The Impact of Truck Congestion on Washington State's Economy

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Questions Framing This Study

- **Why** does congestion matter to the State's economy?
  - Congestion causes business transportation costs to increase – costs that change how businesses operate or are passed on to consumers.
- **What** causes congestion?
  - Many factors, including: traffic demand that exceeds system capacity, geometric considerations, or ill-timed traffic control systems.
- **What** will WSDOT do with this study?
  - Help to prioritize public investments in a manner that maximizes the economic development potential of freight industries.

Key Findings

What Would Happen to Freight Industries if Congestion Increased 20 Percent?

- The survey found that a 20 percent increase in congestion on highways and interstates would translate into significant direct business cost increases, from items including:
  - Increased fuel consumption,
  - Labor costs for truck drivers, warehouse operators, etc.,
  - New equipment (such as new trucks), and
  - Costs to hold additional inventory.
- Industries would respond to rising costs in different ways:
  - 56 percent: pass the costs to consumers
  - 19 percent: absorb the costs
  - 16 percent: change operations or routing
  - 6 percent: forced to close business
  - 3 percent: move to a different location

20 percent increased congestion would result in $14 billion (in 2011 dollars) of additional costs to Washington State freight industries

Key Findings

Impacts Accrue to Industries in Different Ways

- Assuming that consumers spend the same on goods, and cut back in other categories:
  - Some industries will suffer from reduced consumer spending.
  - Others will spend more on fuel, equipment, and additional staff – resulting in positive economic gains in employment and local revenue.

These industries will incur additional expenditures (Positive impacts) in order to combat congestion:

- Transportation & information
- Administrative services
- Retail trade
- Wholesale trade
- Government
- Manufacturing
- Management of companies
- Mining

These industries will suffer from reduced expenditures (Negative impacts):

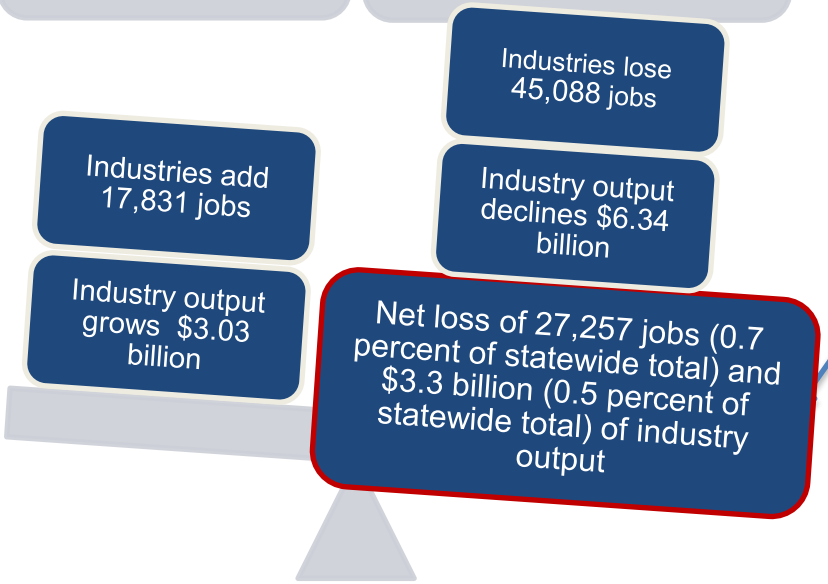
- Health & social services
- Real estate & rental
- Finance & insurance
- Accommodation & food
- Arts & entertainment
- Construction & utilities
- Professional & scientific
- Educational services
- Ag, forestry, and fishing

Key Findings

Net Impacts to Washington are Negative

Positive Economic Impacts: Industries add employees and assets to combat congestion

Negative Economic Impacts: Costs to consumers rise and lead to decreased spending on other industries



Overall results are a net loss:

- *27,257 jobs (0.7 percent of statewide total)*
- *$3.3 billion in industry output (0.5 percent of statewide total)*

Key Findings

Impacts Accrue to Regions Differently Than Statewide Totals

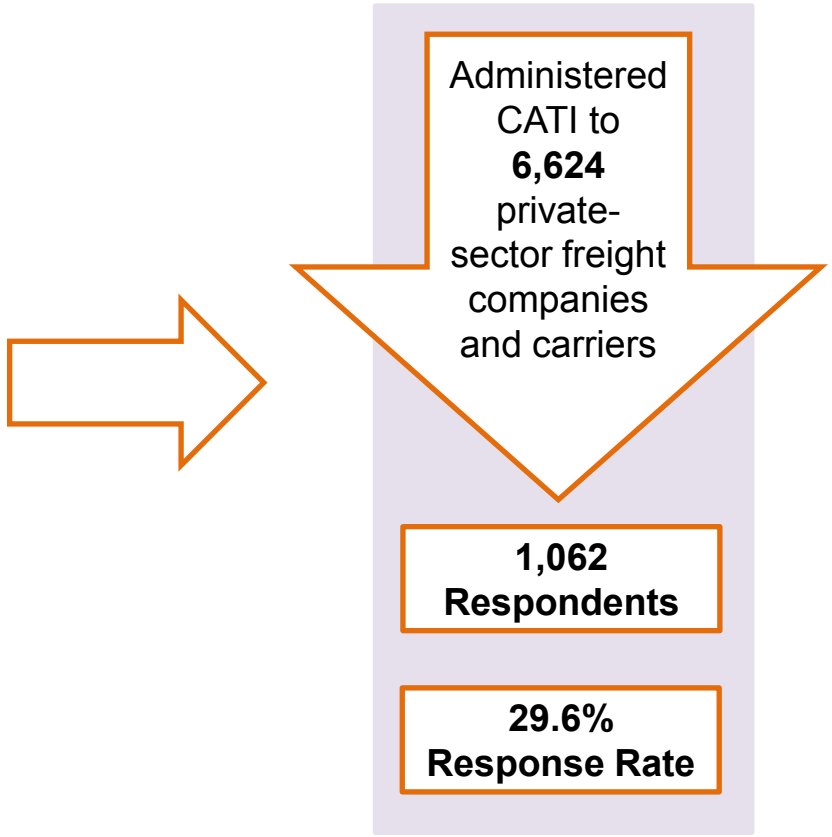
Region	Employment	Output ($millions)	Percentage of Regional Total	
			Employment	Output
Northwest	-1,786	-$162	-0.48%	-0.29%
Southwest	-1,622	-$266	-0.52%	-0.57%
Central Basin	-1,793	-$244	-0.47%	-0.54%
Northeast	-2,213	-$290	-0.77%	-0.80%
Southeast	-345	-$31	-0.31%	-0.21%
Central Puget Sound	-21,741	-$3,600	-0.90%	-0.82%
Statewide Total	**-29,500**	**-$4,600**	**-0.8%**	**-0.7%**

IMPLAN calculates different impacts for statewide vs. regional impacts. This is because of several factors:
- *Different economic multipliers at regional vs. statewide level,*
- *Geographic clustering of industries causes uneven distribution of impacts.*

Central Puget Sound Region suffers the largest impacts: 21,700 jobs (.9 percent of region's total employment) and $3.6 billion in lost output (.8 percent of the region's total output).

Methodology
Step 1: Survey of Freight Dependent Industries

- Computer Assisted Telephone Interview (CATI) developed, and targeted to:
  - Freight industries who own trucks, including: agribusiness, construction, global gateways (ports), food manufacturing, retail, trucking, warehousing, wholesale, and lumber.
- Questions included:
  - Geographic location (out of six regions),
  - Industry classification / activity,
  - Average hourly trucking and inventory carrying costs,
  - Strategies to combat congestion



Methodology

Step II: Economic Assessment – What is IMPLAN

- IMpacts of PLANning (IMPLAN) is an Input-Output based economic analysis tool
- Designed to estimate direct, indirect, and induced impacts
- Developed with national, publicly-available data sources
- Models estimate the full impacts from a change on industries, and ripple impacts to consumers and associated industries
- Widely used for transportation planning purposes

Direct impacts

A measure of how the local economy is affected by changes to the primary industries.

Indirect impacts

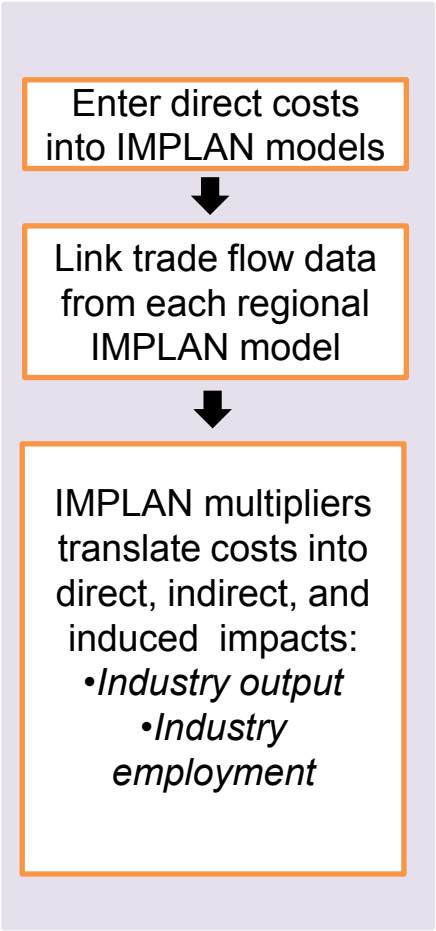
Changes that would occur to the industries that support the primary industries

Induced impacts

Quantify the economic changes that result from household incomes being altered in the direct and indirect phases

Methodology
Steps II and III: Economic Assessment

- Used survey data / assumptions as inputs to IMPLAN
  - Trucking costs
  - Inventory costs
  - Percent of costs that will be passed to consumers
- Ran IMPLAN model by industry and by geographic region
  - 6 Regional models
  - 1 Statewide (aggregated) model
- Direct, indirect, and induced impacts recorded
  - Jobs lost or gained
  - Output lost or gained



Lessons Learned and Recommendations

What Will Happened to Washington's Economy if Truck Congestion Increases by 20 Percent?

•20 percent increased congestion would raise the operating cost of key industries in the region by $14 billion dollars.

•60 percent of industries would pass on these costs to consumers in the form of higher costs.

•Consumers would be forced to spend more on goods, less on other services.

•Some industries would suffer, others would gain – however net impacts to Washington State are negative in terms of jobs and output.

When losses and gains are netted, Washington State's industries would lose 27,250 jobs (0.7 percent of statewide total) and $3.3 billion in economic output (0.5 percent of statewide total).

Lessons Learned and Recommendations

WSDOT Should Prioritize Projects To Improve Truck Efficiency

•The demonstrated economic link between truck congestion and the State's economy suggests WSDOT could prioritize investments to improve truck mobility.

•Consistent with *Moving Washington* and State Law (RCW 47.04.280: *Transportation System Policy Goals)*.

•Adding Capacity Strategically

•Managing Demand

•Operating Roadways Efficiently

Lessons Learned and Recommendations

Prioritizing Low-Cost Projects that Improve Truck Freight Efficiencies

- WSDOT should prioritize low-cost projects that improve truck freight efficiencies:
  - Traffic technologies such as ramp meters and other control strategies to improve traffic flow and reduce collisions,
  - Deploying Incident Response to quickly clear collisions,
  - Optimizing traffic signal timing to reduce delay, and
  - Implementing low-cost/high-value enhancements to address immediate needs.

Lessons Learned and Recommendations

WSDOT Should Prioritize Projects That Add Capacity Strategically and Manage System Demand

- WSDOT should prioritize projects that **add capacity in a cost-efficient manner:**
  - Targeting worst truck-specific hotspots
  - Filling critical system gaps
  - Fixing truck bottlenecks where they constrict flow

- WSDOT should prioritize projects that **manage transportation system demand** to the benefit of freight movement:
  - Variable-rate tolling to balance capacity of express / regular lanes
  - Improve the viability of alternate modes
  - Provide traveler information systems – ensure that passengers are moving efficiently through the system

Lessons Learned and Recommendations

Consider Regional Impacts when Making Investment Decisions

- The Puget Sound Region sees the highest net impacts from increased congestion.
  - 21,700 jobs (.9 percent of regional jobs)
  - $3.6 billion (.8 percent of regional output)

- Congestion also adds costs to goods made in rural areas.

- Investment into the Puget Sound Region could have positive benefits to rural regions as well.