, RTPOs, Ports and Tribes, as a first step towards a unified State Freight Mobility Plan.

We're very interested in your feedback and questions.

For more information, please contact:

Barbara Ivanov, Director

WSDOT Freight Systems Division

ivanovb@wsdot.wa.gov

Washington State Freight Mobility Plan is available here:

<http://www.wsdot.wa.gov/Freight/freightmobilityplan>

Please send comments to Freight@wsdot.wa.gov

by 5:00 pm on August 8, 2014