

What's on our roadways?: Just Stop and Ask Them

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Motivation: Cost of Weather Induced Closures on Washington Roadways



Background: I-5 Closure

Chronology of Events

I-5 Closure: December 2007

- Dec. 3** 20-mile section of I-5 closed due to floodwaters
- Dec. 4** SR 7 & US 12 detours opened to trucks with emergency supplies and perishable loads on a case-by-case basis.
- Dec. 6** One lane opened in each direction to commercial freight vehicles.
11-mile section opened to all traffic.
- Dec. 7** I-5 completely reopened to all traffic





Background: I-90 Closure

Chronology of Events

I-90 Closure: Jan.-Feb. 2008

- Jan. 29** I-90 at Snoqualmie Pass closed for avalanche.
- Jan. 30** I-90 reopened for 4 hours.
I-90 closes again due to 2nd avalanche.
- Jan. 31** Governor Gregoire declares State of Emergency.
- Feb. 2** I-90 reopened to all traffic





Summary of Statewide Freight-Related Economic Impacts from the 2007-08 Closures of I-5 and I-90 (\$ Millions)

Type of Economic Impact	I-5 Closure	I-90 Closure	Total Impacts Due to Closures
Total Lost Economic Output	\$47.07	\$27.89	\$74.96

Source: WSDOT Freight Systems Division IMPLAN Modeling, 2008



MAP-21: Moving Ahead for Progress in the 21st Century

Performance

- Within 18 months of enactment, requires DOT (within a broader rulemaking on performance) to establish measures for States to use to assess freight movement on the Interstate System.
- Requires each State to set performance targets in relation to these measures and integrate the targets within its planning processes.



The Washington State Freight Mobility Plan

Goal:

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.

Make a strong case for funding Washington state's **freight priority projects** in the reauthorization of the federal transportation bill and freight programs, and future state transportation packages.

Guide capital and operating investments in the state's freight systems.



Background

To be **prioritized**, freight must be recognized by the appropriate agency.

To **recognize** freight, the agency must understand how users experience the system.

- What does freight (Truck Freight specifically) look like in Washington? And, how do they experience the roadway?
- What better way to find out, than to ask them!





Background: The Need for a Commodity Flow Survey

- **Prioritizing Infrastructure Investment**
 - Not all roads are of equal economic importance.
 - A truck counter might tell us the number on the roadway, but does nothing to understand the value of its cargo.
 - By developing an understanding of the commodities on a specific corridor, we may generate a measure of the wider economic impact of its improvement.



Snoqualmie Pass

- How much freight is crossing the Snoqualmie Pass both in tonnage and value of freight?
- What types of products are crossing the Pass, on a daily, seasonal, and yearly basis?
- What routes does freight take when Snoqualmie Pass is closed?
- Which Ports benefit most from Snoqualmie Pass?
- Is Snoqualmie Pass used primarily for importing or exporting freight?
- How much does closing the Pass cost the state of Washington's economy?
- How much does it cost freight companies when the Pass is closed?

Survey Process

- Cooperation with the Washington State Patrol's Commercial Vehicle Enforcement Officers (CVEOs)
- Lion's Club Crews Work around the clock performing 3-5 minute questionnaires with the drivers.
- Collect between 150-700 surveys per survey day.



I-90 Results

Summary

Figure 1: Average

	Average Cargo Weight (Tons)	Average Cargo Value (\$/Ton)
Eastbound	17.0	\$ 5,033.00
Westbound	19.4	\$ 3,518.62

Figure 2: Annualized

Direction of Trip	Number of Empty Trucks	Number of Trucks with Cargo	Total Cargo Weight (Million Tons)	Total Cargo Value (Million Dollars)
Eastbound	346,360	625,298	10.62	\$ 53,436.81
Westbound	124,711	608,670	11.82	\$ 53,394.88

I-90 Results

Seattle and Tacoma Ports

Figure 3: Port Origin Summary

	Number of Empty Trucks	Number of Trucks with Cargo	Total Cargo Weight (Tons)	Total Cargo Value (Million Dollars)
Surveyed				
Seattle	47	42	910	\$ 2.62
Tacoma	67	17	365	\$ 1.10
Annualized				
Seattle	23,902	21,008	454,966	\$ 1,310.13
Tacoma	34,073	8,497	182,360	\$ 547.72

I-90 Results

Seattle and Tacoma Ports

Figure 4: Port Destination Summary

	Number of Empty Trucks	Number of Trucks with Cargo	Total Cargo Weight (Tons)	Total Cargo Value (Million Dollars)
Surveyed				
Seattle	17	159	3,734	\$ 8.26
Tacoma	16	172	4,163	\$ 13.36
Annualized				
Seattle	4,855	48,804	1,146,124	\$ 2,535.52
Tacoma	4,569	52,795	1,277,928	\$ 4,100.07

I-90 Results

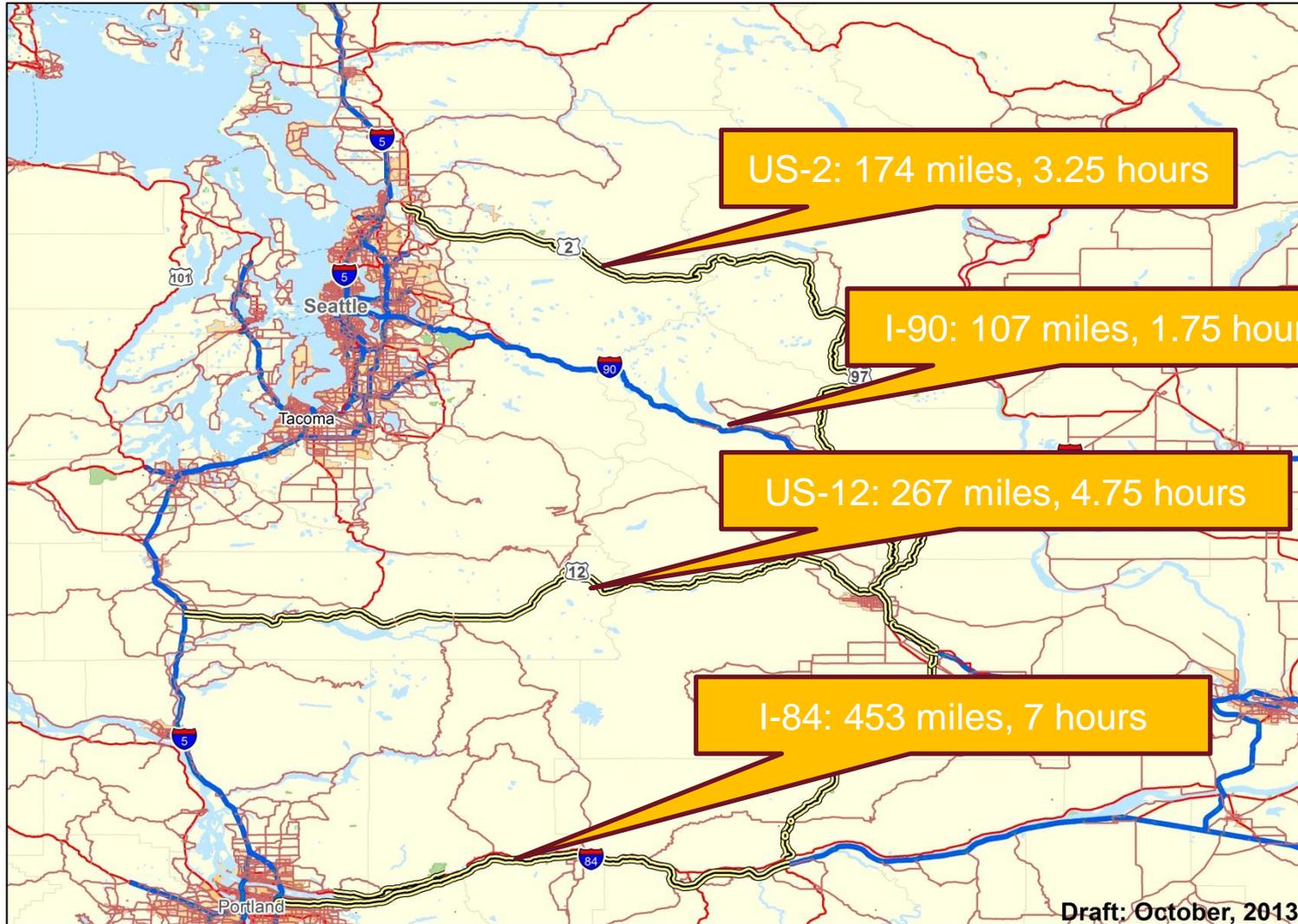
Seattle and Tacoma Ports

Figure 5: Commodities Destined to Ports

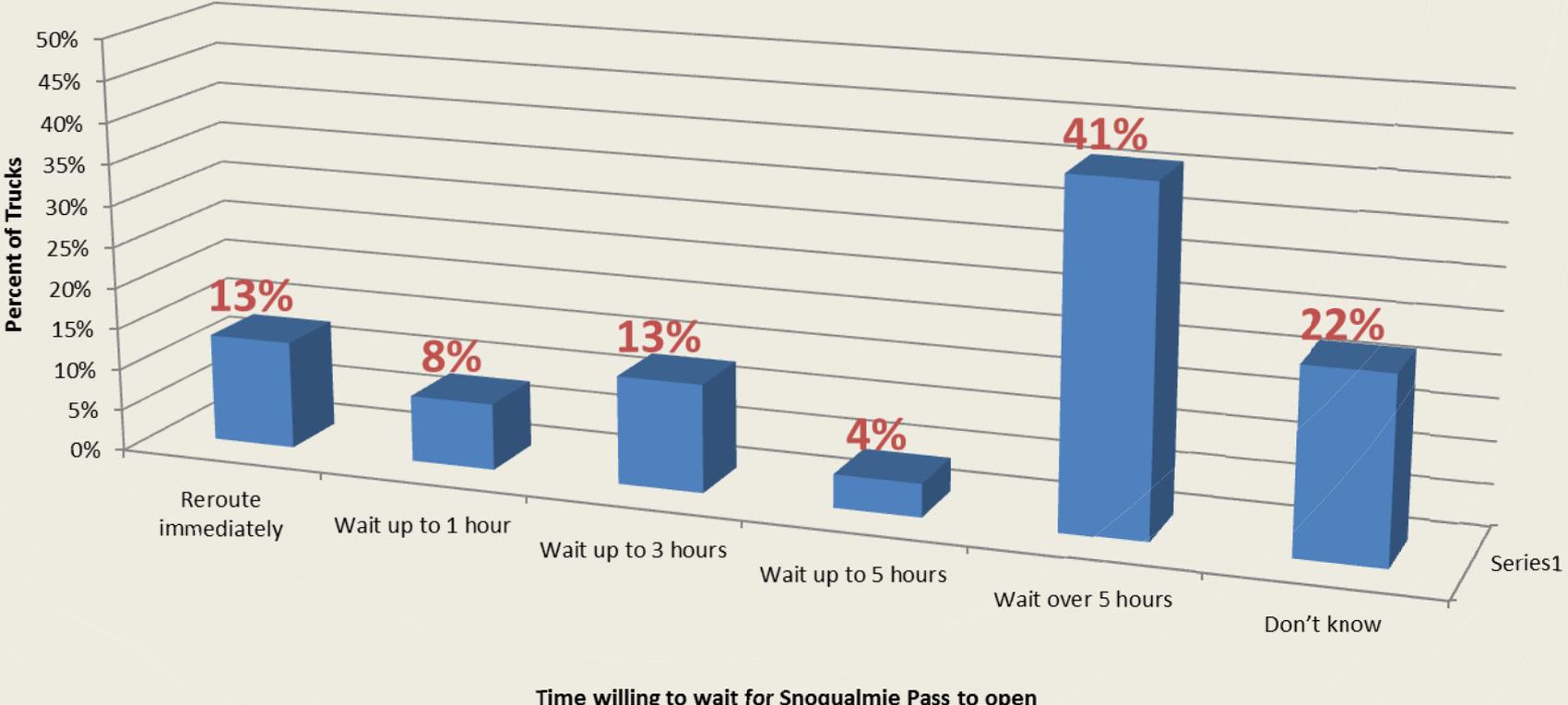
	Commodity	Number of Trucks Surveyed	Annualized Number of Trucks
Seattle	Apples	25	7,003
	Hay	39	10,925
	French Fries	25	7,003
	Potatoes	9	2,521
	Lumber	1	280
Tacoma	Apples	23	6,443
	Hay	41	11,485
	French Fries	24	6,723
	Potatoes	3	840
	Onions	5	1,401
	Lumber	7	1,961

When I-90 Closes, What are the viable Options?

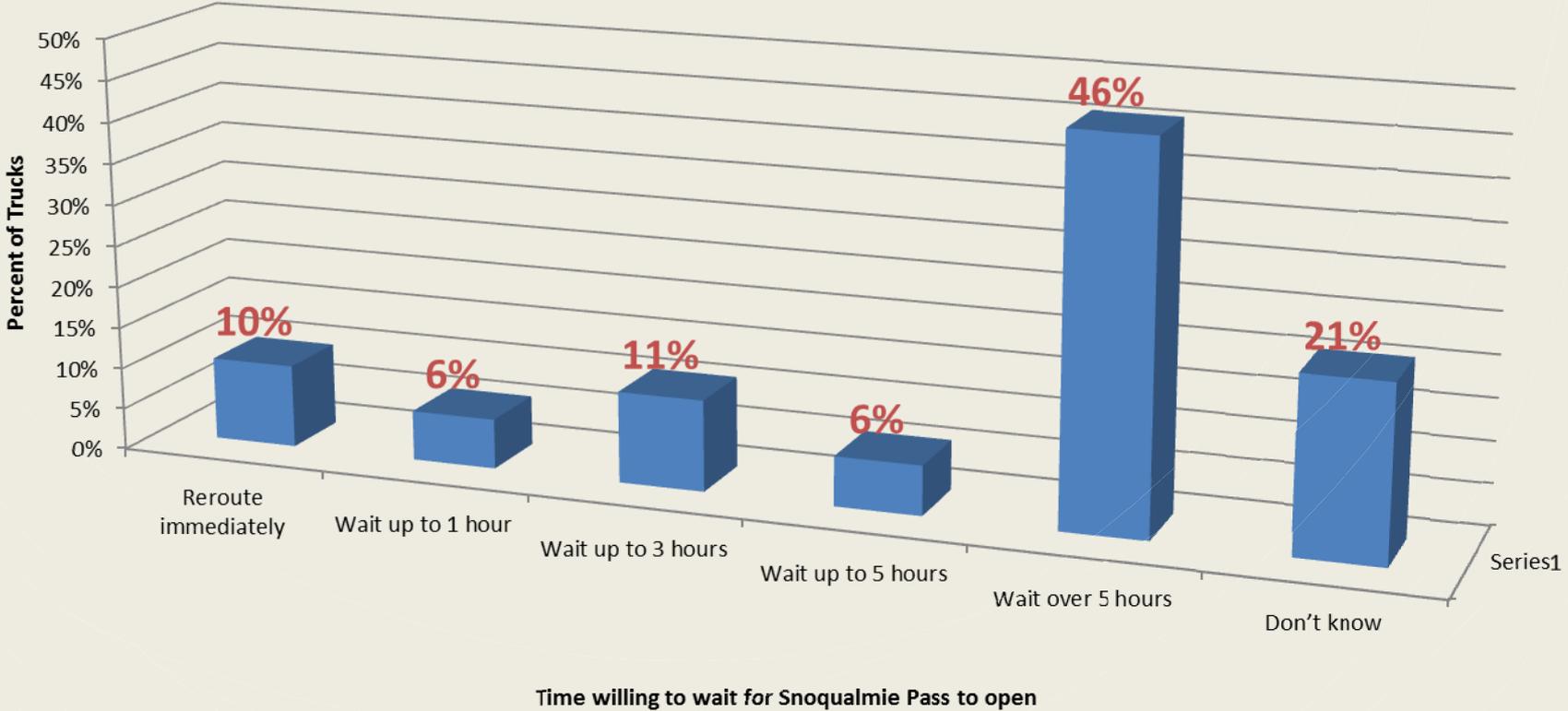
Reroute Options



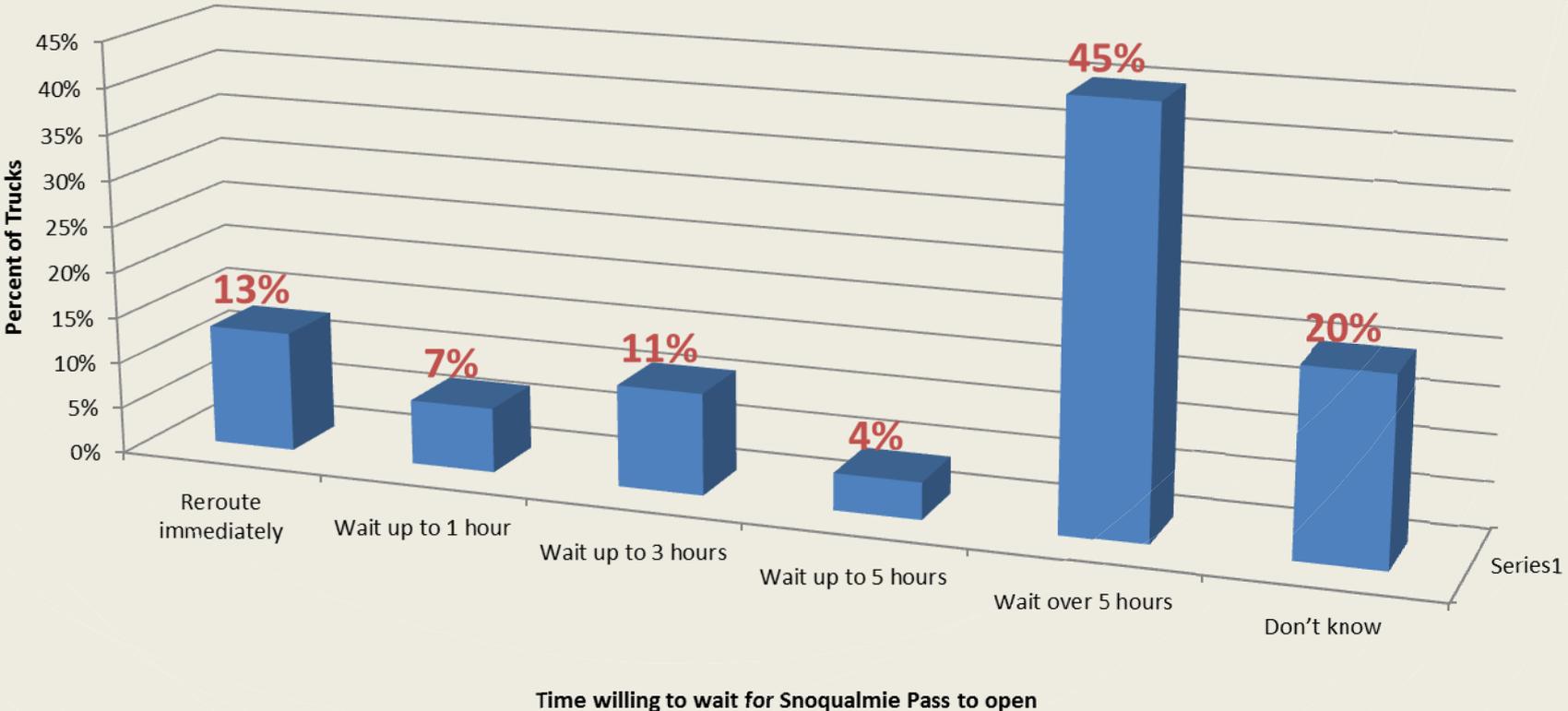
All Commodities -Westbound-



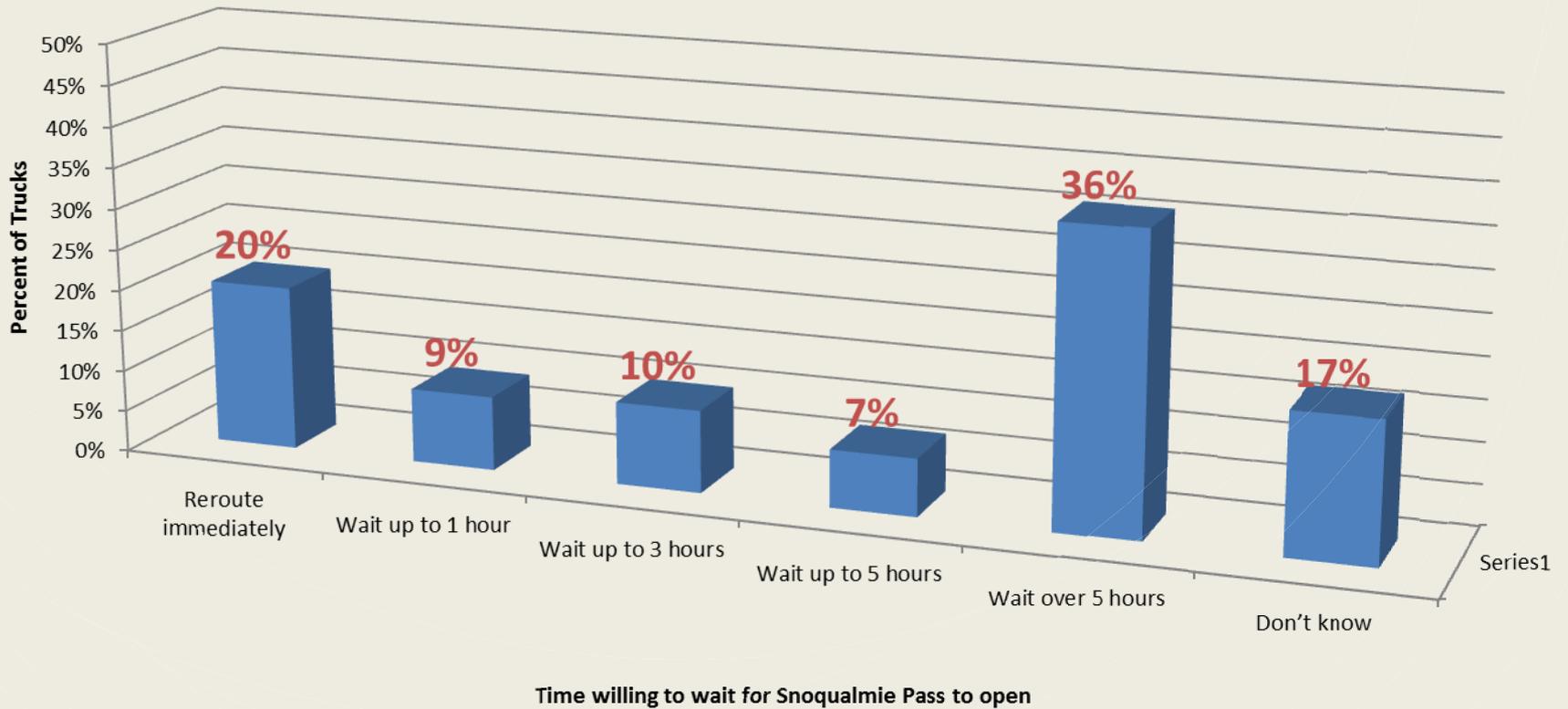
Crop Production -Westbound-



All Commodities -Eastbound-

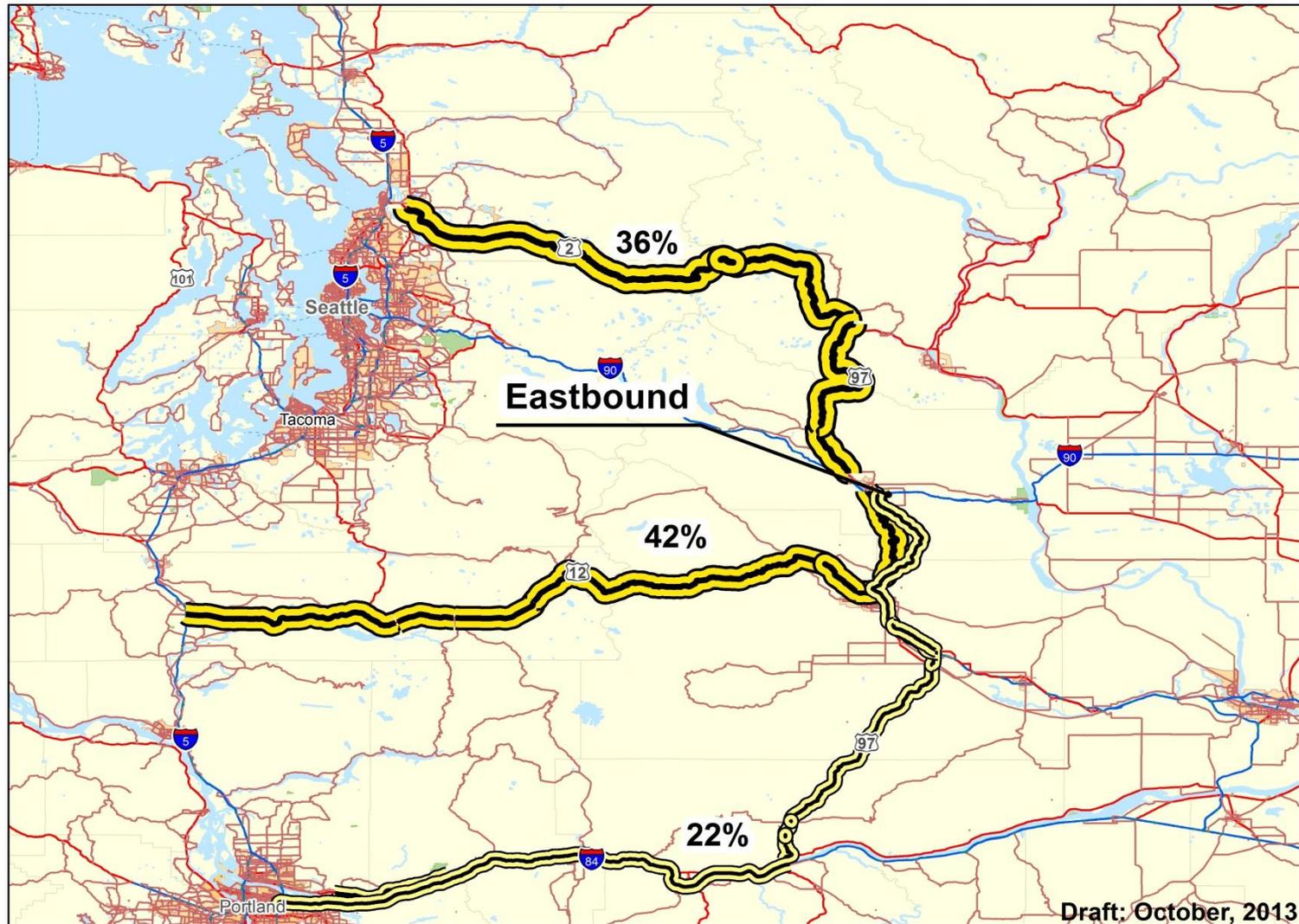


Food & Beverage -Eastbound-



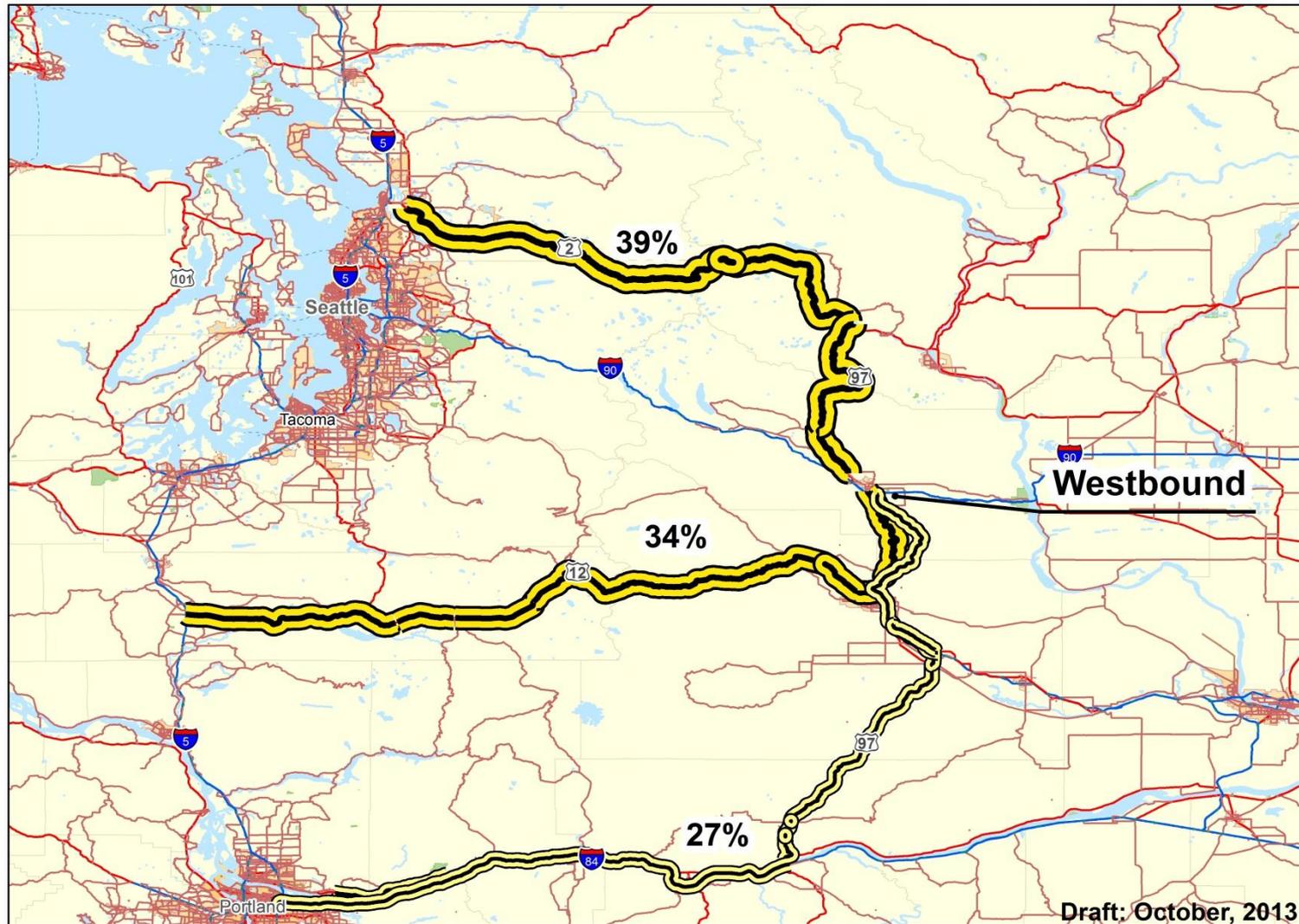
When I-90 Closes, What are the viable Options?

Eastbound Reroutes



When I-90 Closes, What are the viable Options?

Westbound Reroutes



Wenatchee Region SR-28

SCTG Description	Number of Occurrences	Total Cargo Weight	Average Cargo Weight	Total Tonnage	Total Value
3 Other agricultural products	367	14,232,977	38,782	7,116	\$ 5,406,648
7 Other prepared foodstuffs, fats, oils	62	1,945,464	31,378	973	\$ 1,254,532
26 Wood products	33	876,943	26,574	438	\$ 156,482
28 Paper or paperboard articles	51	1,667,499	32,696	834	\$ 1,483,293
36 Motorized and other vehicles, parts	32	439,900	13,747	220	\$ 2,024,596
43 Mixed freight	33	858,109	26,003	429	\$ 1,683,200
				Total	\$ \$33,962,985

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* Mostly Regional Movements

* Moving to and From Agricultural or Warehouse facilities

Wenatchee Region US-2/97

SCTG	Description	Number of Occurrences	Total Cargo Weight	Average Cargo Weight	Total Tonnage	Total Value
3	Other agricultural products	261	8,783,050	33,652	4,392	\$ 3,336,397
7	Other prepared foodstuffs, fats, oils	69	2,041,566	29,588	1,021	\$ 1,316,503
12	Gravel and crushed stone	30	1,096,900	36,563	548	\$ 8,145
26	Wood products	21	665,540	31,692	333	\$ 118,759
34	Machinery	25	633,090	25,324	317	\$ 2,834,795
35	Electronic, electrical equipment, components and office equipment	25	301,327	12,053	151	\$ 6,197,295
41	Waste and scrap	23	892,020	38,783	446	\$ 242,513
43	Mixed freight	40	817,041	20,426	409	\$ 1,602,644
					Total	\$ \$31,303,661

- * Mostly Regional Movements (Also a significant number from the Westside)
- * Moving to and From Agricultural or Warehouse facilities as well as retail centers

Wenatchee Region Brewster

SCTG Description	Number of Occurrences	Total Cargo Weight	Average Cargo Weight	Total Tonnage	Total Value
1 Live animals and live fish	21	1,211,555	57,693	606	\$ 1,039,107
3 Other agricultural products	130	5,117,463	39,365	2,559	\$ 1,943,959
7 Other prepared foodstuffs, fats, oils	37	755,733	20,425	378	\$ 487,334
26 Wood products	33	1,594,560	48,320	797	\$ 284,534
28 Paper or paperboard articles	30	851,232	28,374	426	\$ 757,198
				Total	\$ \$20,163,955

* Mostly Regional Movements (Also a significant number Moving into or out of BC)

* Moving to and From Agricultural or Warehouse facilities as well as retail centers

Spokane Region US-395

SCTG	Description	Number of Occurrences	Total Cargo Weight	Average Cargo Weight	Total Tonnage	Total Value
18	Fuel oils	26	1,151,168	44,276	576	\$ 463,092
20	Basic chemicals	34	1,668,194	49,065	834	\$ 691,167
22	Fertilizers	37	2,323,172	62,788	1162	\$ 402,612
25	Logs and other wood in the rough	316	17,293,920	54,728	8647	\$ 942,780
26	Wood products	83	4,333,796	52,214	2167	\$ 773,324
31	Nonmetallic mineral products	34	1,601,191	47,094	801	\$ 183,991
32	Primary/semi-finished base metal	26	663,444	25,517	332	\$ 608,111
34	Machinery	41	845,002	20,610	423	\$ 3,783,676
41	Waste and scrap	54	2,131,104	39,465	1066	\$ 579,382
43	Mixed freight	43	794,887	18,486	397	\$ 1,559,188
					Total	\$ 61,911,055

- * Mostly Regional Movements (Also a significant number Moving into or out of BC)
- * Moving to and From Warehouse facilities, forests, and Sawmills, as well as retail centers

Future Data Directions

- Generate support for WA infrastructure investment, planning and forecasting.

Future Methodological Directions

- Validation strategies for enhanced data collection methods.

For more Information:

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