Freight Policy Transportation Insitute

Truck Freight Commodity Flows: US 395 North of Spokane Washington

Washington State University

FPTI

Truck Freight Commodity Flows: US 395 North of Spokane Washington

FPTI Research Report Number 18
October 2014

by

Jeremy Sage and Ken Casavant
Freight Policy Transportation Institute
PO Box 646210
Washington State University
Pullman, WA 99164-6210

Washington State Transportation Center (TRAC)
Washington State University
101 Sloan Hall, PO Box 642910
Pullman, Washington 99163-2910

Washington State Department of Transportation
Technical Monitor
Charlene Kay
Eastern Region Planning Engineer

Prepared for
The State of Washington
Washington State Department of Transportation
Lynn A. Peterson, Secretary

DISCLAIMER

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Washington State Department of Transportation. This report does not constitute a standard, specification, or regulation.

ACKNOWLEDGEMENTS

This study was funded by a grant from the Washington State Department of Transportation.

TABLE OF CONTENTS

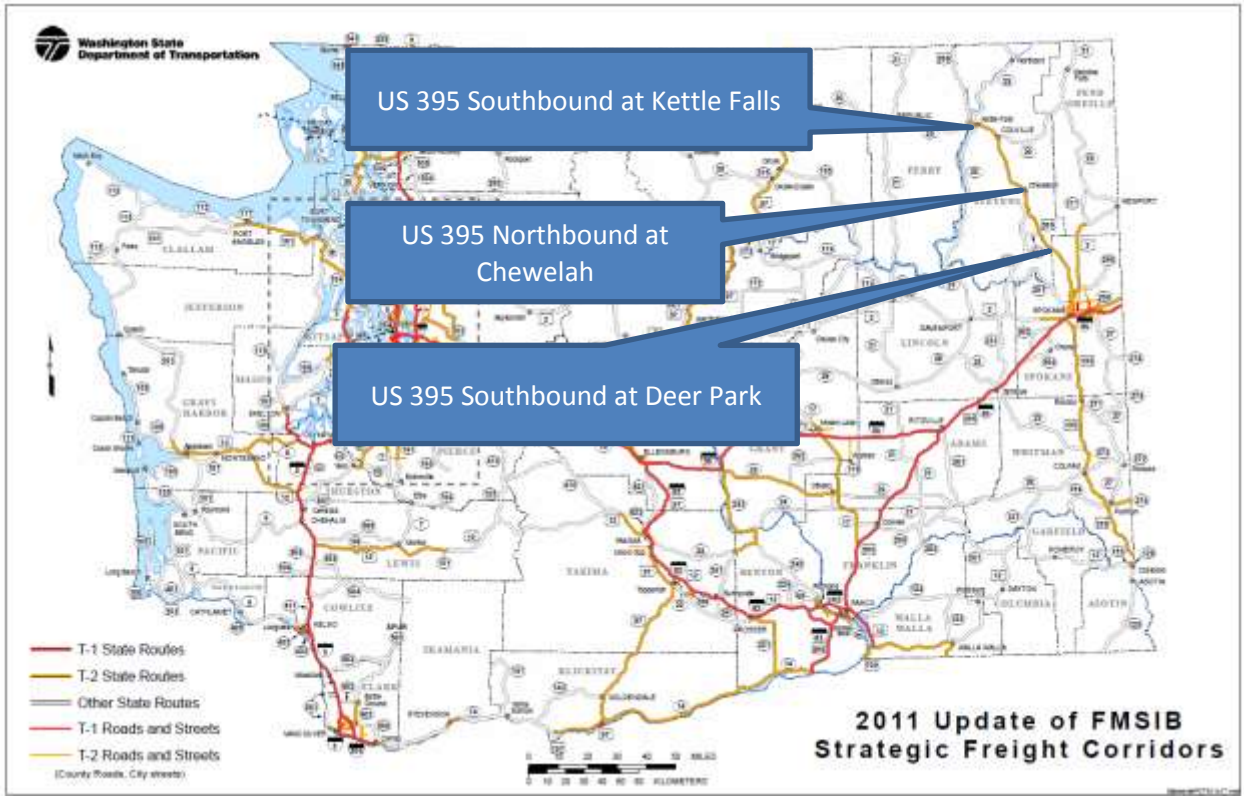
LIST OF FIGURES

EXECUTIVE SUMMARY

Project Overview

The search for understanding of commodity flows throughout the nation and the state of Washington is a continual process. This understanding is critical at many levels of the transportation industry and to those firms and entities that provide that transportation, or regulate and invest in the needed infrastructure. These data, usually desired at the sub national level, are essential to adequate planning by state, regional and local levels as attempts continue to improve the efficiency, effectiveness and sustainability of the transportation system. State and national travel models require those data, often on a seasonal, commodity/industrial, directional, or modal basis. Determining the importance of a commodity flow on a corridor level leads to improved bases for the prioritization of investments in infrastructure as well as increasing the ability to determine quantitative impacts of congestion, regulation and bottlenecks on a transportation system or supply chain.

Seasonal surveys were collected from three locations shown below; all located north of Spokane County on US 395.



A specific survey instrument was developed for the region of consideration in an effort to address regional data needs. Other Washington regions were concurrently surveyed by the FPTI research team and volunteers. Specifically, the US 395 survey instruments were developed to aid the region in answering the following series of questions beyond the survey standard of origin and destination:

- Identification of the areas "worst" bottlenecks along the corridor
- Current and anticipated use of the US 395 North Spokane Corridor

Through the compilation and analysis of the results, it becomes readily apparent that many drivers are not pleased with the implementation and effectiveness of the growing trend in round-a-bouts in place of lighted intersections. Additionally, many respondents who were required to travel through the city of Spokane noted the troubles with Division street and were eager to utilize the North Spokane Corridor.

1. CONTEXT

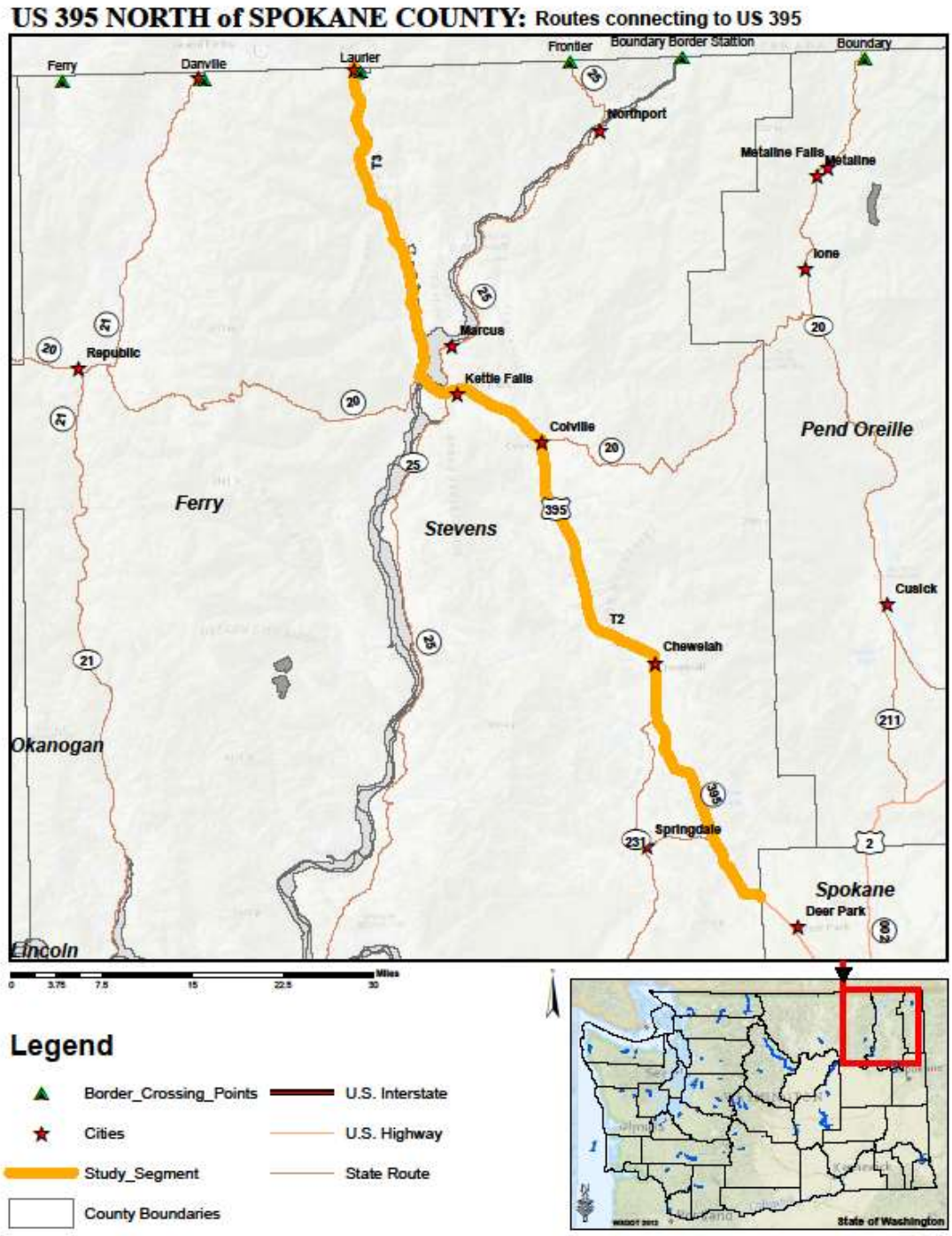
US 395 extends 1,305 miles through the western U.S., beginning at I-15 near Hesperia, California and ending in Laurier, Washington on the U.S./Canada border. US 395 is a major north-south freight route crossing Washington state. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) federally designated high priority corridors on the National Highway System (NHS). The ISTEA designated 21 corridors; US 395 is high priority corridor number 19.

This study addresses the portion of US 395 just north of the city of Spokane starting at the Spokane/Stevens County line (MP 183.69), northward to the US/Canadian border (MP 270.26); a length of just under 87 miles. This segment passes through the cities of Deer Park, Chewelah, Colville, and Kettle Falls (Figure 1.1). In the City of Spokane, north Division Street (US 395/US-2) serves as the busiest north-south corridor with over 40,000 vehicles per day traversing this managed access facility. Current and planned construction activities on this corridor will ultimately decrease the freight demands on the north Division Street (US 395/US 2) segment in the city as the new US 395 North Spokane Corridor (NSC), a limited access facility extending from north Spokane (Farewell Road) to I-90, is completed. A significant share of the local and regional north-south freight movement is projected to divert from Division Street to the US 395 NSC.

The entirety of the study segment has a State Functional Classification of R1 (Rural-Principal Arterial). The section from Spokane/Stevens County line (MP 183.69) to the junction of SR 20 (MP 241.89) is classified as a T-2 freight segment[1], carrying between 2,610,000 and 4,200,000 tons of freight annually. The section from SR 20 to the international boundary carries approximately 500,000 tons of freight annually. As transportation provisions for the goods and of services is a key factor in local, regional, and international economic development, this study evaluates truck freight movement on US 395 from the Spokane/Stevens County line to the vicinity of the Canadian border.

[1] http://www.wsdot.wa.gov/Freight/FGTS/default.htm

FIGURE 1.1: US 395 study area.



2. BACKGROUND

The search for understanding of commodity flows throughout the nation and the state of Washington is a continual process. This understanding is critical at many levels of the transportation industry and to those firms and entities that provide that transportation, or regulate and invest in the needed infrastructure. These data sets, usually desired at the sub national level, are essential to adequate planning by state, regional and local levels as attempts continue to improve the efficiency, effectiveness and sustainability of the transportation system. State and national travel models require this data, often on a seasonal, commodity/industrial, directional, or modal basis. Determining the importance of a commodity flow on a corridor level leads to improved bases for the prioritization of investments in infrastructure as well as increasing the ability to determine quantitative impacts of congestion, regulation and bottlenecks on a transportation system or supply chain.

Two major origin/destination (commodity flow) studies have been completed in the State of Washington, as well as many commodity or industry based surveys, many done by the Freight Policy Transportation Institute (FPTI) and its predecessor, the Transportation Research Group (TRG) in the School of Economic Sciences at Washington State University. The Eastern Washington Intermodal Transportation Study (EWITS) conducted the first survey in the state around 1990, the first done in the United States at that time, interviewing more than 28,000 truckers at 30 locations throughout the state, four times during the year, utilizing around 300 Lions Club members as on site interviewers. The study, which cost over $400,000, produced a large database with intimate knowledge of the commodity flows by highway throughout the state and resulted in almost twenty sub studies requested by state, counties, planning organizations (MPO/RTPO), ports, etc., utilizing that database. The use of this methodology resulted in requests for FPTI personnel to give presentations and workshops on how to accomplish such an intercept commodity flow survey. The study produced information on volume, origins, destinations, payload and total weight of truck, commodity, truck configuration, hazmat movements, among other items. From these, monetary values as well as volume of movements in various corridors were derived.

The second major survey was done about 10 years later, under the project called the Strategic Freight Transportation Analysis (SFTA). This statewide survey was conducted with the basic EWITS survey methodology, and adapted to the questions that were relevant at the new time. The cost, closer to $500,000 in 2001-2003, resulted in similar results; interviews were successfully conducted with over 27,000 truckers over four times during the year, at 29 locations, with 350 Lions Club members as interviewers. Since that time, and continuing into the present, numerous studies and analyses have been produced by SFTA team members, continuing now into these FPTI analyses.

But, the data's relevancy and accuracy become obsolete, especially with the dynamic, growing economies of Washington State and the nation, and as the transportation, system strives to meet domestic needs and international trade support functions. The information on the destination of the products carried, their origin, their volume/value, etc. can be useful, even critical, in prioritizing this corridor for future private and public infrastructure investments by the state. Such data can then be used to prioritize infrastructure investments and policy alternatives dealing with the overall impact of freight in the Eastern Region, particularly along the US 395 corridor. Other planning organizations, cities, counties, etc. may find the data very useful in planning efforts.

3. PURPOSE

The purpose of this study is to gain an understanding of north-south truck freight movement on US 395 from Stevens County-Spokane County line to the Canadian border vicinity, including information regarding the value of transported commodities and the origin/destination of loads. Understanding commodity flows throughout the nation and the State of Washington is an iterative and continual process. Determining the importance of the commodity flow on a corridor level leads to the correct prioritization of infrastructure investments and enhances the ability to determine quantitative impacts of congestion, regulation, and bottlenecks on a transportation system or supply chain.

The following collaborating agencies and entities contributed to the successful planning and delivery of the study:

- Washington State University;
- Washington State Department of Transportation (WSDOT) Eastern Region Planning;
- Washington State Patrol;
- Northeast Washington Region Transportation Organization (NEW RTPO);
- WSDOT Freight System Division (FSD);
- WSDOT Eastern Region Traffic Control Office;
- WSDOT Statewide Collision Data Analysis Travel Data & Analysis Branch;
- WSDOT Eastern Region Maintenance Offices (Area 1 and 4 north of Spokane County);
- Chewelah Police Department;
- Chewelah Lions Club.

4. OBJECTIVES AND TASKS

The Eastern Region WSDOT Planning office in collaboration with Washington State University (WSU) and the Northeast Washington RTPO (NEW RTPO) conducted a freight origin/destination and commodity flow study for US 395 from the Stevens/Spokane county line to the Canadian border. The study includes an intercept survey of the truck traffic on US 395 and hauler/shipper interviews. The truck intercept survey included two locations southbound and one location northbound.

The overall goal of this research project sought to collect the necessary data to quantify and characterize the movement of commodities through the specified freight corridors, or through and around relevant entities/cities/counties, using the intercept methodology (Appendix A), when trucks are stopped during the movement itself, as developed in previous studies by the Freight Policy Transportation Institute (FPTI)[2]. Specifically, the studies objectives seek to:

- Develop an improved understanding of the economic significance of truck freight on US 395
    - Identify the major commodities moved on the corridor;

[2] http://www.sfta.wsu.edu/research/reports/pdf/Rpt_2_Data_Dictionary.pdf

- Identify primary freight generators;
- Provide the capacity to estimate annual and seasonal directional freight tonnage;
- Estimate the dollar value of the freight commodities;

- Develop an understanding of commodity flow origin and destination
  - Annual Average Daily Truck Traffic (AADTT);
  - Identify commodity origin and destination.

5. RESOURCES

5.1 Personnel Support

5.1.1 Washington State Patrol (WSP) and Chewelah Law Enforcement

Washington State Patrol (WSP) assisted by identifying truck intercept survey sites, opening the Deer Park and Kettle Falls' weight stations for intercept surveys, and organizing the safe operations of the truck intercept efforts at all location including the Chewelah survey site. Chewelah law enforcement assisted with the traffic control planning at the Chewelah survey site.

5.1.2 WSDOT Eastern Region Traffic Office

The WSDOT ER Traffic Office assisted by identifying potential truck intercepts locations and planning the traffic control. The traffic control plan provided sufficient length for deceleration, storage area for trucks participating in the survey, and acceleration length for trucks accelerating and merging into traffic.

5.1.3 Eastern Region Maintenance (Area 1 (Spokane E.) and Area 4 (Colville/Chewelah))

Eastern Region Maintenance Offices Area 1 and Area 4 assisted the ER Planning with securing and installing the traffic control devices. ER Maintenance provided traffic control for each survey. The traffic control series included, "TRUCKS SURVEY AHEAD", "ALL TRUCKS MUST STOP", and "TRUCKS ONLY".

5.2 Additional Data

Identification and retrieving of existing data is necessary to broaden understanding of traffic volumes, truck movements, traffic characteristics, and commodities hauled along the study segment of the corridor. These existing data sources include:

5.2.1 *The Inland Pacific Hub Transportation Study (IPH)*

- Economic information about commodity and freights in the vicinity of US 395 in eastern Washington and north Idaho).
- The Inland Pacific Hub transportation study was a collaborative effort by the IPH Advisory Board. The IPH is an area of nineteen counties that straddle eastern Washington and northern Idaho, and the Advisory Board, a public-private partnership, represent membership from both state Washington and Idaho including WSDOT, Idaho transportation Department (ITD), Spokane Regional Transportation Council (SRTC) and Kootenai Metropolitan Planning Organization (KMPO). The study had two objectives: 1) to identify the Inland pacific hub's capacity as a globally connected, multimodal transportation gateway; and, 2) to identify the critical infrastructure requirements needed to drive the inland pacific Hub's future economic growth. The study used data from varied source including Global Insights.

5.2.2 *Research and Innovative Technology Administration (RITA)*

- North American Transborder Freight Data including Port and Commodity of RITA Bureau of Transportation Statistic (border crossings)
- RITA website gives access to the bureau of transportation statistics data. It gives valuable information and statistical data about commodity type, volume, and tonnage at the border crossings. Those information are useful at the international and regional level, however it lacks of information at the local level.

5.2.3 *Shipper and Hauler Interviews*

- Shippers and haulers are crucial to any freight activities. The WSU, in collaboration with the Northeast Washington (NEW) Rural Transportation Planning Organization (RTPO), and WSDOT ER Planning met with various shipper and haulers who travel along the study segment to gain insight regarding commodity transport.

5.2.4 Statewide Collision Data Analysis Travel Data & Analysis Branch (SCDA)

- The Statewide Collision Data Analysis Travel Data & Analysis Branch provided Annual Average Daily Truck Traffics (AADTT) and access to Permanent Traffic Recorder data that is more detailed with daily and hourly traffic data.

5.2.5 WSDOT Data Warehouse Permanent Traffic Recorder (PTR) Data

- The annual traffic trend from 2008 to 2011 along the study area is in Figure 5.1. The study area north of Spokane County to Canadian border has three PTRs, includingP26, R070 and P063. P26 is located at milepost 260 near the town of Orient between Kettle Falls' weight station and the Canadian border. R070 is located at milepost 235.60 near Kettle Falls and P063 is located at milepost 190.29 north of Deer Park weight station. See Appendix A for map of locations. The analysis of the annual daily traffic from 2008 to 2011 shows the similar pattern year round by road segment (For more details See appendix A graph 1.)

FIGURE 5.1: **US 395 corridor Average Annual Daily Traffic (AADT).**

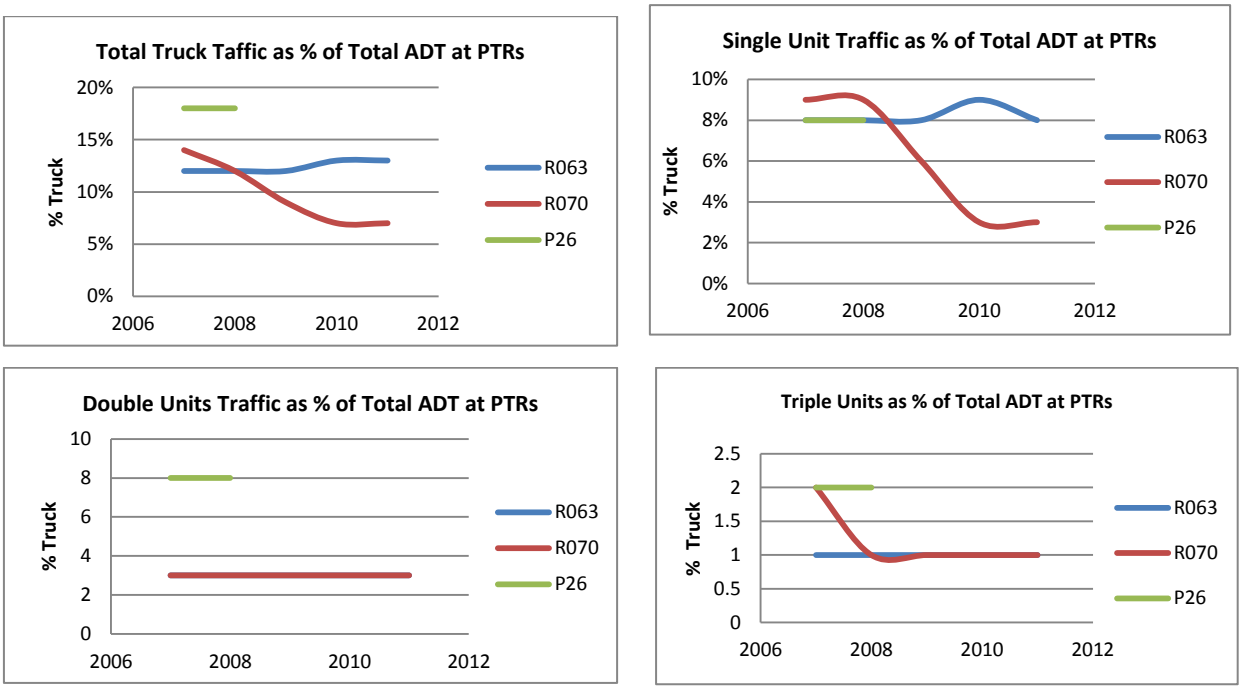
Milepost	Location	2008	2009	2010	2011
190.29	**AT PTR LOCATION R063**	8100	8200	8400	8100
235.60	**AT PTR LOCATION R070**	7600	7400	7500	7300
260.00	**AT PTR LOCATION P26**	700	640	650	640

Source: WSDOT Annual Traffic Report 2012

5.3 Analysis of Existing Data Collected

Overall total traffic is far lower at P026 compared to R063 and R070; however, truck traffic as percentage of the total traffic is higher and steadier at P026. Since 2007, trucks traffic as the percentage of the total traffic declined at R070 while it slightly rose at R063. The main type of vehicular used is single unit, 5 axle trucks.

FIGURE 5.2: Truck traffic as a percentage of total traffic.



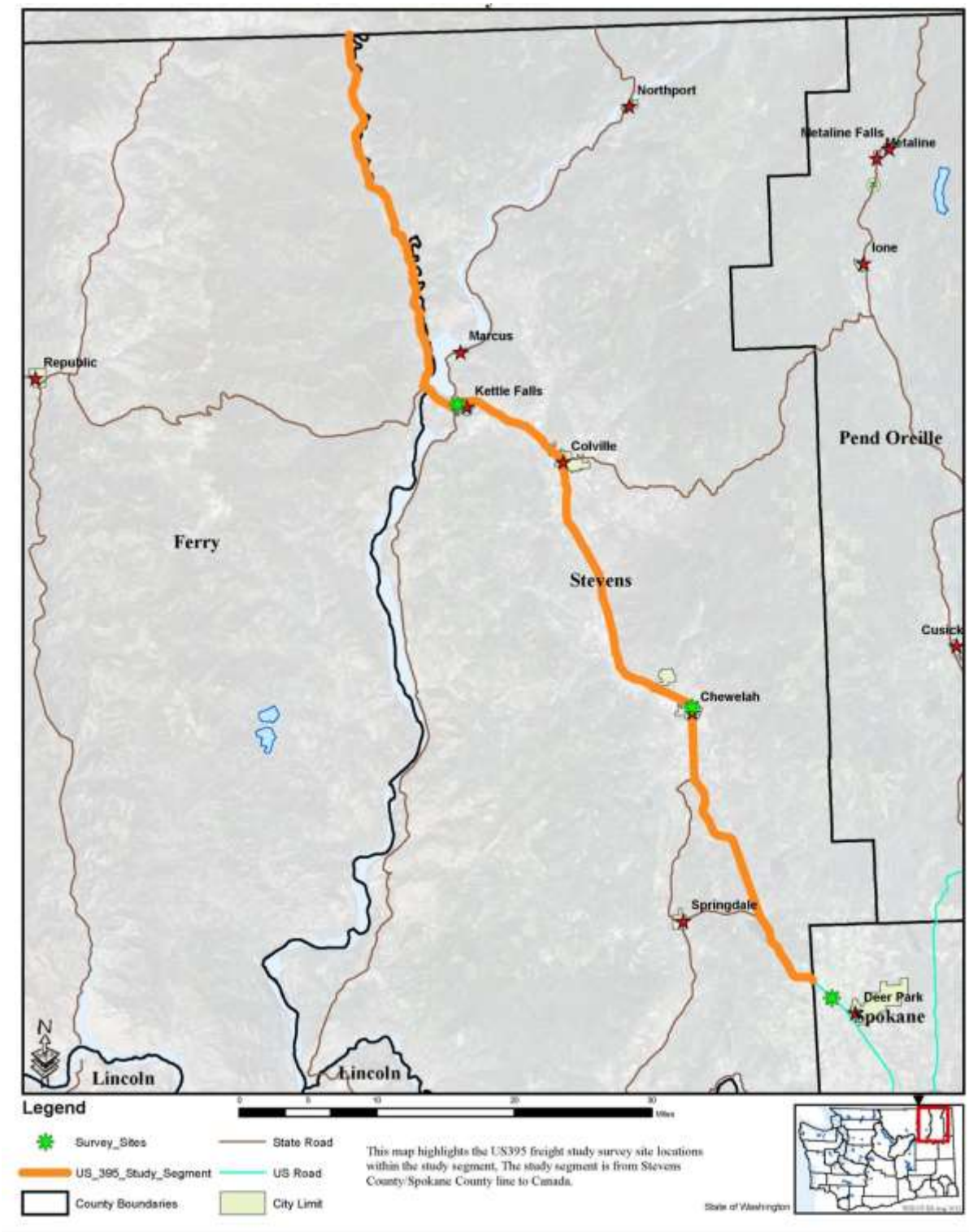
Note: ADT (Average Daily Traffic); PTRs (permanent traffic recorder); P26 is the PTR near the city of Orient closed to the Canadian border; R063 is in Kettle Falls; and R070 is in Deer Park.

6. SURVEY

6.1 Site Selection

Unlike previous US 395 origin-destination studies along this segment, a primary goal of this study was to collect data for northbound and southbound rather than southbound only. Potential survey sites located before and after major intersections or junctions along the corridor and providing southbound and northbound collection opportunities were explored. Ultimately, two southbound survey sites (Kettle Falls and Deer park weigh stations) and one northbound survey site (Chewelah City Park adjacent to US 395) were selected on the basis of the value of information able to be collected in addition to the creation of safe operating condition for traffic and the survey volunteers.

FIGURE 6.1: US 395 survey sites.



6.2 Pre-sampling

Pre-sampling processes utilized the ADTT to determine the frequency of trucks on the corridor near the survey sites during the anticipated survey times. This process determined the appropriate sample size required for a statistically valid data collection effort. Rough approximation of the ADTT during the peak hours additionally aided in the determination of the crewmember staffing necessary to adequately conduct the survey process safely at peak hours without impeding the traffic.

6.3 Scheduling

The analysis of the AADT of the last 5 years identified the peak seasons, peak months, peak days, peak days of week, and peak hours. The month of July stands as the busiest traffic month on US 395. To address potential seasonal variations in both AADTT and commodities on the roadway, quarterly seasonal surveys for each site were conducted. All surveys were conducted on midweek to minimize further variability (see Appendix A for further methodological detail). Each of the three sites were surveyed on consecutive weeks during each quarter/season.

7. SURVEY RESULTS

The efficient movement of goods over Eastern Washington's major North-South corridor, US 395, is vital to the economic vitality of the state and the region. Figure 7.1 summarizes the survey total for each season and location, along with the recorded average volumes for the week of the survey (where applicable).

7.1 Survey Statistical Significance

As can be seen in the Figure 7.1, each survey session garnered sufficient responses to readily obtain a confidence level of 95% (C.I. 5%). Using the Seasonal weight factor calculations (Appendix B), the average annual daily truck traffic (AADTT) is calculated as 285 for trucks in Chewelah (107 empty, and 178 loaded), 165 for trucks in Deer Park (66 empty, and 99 loaded), and 330 for trucks in Kettle Falls (159 empty, and 171 loaded). These figures, multiplied by 312, are used to calculate annual volumes and associated values.

Figure 7.1: Seasonal Survey Totals

	Number of Empty Trucks Surveyed	Number of Trucks With Cargo Surveyed	Truck Total Volume[a]	Seasonal Weight Factor[b]	Weighted Value	Percent of Trucks Surveyed[c]	Confidence Level 95% +/- 5%
Chewelah (Northbound)							
Fall	43	61	0.175	245	43	42%	√
Winter	58	105	0.274	282	77	58%	√
Spring	53	110	0.274	281	77	58%	√
Summer	68	96	0.276	311	86	53%	√
Deer Park (Southbound)							
Fall	60	74	0.228	147	33	91%	√
Winter	55	93	0.251	151	38	98%	√
Spring	65	100	0.280	196	55	84%	√
Summer	56	86	0.241	156	38	91%	√
Kettle Falls (Northbound)							
Fall	77	83	0.242	314	76	51%	√
Winter	80	102	0.275	357	98	51%	√
Spring	66	78	0.218	283	62	51%	√
Summer	95	81	0.266	345	92	51%	√

[a] Truck total volumes represent the average of the recorded truck volumes for the week of the survey. Summer in Chewelah, fall and summer in Deer Park, and fall, winter, and summer in Kettle Falls are imputed by the survey data due to inability to place tube counters during the associated survey period.

[b] Refer to FPTI Data Dictionary (page 16) for seasonal weighting development discussion. http://www.sfta.wsu.edu/research/reports/pdf/Rpt_2_Data_Dictionary.pdf

[c] Value represents the proportion of all trucks passing the survey site on the survey day that completed the survey. For example, 42% of all northbound trucks passing through Chewelah during the fall survey event were surveyed.

7.2 Aggregated Industry Groups

Figure 7.2 captures the aggregated industry groups (based on the Standard Classification of Transportation Goods (SCTG) commodity codes) transporting goods on the corridor of concern, as measured by all surveys collected in the Chewelah, Deer Park, and Kettle Falls locations of US 395. Using commodity values ($/ton) generated from the nationally based Commodity Flow Survey (CFS), the value of the cargo being transported has been estimated. Where available, the values are generated from Washington specific averages of the corresponding industry codes. National averages are used in place of those with insufficient records to generate a state average.

Figure 7.2: US 395 industry survey totals by volume and associated value.

SCTG	Description	Number of Occurrences	Total Cargo Weight (lbs)	Average Cargo Weight (lbs)	Total Tonnage	Total Value
1	Live animals and live fish	3	141,500	47,167	71	$ 121,359
2	Cereal grains	2	52,000	26,000	26	$ 7,034
3	Other agricultural products	9	140,800	15,644	70	$ 53,485
4	Animal feed and animal products	10	278,265	27,827	139	$ 207,411
5	Meat, fish, seafood	2	6,700	3,350	3	$ 12,037
6	Milled grain and bakery products	3	19,500	6,500	10	$ 17,767
7	Other prepared foodstuffs, fats, oils	23	270,947	11,780	135	$ 174,720
8	Alcoholic beverages	12	286,626	23,886	143	$ 304,279
11	Natural sands	14	502,400	35,886	251	$ 7,062
12	Gravel and crushed stone	3	157,000	52,333	79	$ 1,166
13	Nonmetallic minerals	15	835,160	55,677	418	$ 36,943
14	Metallic ores and concentrates	6	192,684	32,114	96	$ 410,203
18	Fuel oils	26	1,151,168	44,276	576	$ 463,092
19	Coal and petroleum products	9	92,900	10,322	46	$ 36,062
20	Basic chemicals	34	1,668,194	49,065	834	$ 691,167
22	Fertilizers	37	2,323,172	62,788	1162	$ 402,612
23	Chemical products and preparations	9	225,340	25,038	113	$ 608,309
24	Plastics and rubber	4	14,050	3,513	7	$ 32,544
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
27	Pulp, and paper products	2	62,000	31,000	31	$ 25,329
28	Paper or paperboard articles	17	276,150	16,244	138	$ 245,644
30	Articles of textiles or leather	8	52,600	6,575	26	$ 702,193
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
33	Articles of base metal	6	74,750	12,458	37	$ 150,239
34	Machinery	41	845,002	20,610	423	$ 3,783,676
35	Electrical and office equipment	25	646,387	25,855	323	$ 13,294,032
36	Motorized and other vehicles, parts	18	257,840	14,324	129	$ 1,186,683
37	Transportation equipment	5	92,740	18,548	46	$ 1,289,600
38	Precision instruments and apparatus	9	254,231	28,248	127	$ 31,841,859
39	Furniture and Accessories	11	234,100	21,282	117	$ 1,149,923
40	Misc. manufactured products	2	5,005	2,503	3	$ 7,848
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

As can be readily expected, distinct differences exist among commodity movements observed at the Chewelah, Deer Park, and Kettle Falls locations. At the broadest perspective, this difference is manifested in the average weight and value of the cargo. Figure 7.3 reveals these differences. Trucks surveyed at the Chewelah location, largely travelling only in Eastern Washington, averaged slightly over 18 tons per truck. The value of these same trucks averaged roughly $6,500 per ton. Trucks surveyed at the Deer Park location weighed more, 19.4 tons per tuck, and are valued slightly higher on average, nearly $6,600 per ton, in comparison to Chewelah. Trucks surveyed at the Kettle Falls location, near the US-Canadian border, carried the largest average cargo weight (24.4 tons per truck) but was the lowest average cargo value (slightly lower than $3000 per ton). The low average value of cargo surveyed at the Kettle Falls station (south bound) can be largely related to the significant number of chip trucks destined for regional mills and originating from British Columbia. Further, many of the southbound products are raw materials, as opposed to the more frequent observation of finished products moving northbound as recorded at the remaining sites.

The annualized volume and value of cargo crossing the three locations generates in excess of an estimated 1 million tons crossing in either Chewelah or Kettle Falls but just 0.6 million tons in Deer Park and $14.3 Billion combined in goods moved (Figure 7.4).

Figure 7.3: Site specific cargo averages[a].

	Average Cargo Weight (Tons)	Average Cargo Value ($/ton)
Chewelah (NB)	18.1	$ 6,462.78
Deer Park (SB)	19.4	$ 6,586.52
Kettle Falls (NB)	24.4	$ 2,975.64

[a] Only those records for which a cargo weight was specified by the respondent, and an identifiable cargo value could be determined are included here.

Figure 7.4: Annualized volume and value of cargo on Washington's NE region of US 395.

	Number of Empty Trucks	Number of Trucks with Cargo	Total Cargo Weight (Million Tons)	Total Cargo Value (Million Dollars)
Chewelah (NB)	33,426	55,497	1.01	$ 6,496.60
Deer Park (SB)	20,491	30,787	0.60	$ 3,936.07
Kettle Falls (NB)	49,480	53,266	1.30	$ 3,860.28

7.3 Characteristic Profile of Surveyed Trucks at the Chewelah Location of US 395

Brief summaries of the trucks surveyed at the Chewelah location, empty and loaded, are provided in the following tables. Information regarding origin and destination (O-D) states/provinces and cities, as well information about associated O-D facilities are presented in the summaries.

7.3.1 Origin and Destination Cities and States

A sound majority of trucks surveyed, loaded and empty, originated within Washington (Figure 7.5 and 7.6). Few other states or provinces recorded a significant number of observations. Idaho generated more observations than all other US states combined, excluding Washington. This observation begins to suggest an important relationship between the Northeast Washington region, Idaho's Panhandle, and US 395.

Further evaluation of the trip origins, as provided in Figure 7.7 indicates the cities where the trucks began their hauls. The top seven origin cities are presented below. The survey results indicated Spokane is the primary generator for both loaded and empty trucks. Approximately 62% of trucks surveyed at the Chewelah (northbound) location carry cargo from more than 80 different cities, while the empty trucks originate from just over 60 cities.

FIGURE 7.5 Chewelah survey site reported origins.

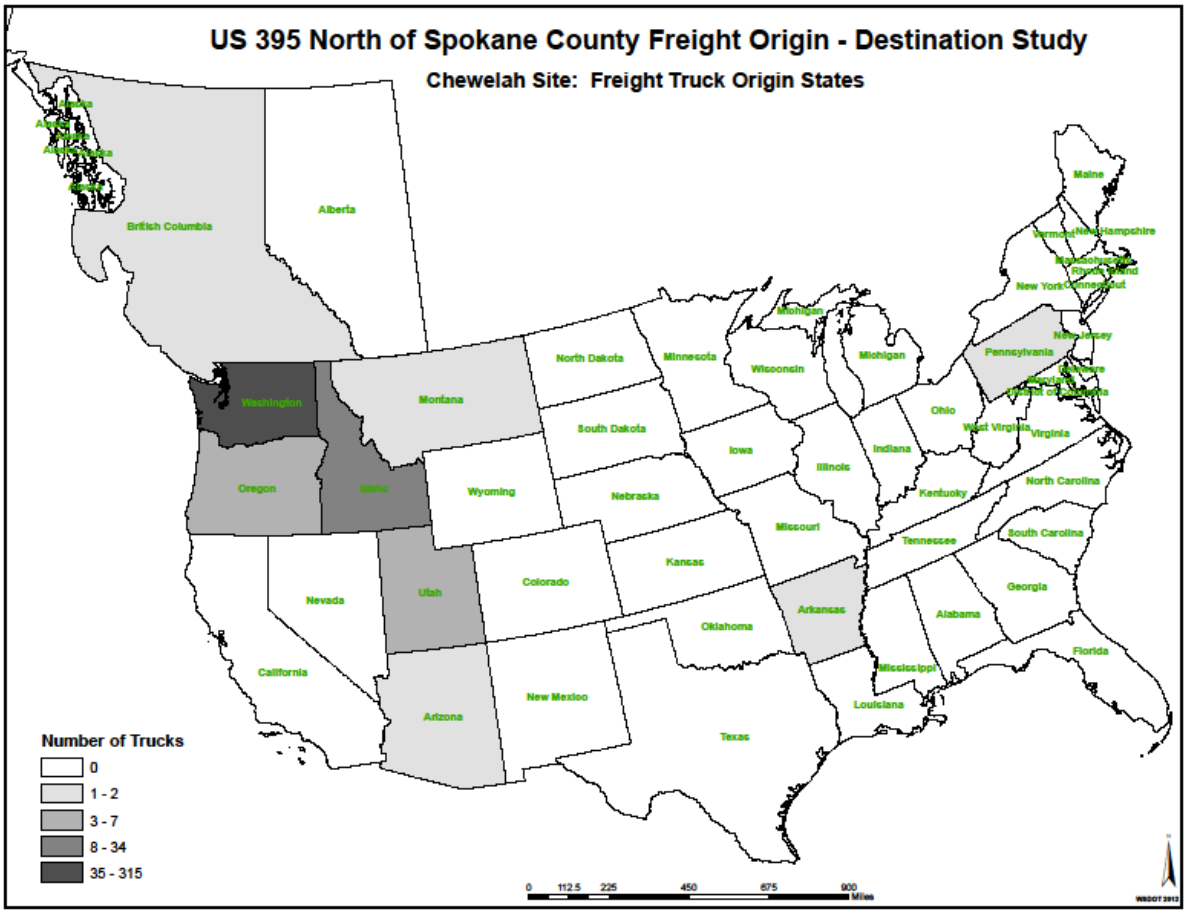


Figure 7.6: Origin State/Province.

Origin State/Province	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
WA	314	85.6%	183	81.0%	497	83.8%
ID	34	9.3%	26	11.5%	60	10.1%
OR	7	1.9%	5	2.2%	12	2.0%
British Columbia	1	0.3%	5	2.2%	6	1.0%
Other	11	3.0%	7	3.1%	18	3.0%
Total	**367**	**100%**	**226**	**100%**	**593**	**100%**

Figure 7.7: Origin City.

Origin City	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Spokane	138	38%	75	33%	213	36%
Ford	24	7%	0	0%	24	4%
Spokane Valley	19	5%	8	4%	27	5%
Loon Lake	15	4%	6	3%	21	4%
Colville	12	3%	13	6%	25	4%
Deer Park	8	2%	3	1%	11	2%
Chewelah	8	2%	19	8%	27	5%
Other	139	38%	102	45%	241	41%
Total	**363**	**100%**	**226**	**100%**	**589**	**100%**

A somewhat unexpected survey result was the destination states and cities (Figures 7.9 and 7.10) are less distributed than are the coinciding origins (Figures 7.6 and 7.7), though both origin and destination locations are still primarily represented by intrastate travel. As expected, the Canadian province of British Columbia (BC) generated more observed freight trips than all other US states combined, excluding Washington. These findings begin to suggest an important relationship between the U.S.- Canadian border and US 395.

Surveyed loaded trucks were destined for more than 40 cities after crossing Chewelah. Colville ranks as the most frequent destination, at 37%. Of the top destination cities, only one out-of-state city, Trail, BC, Canada, is among the top 5 for loaded tucks (Figure 7.10). Colville and Kettle Falls are the top two destination cities and account for more than 30% and 20% of observations, respectively

FIGURE 7.8 Chewelah survey site reported destinations.

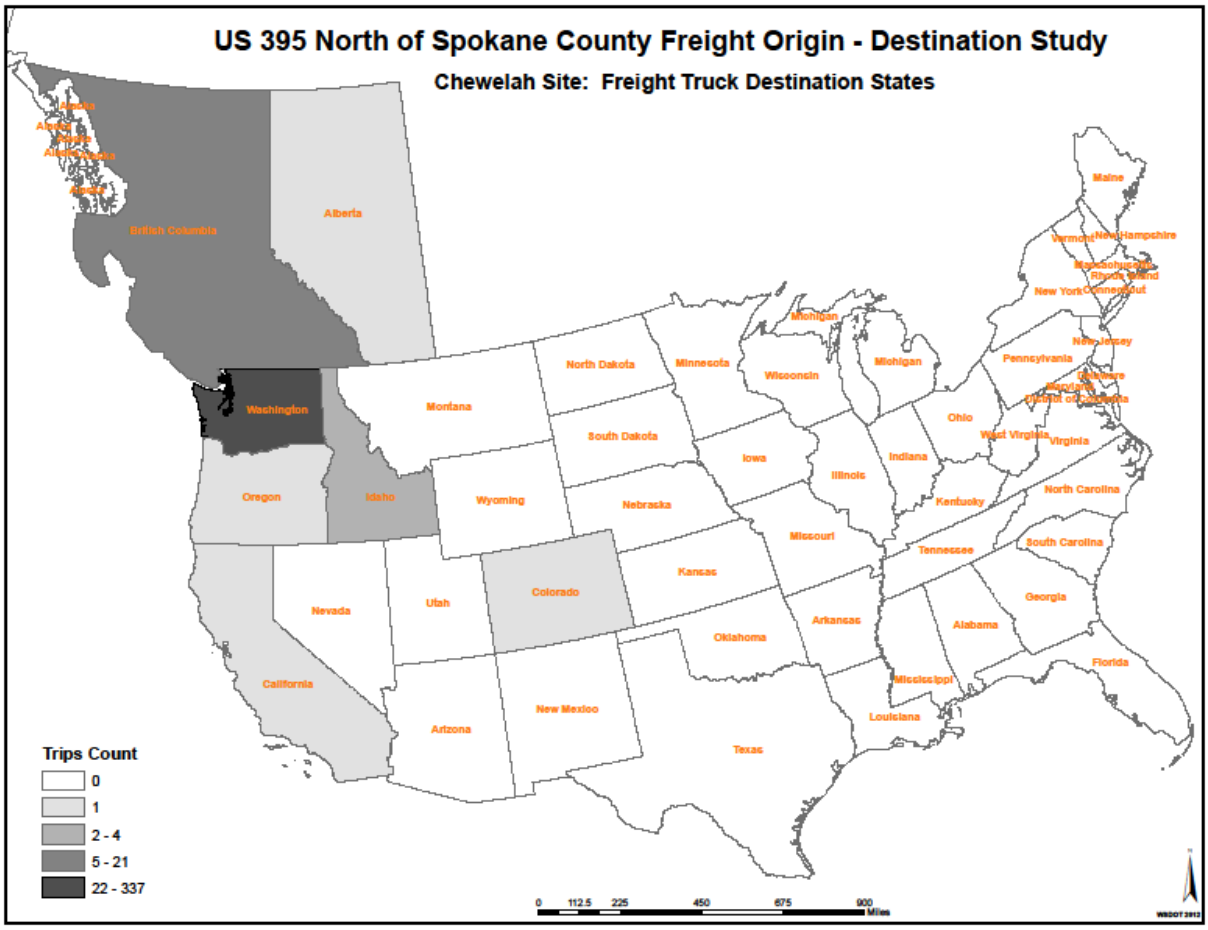


Figure 7.9: Destination State/Province.

Destination State/Province	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
WA	337	92.1%	176	78.6%	513	86.9%
British Columbia	21	5.7%	42	18.8%	63	10.7%
ID	4	1.1%	3	1.3%	7	1.2%
OR	1	0.3%	1	0.4%	2	0.3%
Other	3	0.8%	2	0.9%	5	0.8%
Total	**366**	**100%**	**224**	**100%**	**590**	**100%**

Figure 7.10: Destination City.

Destination City	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Colville	135	37%	77	34%	212	36%
Kettle Falls	94	26%	47	21%	141	24%
Arden	39	11%	8	4%	47	8%
Trail	16	4%	24	11%	40	7%
Republic	12	3%	2	1%	14	2%
Other	70	14%	66	21%	101	17%
Total	**366**	**100%**	**224**	**100%**	**590**	**100%**

7.3.2 Origin and Destination Facility Types

In regards to facility types that generate freight trips northbound through Chewelah on US 395, Figure 7.11 provides responses to the ten originating facility options that were presented during the survey. Loaded trucks (31%) were most likely to have originated from a warehouse or distribution center, followed by farm or forest facility (25%). Different from loaded trips, the empty trips were led by trucking yard (27%) and industrial factory or sawmill (25%). For either trucks with cargo or without cargo, railroad and port are rarely the originating facility; however, respondents did identify a wide variety of alternative originations (other) including their own homes.

Different from their origins, destination facilities (Figure 7.14) for respondent trips are largely industrial factory or sawmill for both loaded (35%) and empty (44%) trucks. In addition, there are a low percentage of trips destined to warehouse or distribution centers. Respondents answering with "other" made up significant destination responses. Explanations for these responses in ending at home, at dealerships, mines, landfills, among others.

As should be expected given the origin/destination information, Figure 7.15 provides further indication of the influence and preponderance of timber based trucks on the northbound corridor through Chewelah. Trucks hauling logs and other wood in rough accounted for nearly 30% of all loaded trucks surveyed at Chewelah site. It is valuable to recognize the ordering of Figure 7.15. While rough woody products ranks number one in both trips and tonnage, it falls to number six in dollar value on board. Alternatively, electronic equipment moved few trucks (#10 ranked), and each truck was relatively light, their value was substantial. Only trucks hauling precision

equipment carried a higher total value of goods (over $14 million) even though their trips surveyed only totaled four trucks. Refer to Figure 7.2 for corridor wide surveyed and annualized movement by commodity group.

Further, the leading origins of the main commodities by truck trips (Figure 7.16), in order of significance, were Ford, Suncrest, Loon Lake and Spokane, in Washington and Priest River in British Columbia. The destinations were Kettle Falls, Colville, and Arden, WA along with Trail, British Columbia. These major commodity origin and destinations demonstrates evidence of the tight reliance of local industries, and thus their communities, on the utilization of the US 395 corridor.

Figure 7.11: Origin facility types.

Facility Origin	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Trucking Yard	35	10%	60	27%	95	16%
Railroad Yard	1	0%	0	0%	1	0%
River or Ocean Port	0	0%	1	0%	1	0%
Airport	0	0%	1	0%	1	0%
Industrial Factory/Sawmill	51	14%	54	25%	105	18%
Agriculture Processing Facility	5	1%	7	3%	12	2%
Warehouse/Distribution	115	31%	22	10%	137	23%
Farm or Forest	92	25%	3	1%	95	16%
Retail Store or Gas Station	9	2%	8	4%	17	3%
Job/Construction Site	8	2%	7	3%	15	3%
Other	51	14%	56	26%	107	18%
Total	**367**	**100%**	**219**	**100%**	**586**	**100%**

FIGURE 7.12 Origin facilities recorded at Chewelah survey site.

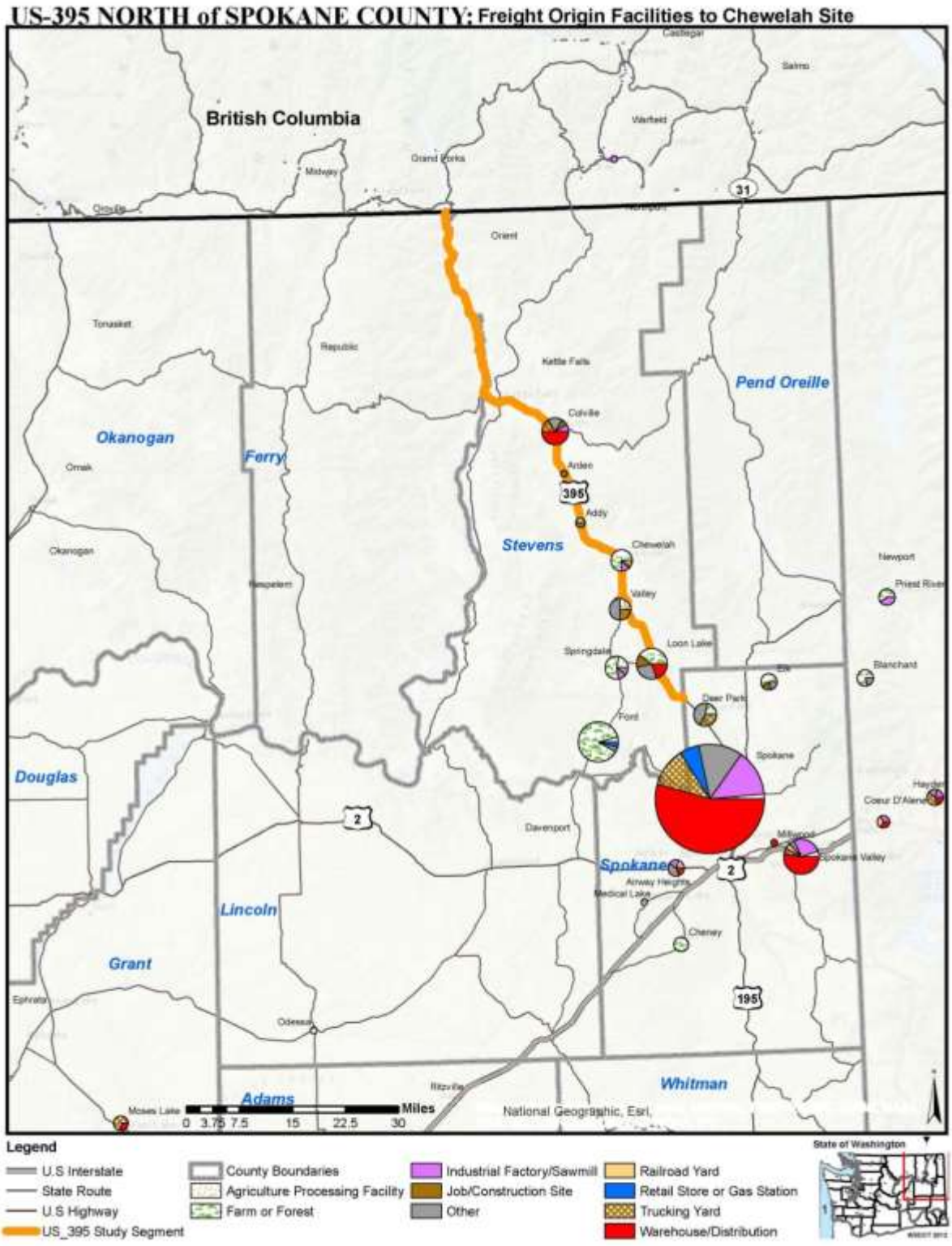


FIGURE 7.13 Destination facilities recorded at Chewelah survey site.

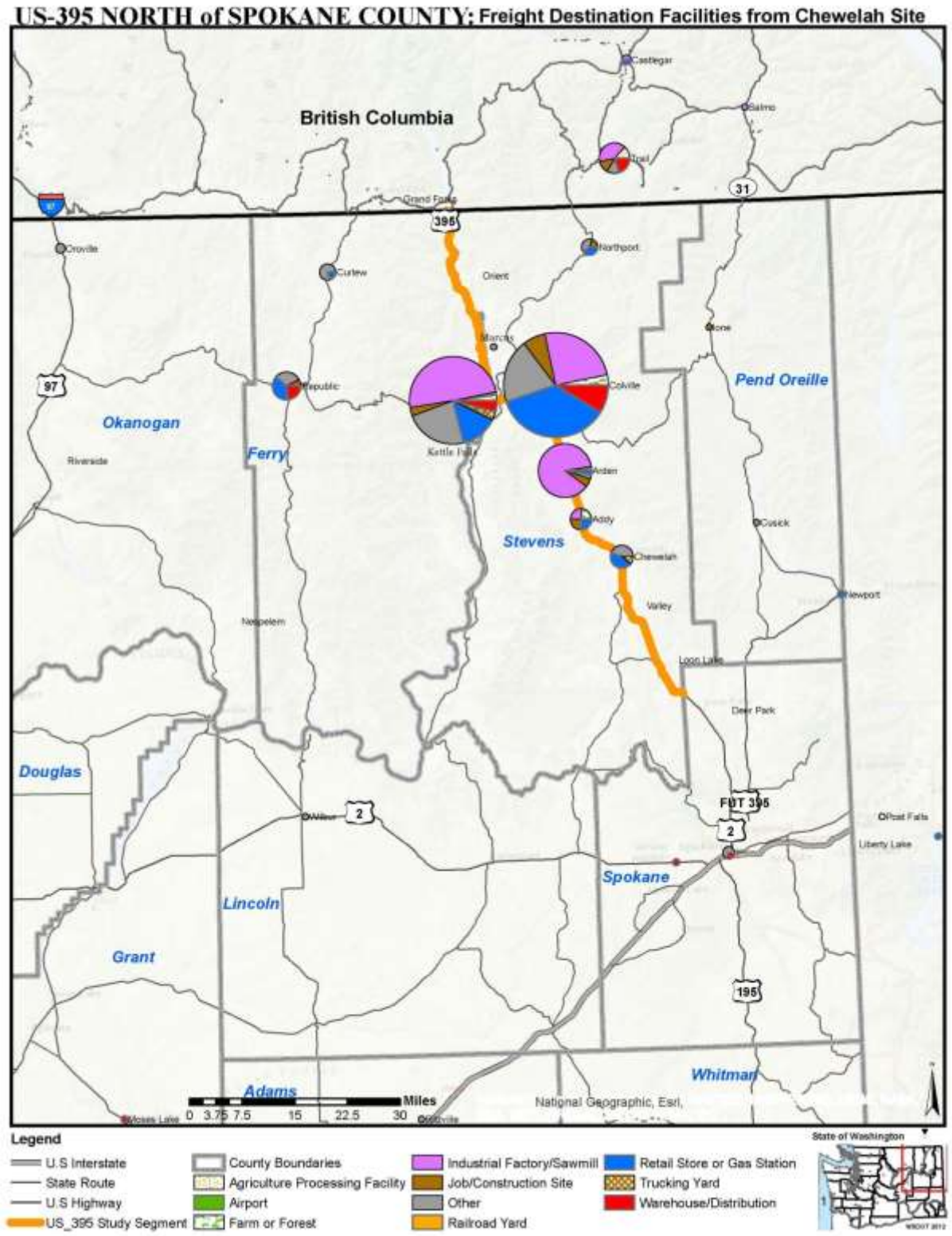


Figure 7.14: Destination facility types.

Facility Destination	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Trucking Yard	5	1%	30	14%	35	6%
Railroad Yard	1	0%	0	0%	1	0%
River or Ocean Port	0	0%	0	0%	0	0%
Airport	1	0%	0	0%	1	0%
Industrial Factory/Sawmill	124	35%	94	44%	218	39%
Agriculture Processing Facility	7	2%	7	3%	14	2%
Warehouse/Distribution	27	8%	11	5%	38	7%
Farm or Forest	8	2%	11	5%	19	3%
Retail Store or Gas Station	83	24%	12	6%	95	17%
Job/Construction Site	21	6%	8	4%	29	5%
Other	74	21%	42	20%	116	20%
Total	**351**	**100%**	**215**	**100%**	**566**	**100%**

Figure 7.15: Major commodity (Top 10) hauled by truck trip.

Description	Number of Truck Trips	Average Cargo Weight (lb.)	Total Tonnage	Total Value ($)
Logs and other wood in the rough	105	54,728	2873	$ 313,268
Mixed freight	35	18,486	324	$ 1,269,124
Nonmetallic mineral products	24	47,094	565	$ 129,876
Machinery	20	20,610	206	$ 1,845,713
Fuel oils	19	44,276	421	$ 338,416
Primary/semi-finished base metal	18	25,517	230	$ 420,999
Waste and scrap	17	39,465	335	$ 182,399
Other prepared foodstuffs and fats and oils	14	11,780	82	$ 106,349
Paper or paperboard articles	14	16,244	114	$ 202,294
Electrical and office equipment	12	25,855	155	$ 6,381,017

Figure7.16: Origin and destination of (Top 3) major commodity by truck trip.

SCTG	Description	Main Origin Destination			
		Origin City	Origin State	Destination City	Destination State
25	Logs and other wood in the rough	Ford, Suncrest, Loon Lake, Springdale	WA	Kettle Falls, Arden, Colville	WA
		Priest River	ID		
26	Mixed freight	Spokane, Spokane-Valley	WA	Colville, Kettle Falls	WA
		Coeur d'Alene	ID	Trail	British Columbia
41	Nonmetallic mineral products	Spokane, Spokane-Valley	WA	Colville, Curlew	WA

7.4 Characteristic Profile of Surveyed Trucks at the Deer Park Location of US 395

Brief summaries of trucks surveyed at the southbound Deer Park location, for both empty and loaded, are presented in the following tables. Major characteristics evaluated include the origin and destination (O-D) states/provinces and cities, as well as their associated O-D facilities and major commodities on board.

7.4.1 Origin and Destination Cities and States

A strong majority of trucks surveyed, loaded and empty, originated with Washington (Figures 7.17 and 7.18). Unlike loaded trucks surveyed at the northbound Chewelah site, there was significant number of trucks travelling southbound through Deer Park that originated in British Columbia. This observation is suggestive of the relevant importance of the US 395 corridor as an import gateway in comparison to that of an export gateway. Further information on the role border crossings (Danville, Laurier, Frontier, and Metaline Falls) and thus US 395 play in freight movement across the US – Canadian border can be seen in WSDOT's Gray Notebook[3]. Idaho generates more surveyed empty trucks than other states and provinces, excluding Washington. In addition to the observations shown in Figure 7.18, a difference in the originating states can be

[3] http://wsdot.wa.gov/publications/fulltext/graynotebook/Jun14.pdf#page=36

seen between loaded trucks and those that are empty. Loaded trucks originated from eight various states and provinces, while empty trucks were more regional in their starting points, with only three originating states or provinces identified.

Further consideration of trip origins is detailed in Figure 7.19. Colville is the primary origination city for both loaded and empty trucks. Additionally, several other cities each were identified as the originating location for empty and/or loaded trucks in more than 10% of the total surveyed trucks. Loaded trucks surveyed, typically began their hauls in more than 40 various cities throughout the U.S. and Canada, while empty trucks begin trips in 50 different cities. One potential abnormality or counter-intuitive result found in Figure 7.19 is the origination of trips in Spokane, even though the survey site is north of the city and only captured southbound trucks. The major factor behind this observation is the occurrence of multi-stop trips in which the driver began in Spokane, delivered cargo, and is now returning southbound. Other factors may include respondent confusion in the case where the driver may have begun the day in Spokane and picked up cargo north of the survey site and is now travelling back south.

FIGURE 7.17 Deer Park survey site reported origins.

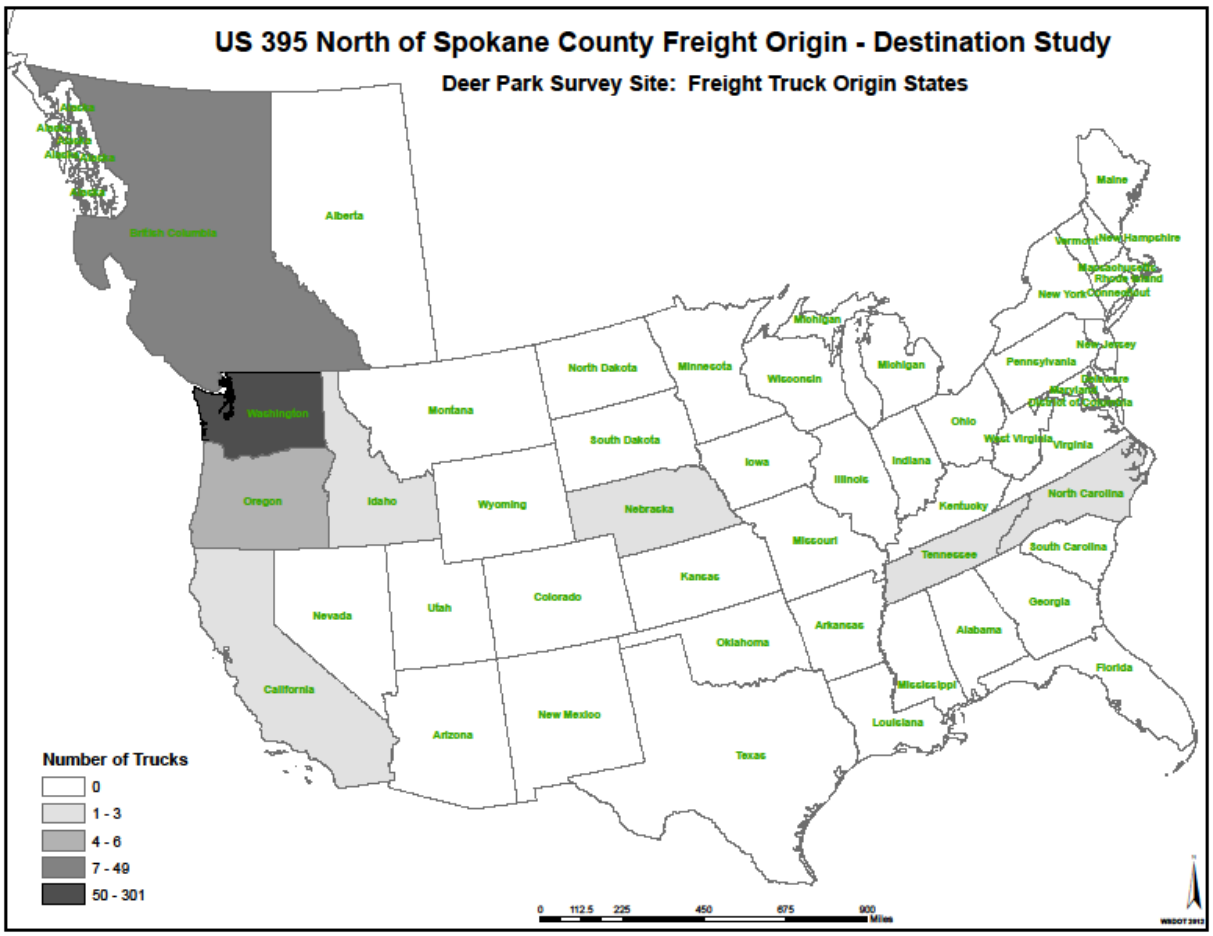


Figure 7.18: Origin State/Province.

Origin State/Province	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
WA	301	82.7%	192	86.1%	493	84.0%
British Columbia	49	13.5%	10	4.5%	59	10.1%
OR	6	1.6%	0	0.0%	6	1.0%
ID	3	0.8%	21	9.4%	24	4.1%
Other	5	1.4%	0	0.0%	5	0.9%
Total	**364**	**100%**	**223**	**100%**	**587**	**100%**

Figure 7.19: Origin City.

Origin City	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Colville	108	30%	46	21%	154	26%
Kettle Falls	49	13%	20	9%	69	12%
Spokane	49	13%	45	20%	94	16%
Trail	36	10%	4	2%	40	7%
Chewelah	20	5%	11	5%	31	5%
Other	102	28%	97	64.7%	199	58.4%
Total	**364**	**100%**	**223**	**100%**	**587**	**100%**

As could be expected given the origin statistics of trucks at the Chewelah location (Figure 7.6, 7.7), which were largely Washington based, the vast majority of trucks crossing Deer Park are also destined for Washington (Figure 7.20 and 7.21) only in smaller proportion. As compared to the 92% of loaded trucks at the Chewelah location, only 63% of loaded trucks crossing Deer Park were destined for WA. On the other hand, there were 86% of empty trucks at the Deer Park location terminating in WA. Meanwhile, Idaho generates a significant number of destination responses, in excess of 10%. The make-up of loaded vs empty trucks at the Deer Park location offers a similar picture as those at the Chewelah location. Around 60% of trucks across Deer Park or Chewelah were recorded as hauling cargo. Loaded trucks were heading for 20 states or provinces (or combination thereof), while empty trucks were terminating in only one fourth of that number; five.

In further consideration of the destinations for loaded trucks crossing Deer Park, Spokane leads the greater than 110 cities with 29% of the destinations, followed by Deer Park at 6% (Figure 7.22). Spokane's portion of empty trucks increases considerably to 50%, while all other cities drop off to be insignificant. All of the major destination cites are located near WA-ID border.

FIGURE 7.20 Deer Park survey site reported destinations.

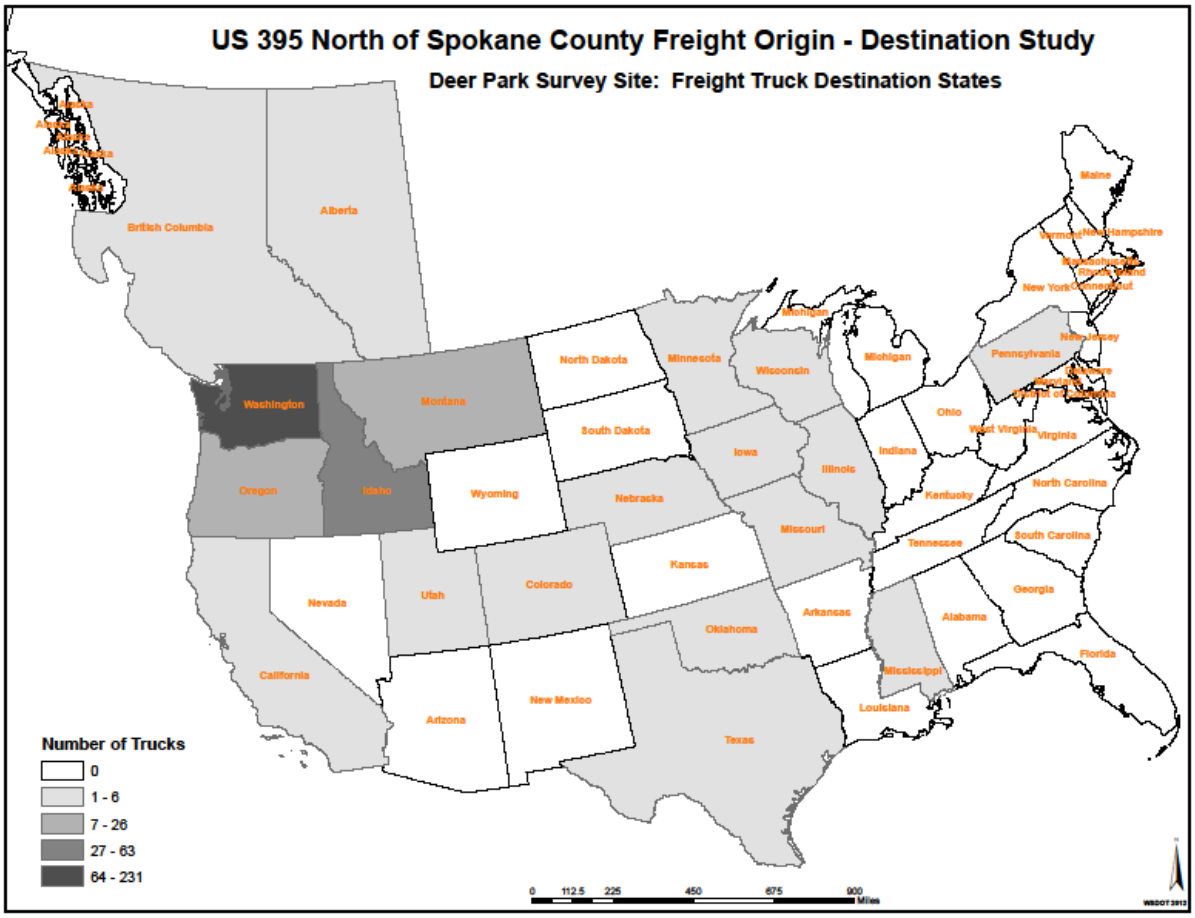


Figure 7.21: Destination State/Province.

Destination State/Province	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
WA	229	63.4%	192	86.1%	421	72.1%
ID	63	17.5%	26	11.7%	89	15.2%
OR	26	7.2%	3	1.3%	29	5.0%
MT	10	2.8%	0	0.0%	10	1.7%
IA	6	1.7%	0	0.0%	6	1.0%
Other	27	7.5%	2	0.9%	29	5.0%
Total	**361**	**100.0%**	**223**	**100%**	**584**	**100.0%**

Figure 7.22: Destination City.

Destination City	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Spokane	103	29%	111	50%	214	37%
Deer Park	20	6%	9	4%	29	5%
Post Falls	19	5%	3	1%	22	4%
Colville	16	4%	11	5%	27	5%
Lewiston	15	4%	1	0%	16	3%
Other	188	52%	88	39%	276	47%
Total	**361**	**100%**	**223**	**100%**	**584**	**100%**

7.4.2 Origin and Destination Facility Types

Concentrating now on the facility types that generate southbound flows at Deer Park, Figures 7.23 and 7.24 display the ten option types that were provided for the respondents. Loaded trucks were most likely to have originated from an Industrial Factory or Sawmill (44%) or a Warehouse and Distribution Center (18%). Different from loaded trips, the empty trips were led by Warehouse and Distribution Centers (27%) in conjunction with Retail Store or Gas Station (19%).

FIGURE 7.23 Origin facilities recorded at Deer Park survey site.

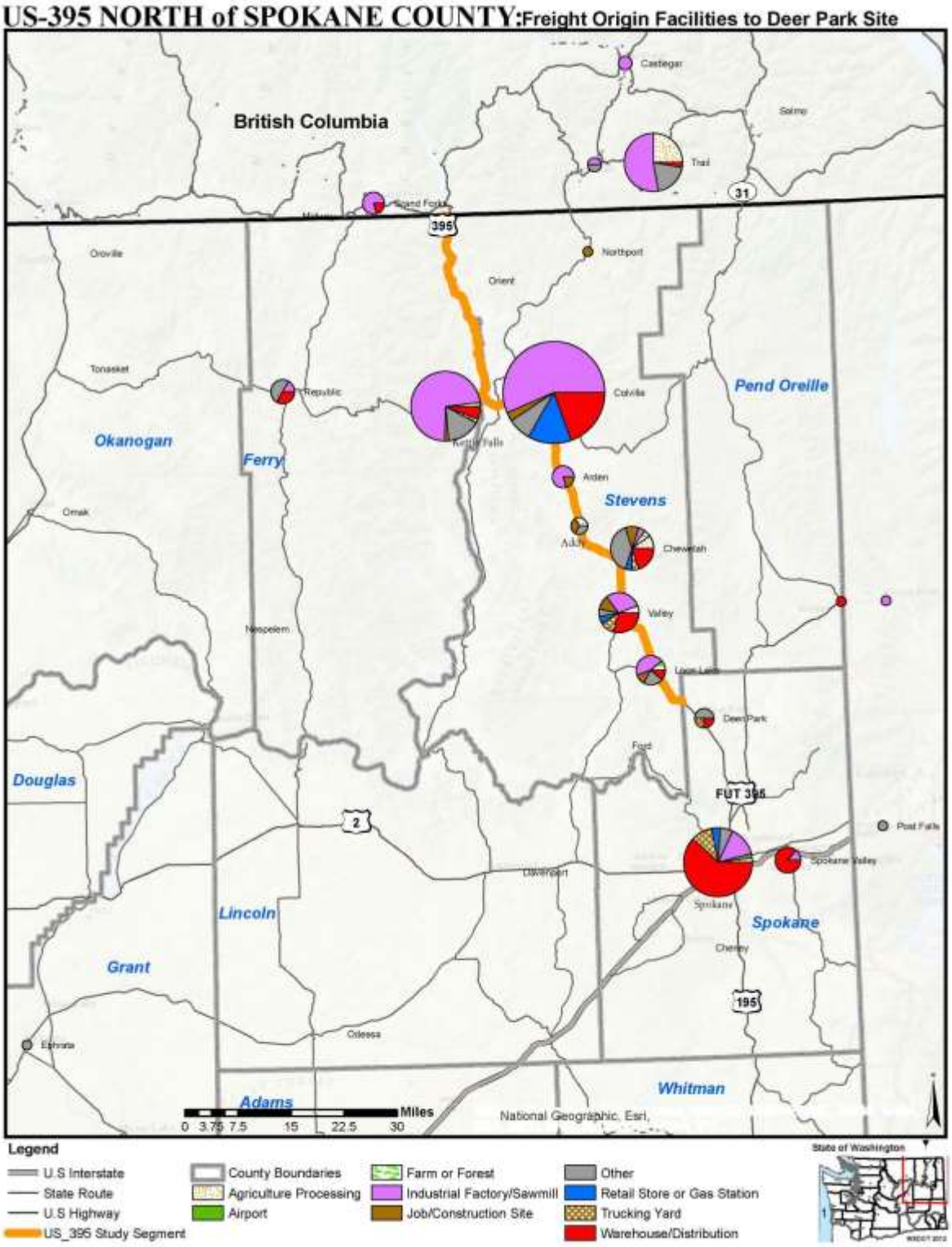


Figure 7.24 Origin facility types.

Facility Origin	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Trucking Yard	12	3%	18	8%	30	5%
Railroad Yard	0	0%	0	0%	0	0%
River or Ocean Port	0	0%	0	0%	0	0%
Airport	1	0%	0	0%	1	0%
Industrial Factory/Sawmill	157	44%	30	14%	187	33%
Agriculture Processing Facility	16	5%	0	0%	16	3%
Warehouse/Distribution	85	24%	58	27%	143	25%
Farm or Forest	5	1%	11	5%	16	3%
Retail Store or Gas Station	19	5%	40	19%	59	10%
Job/Construction Site	12	3%	10	5%	22	4%
Other	48	14%	46	22%	94	17%
Total	**355**	**100%**	**213**	**100%**	**568**	**100%**

Destination facilities (Figures 7.25 and 7.26) for respondent trips were largely attributable to Warehouse or Distribution Centers for both loaded (31%) and empty (34%), or to Industrial Factory or Sawmill for loaded (20%) and Trucking yards for empty (21%).

As may be expected given the origin/destination information, Figure 7.27 provides further indication of the influence and preponderance of timber based trucks on the southbound corridor through Deer Park. Further, the leading origins of the main commodities by truck trips (Figure 7.28), in order of significance, were Kettle Falls and Colville; two cities found directly on the US 395 corridor. Though not as high of a proportion as Chewelah (30%), trucks hauling logs and other wood in rough were the most frequently observed load and accounted for 16% of all loaded trucks surveyed at the Deer Park site. Considering the aggregate of rough wood and other wood products (93 observations) that 16% climbs to a full one-quarter of all loaded observations. It is again valuable to recognize the ordering of Figure 7.27. While rough woody products ranks number one in trips, it is outweighed in tonnage by fertilizer and nearly paralled by other chemicals despite each having far fewer trips. Wood in the rough falls fully out of the top ten when considering dollar value on board. Alternatively, hauling precision and electronic

equipment took over the top spots based largely on their estimated value per ton. Refer to Figure 7.2 for corridor wide surveyed and annualized movement by commodity group.

FIGURE 7.25 Destination facilities recorded at Chewelah survey site

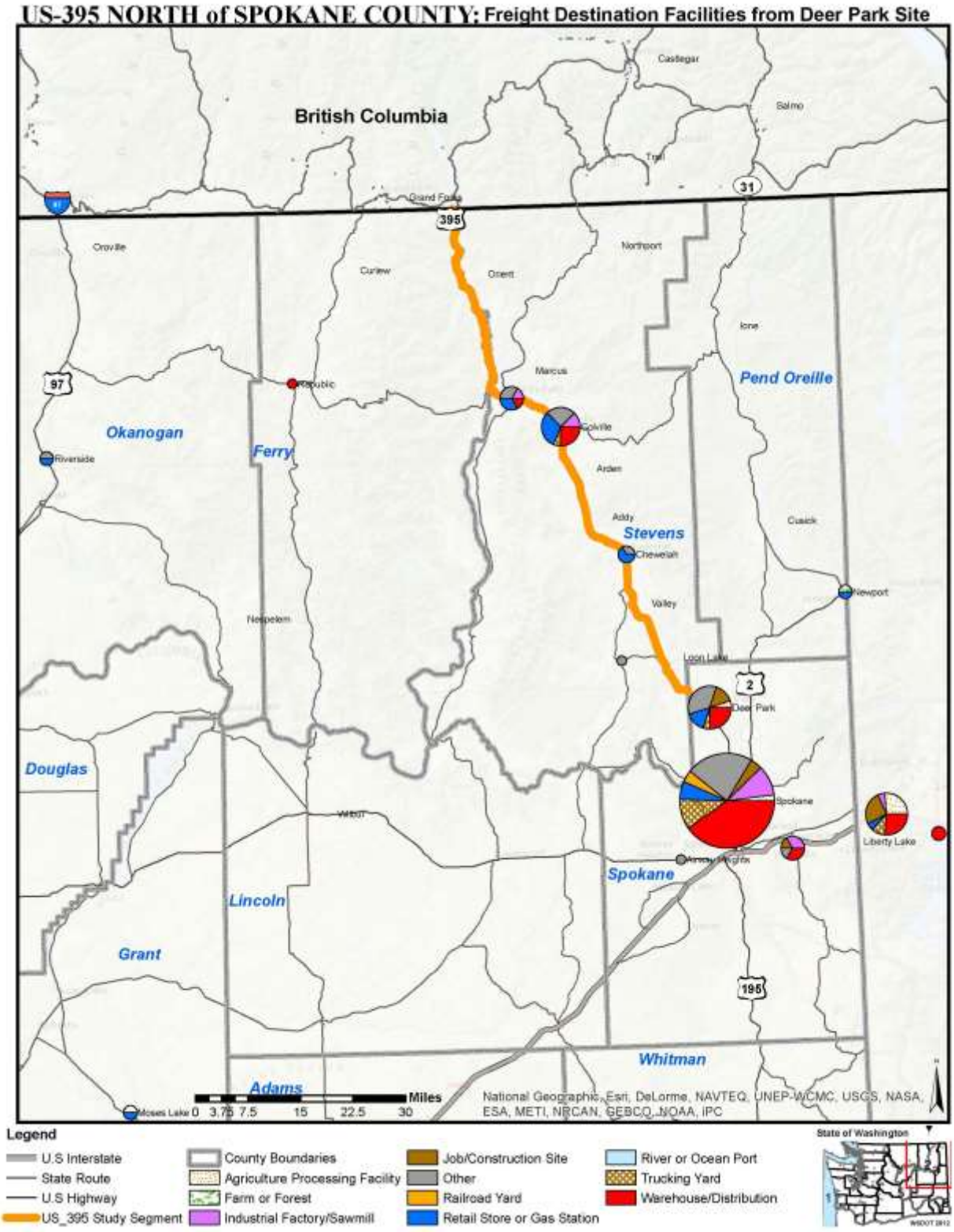


Figure 7.26: Destination facility types.

Facility Destination	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Trucking yard	16	5%	43	21%	59	11%
Railroad yard	5	1%	1	0%	6	1%
River or Ocean Port	5	1%	0	0%	5	1%
Airport	0	0%	0	0%	0	0%
Industrial factory/sawmill	69	20%	23	11%	92	17%
Agriculture processing facility	19	6%	4	2%	23	4%
Warehouse/distribution	104	31%	71	34%	175	32%
Farm or forest	2	1%	11	5%	13	2%
Retail store or gas station	33	10%	10	5%	43	8%
Job/construction site	15	4%	4	2%	19	3%
Other	70	21%	40	19%	110	20%
Total	**338**	**100%**	**207**	**100%**	**545**	**100%**

Figure 7.27: Major commodity (Top 10) hauled by truck trip.

SCTG	Description	Number of Occurrences	Average Cargo Weight (lb.)	Total Tonnage	Total Value
25	**Logs and other wood in the rough**	59	54,728	1,614	$ 176,027
26	**Wood products**	34	52,214	888	$ 316,781
41	**Waste and scrap**	24	39,465	474	$ 257,504
22	**Fertilizers**	23	62,788	722	$ 250,271
34	**Machinery**	21	20,610	216	$ 1,937,999
18	**Fuel oils**	18	44,276	398	$ 320,605
28	**Paper or paperboard articles**	18	16,244	146	$ 260,092
20	**Basic chemicals**	17	49,065	417	$ 345,587
36	**Motorized and other vehicles (including parts)**	14	14,324	100	$ 922,947
35	**Electrical and office equipment**	13	25,855	168	$ 6,912,769

Figure 7.28.: Origin and destination of (Top 3) major commodity by truck trip.

SCTG	Description	Main Origin/Destination			
		Origin City	Origin State	Destination City	Destination State
25	**Logs and other wood in the rough**	Kettle Falls, Colville	WA	Spokane, Seattle	WA
					ID
					OR
					MT
26	**Wood products**	Colville, Kettle Falls	WA	Spokane	WA
				Lewiston	ID
41	**Waste and scrap**	Colville, Republic	WA	Spokane, Wallula	WA
				Lewiston	ID

7.5 Characteristic Profile of Surveyed Trucks at the Kettle Falls Location of US 395

Brief summaries of the trucks at the Kettle Falls location, empty and loaded, are displayed in the following tables. Major characteristics of consideration include the origin and destination (O-D) states/provinces and cities, as well as their associated O-D facilities.

7.5.1 Origin and Destination Cities and States

The overwhelming majority of trucks surveyed, loaded and empty, originated with Washington (Figures 7.29 and 7.30). Similar to Deer Park, British Columbia followed and recorded a significant number of observations. Given that Kettle Falls is the closest to Canada among our three locations, this result should be of no surprise.

Breaking the origins of trips down further, Figure 7.31 provides indication of the cities from which trucks begin their hauls. Kettle Falls, as the primary generator for both loaded and empty trucks, is the only city accounting for more than 20% of originations. Similar to Chewelah, approximately 52% of trucks at the Kettle Falls location are carrying cargo from about 80 different cities, while the empty trucks originate from just over 60 cities.

FIGURE 7.29 Kettle Falls survey site reported origins.

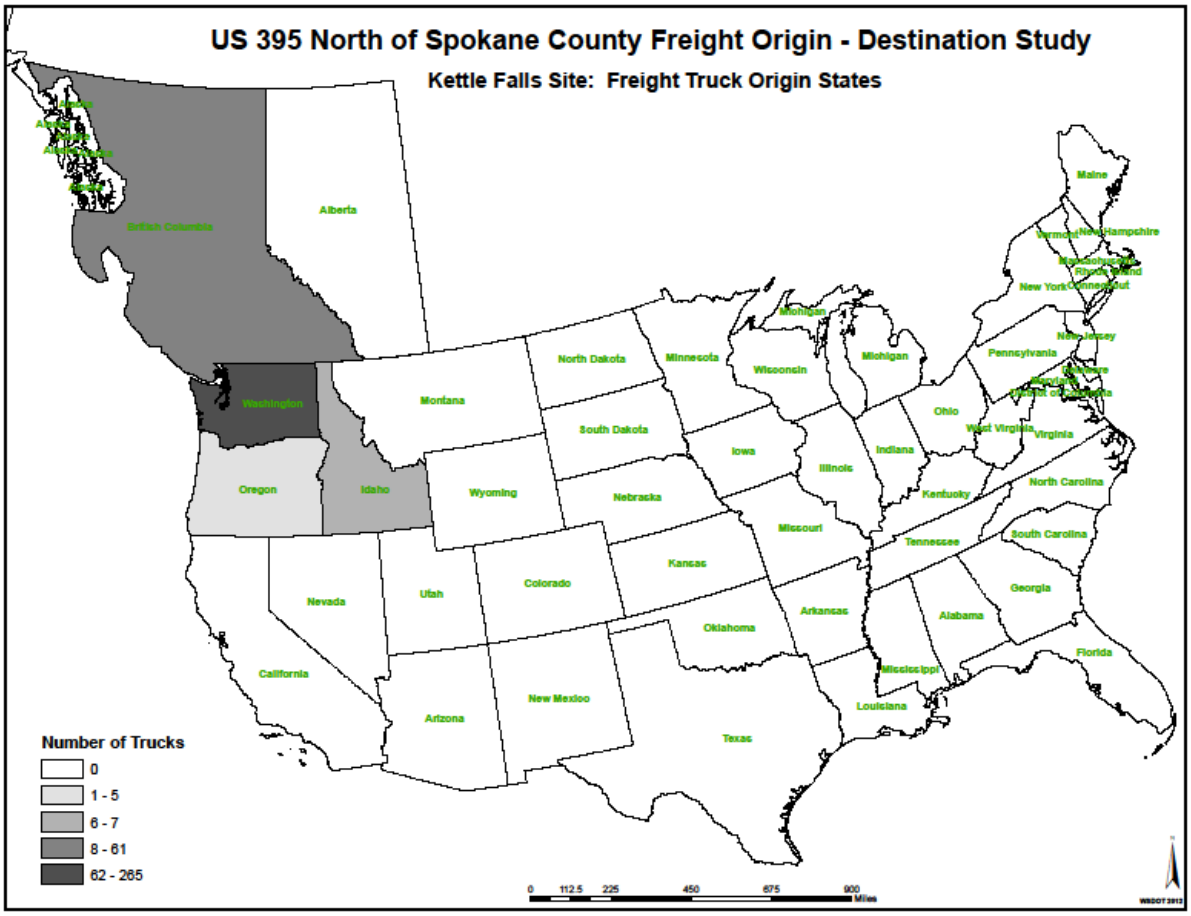


Figure 7.30: Origin State/Province.

Origin State/Province	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
WA	265	78.4%	267	83.7%	532	81.0%
British Columbia	61	18.0%	32	10.0%	93	14.2%
ID	7	2.1%	18	5.6%	25	3.8%
OR	5	1.5%	1	0.3%	6	0.9%
Other	0	0.0%	1	0.3%	1	0.2%
Total	**338**	**100%**	**319**	**100%**	**657**	**100%**

Figure 7.31: Origin City.

Origin City	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Kettle Falls	68	20%	91	29%	159	24%
Spokane	25	7%	27	8%	52	8%
Colville	23	7%	38	12%	61	9%
Republic	22	7%	12	4%	34	5%
Trail	21	6%	7	2%	28	4%
Other	176	53%	143	45%	319	49%
Total	**335**	**100%**	**318**	**100%**	**653**	**100%**

As expected, the overwhelming majority of trucks at the Kettle Falls location are destined for Washington (Figures 7.32 and 7.33). With the exception of Washington, no state or province generated a portion in excess of 10% of destination responses. Similar to Deer Park, loaded trucks crossing the Kettle Falls site have a more diversified set of destinations than empty trucks. Specifically, trucks carrying cargo ended their trips in almost 20 states or provinces, while trucks without cargo destined for only three states.

Of the most attractive cities, Colville and Kettle Falls occupy top two positions among more than 60 different destinations for loaded and empty trucks passing Kettle Falls (Figure 7.34). In addition, Spokane ranks 4th and 3rd for loaded and empty truck categories respectively. Unexpectedly, no out-of-state city can generate a significant number of observations.

FIGURE 7.32 Kettle Falls survey site reported destinations.

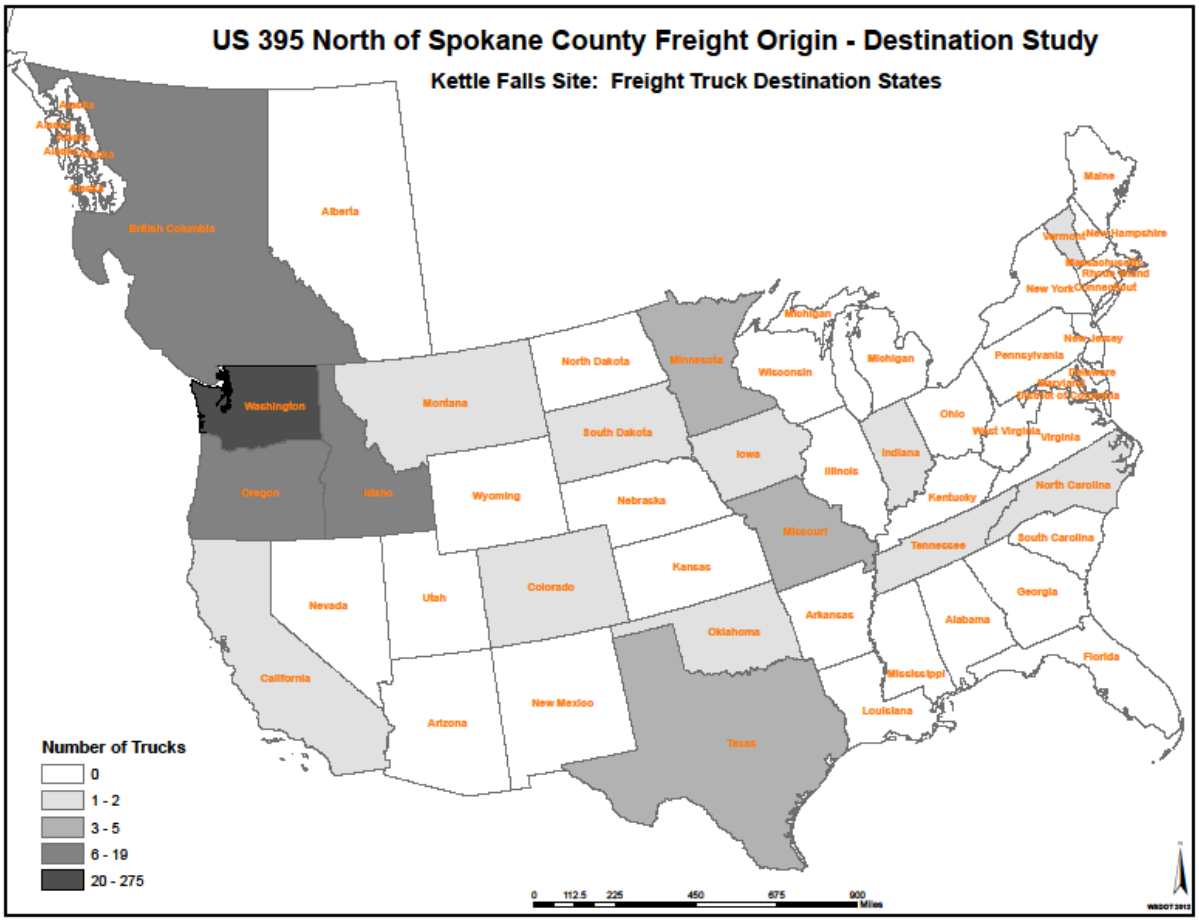


Figure 7.33: Destination State/Province.

Destination State/Province	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
WA	275	80.9%	279	88.9%	554	84.7%
ID	19	5.6%	17	5.4%	36	5.5%
British Columbia	12	3.5%	18	5.7%	30	4.6%
OR	11	3.2%	0	0.0%	11	1.7%
Other	23	6.8%	0	0.0%	23	3.5%
Total	**340**	**100%**	**314**	**100%**	**654**	**100%**

Figure 7.34: Destination City.

Destination City	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Colville	113	34%	60	19%	173	27%
Kettle Falls	56	17%	77	25%	133	21%
Arden	19	6%	5	2%	24	4%
Spokane	17	5%	49	16%	66	10%
Post Falls	7	2%	1	0%	8	1%
Other	123	37%	121	39%	244	38%
Total	**335**	**100%**	**313**	**100%**	**648**	**100%**

7.5.2 Origin and Destination Facility Types

Concentrating now on the facility types that generate flows across the Kettle Falls site, Figures 7.35 and 7.36 display the ten option types that were provided for the respondents. Similar to Deer Park location, loaded trucks were most likely to have originated from an Industrial Factory or Sawmill (36%) or a Warehouse and Distribution Centers (31%). The empty trips were also led by Industrial Factory or Sawmill (26%) while Trucking Yard ranks 2nd and accounts for 16% of observations for trucks without cargo.

FIGURE 7.35 Origin facilities recorded at Kettle Falls survey site.

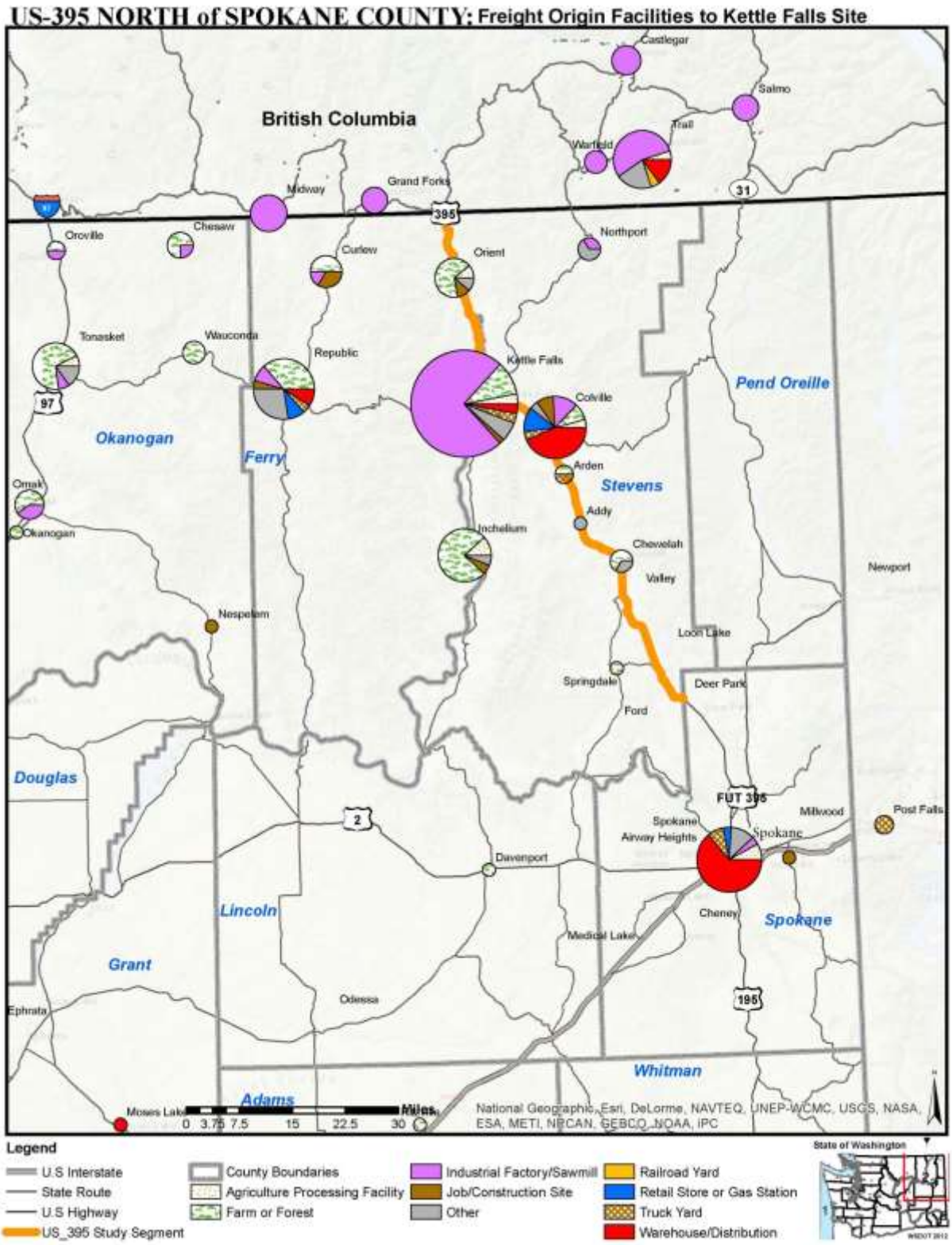


Figure 7.36 Origin Facility Types.

Facility Origin	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Trucking Yard	9	3%	50	16%	59	9%
Railroad Yard	1	0%	1	0%	2	0%
River or Ocean Port	0	0%	0	0%	0	0%
Airport	0	0%	0	0%	0	0%
Industrial Factory/Sawmill	123	36%	81	26%	204	32%
Agriculture Processing Facility	11	3%	9	3%	20	3%
Warehouse/Distribution	38	11%	29	9%	67	10%
Farm or Forest	106	31%	14	5%	120	19%
Retail Store or Gas Station	6	2%	8	3%	14	2%
Job/Construction Site	13	4%	14	5%	27	4%
Other	30	9%	101	33%	131	20%
Total	**337**	**100%**	**307**	**100%**	**644**	**100%**

Different from their origins, Industrial Factory or Sawmill dominated destination facilities for the loaded truck category (55%), though Warehouse and Distribution Centers still holds in excess of 10% (Figures 7.37 and 7.38). Coinciding with origination facilities, Industrial Factory or Sawmill (25%) and Trucking Yard (20%) are the top two destinations for empty trucks, followed by Warehouse and Distribution Centers (13%) and Farm or Forest (9%).

Nowhere was the influence and preponderance of timber-based trucks more apparent than on the southbound corridor through Kettle Falls (Figure 7.39 and 7.40). Nearly 50% (47%) of the loaded trucks that were survey carried wood in the rough. Given the location of the survey site being immediately adjacent to a local lumber mill, this value should not surprise. Moreover, 62% of the loaded truck surveys carried either wood in the rough or other wood products including lumber and chips. Even recognizing the relatively low value of rough wood, this commodity still ranked fourth in value of all the loaded trucks surveys. Refer to Figure 7.2 for corridor wide surveyed and annualized movement by commodity group.

FIGURE 7.37 Destination facilities recorded at Kettle Falls survey site.

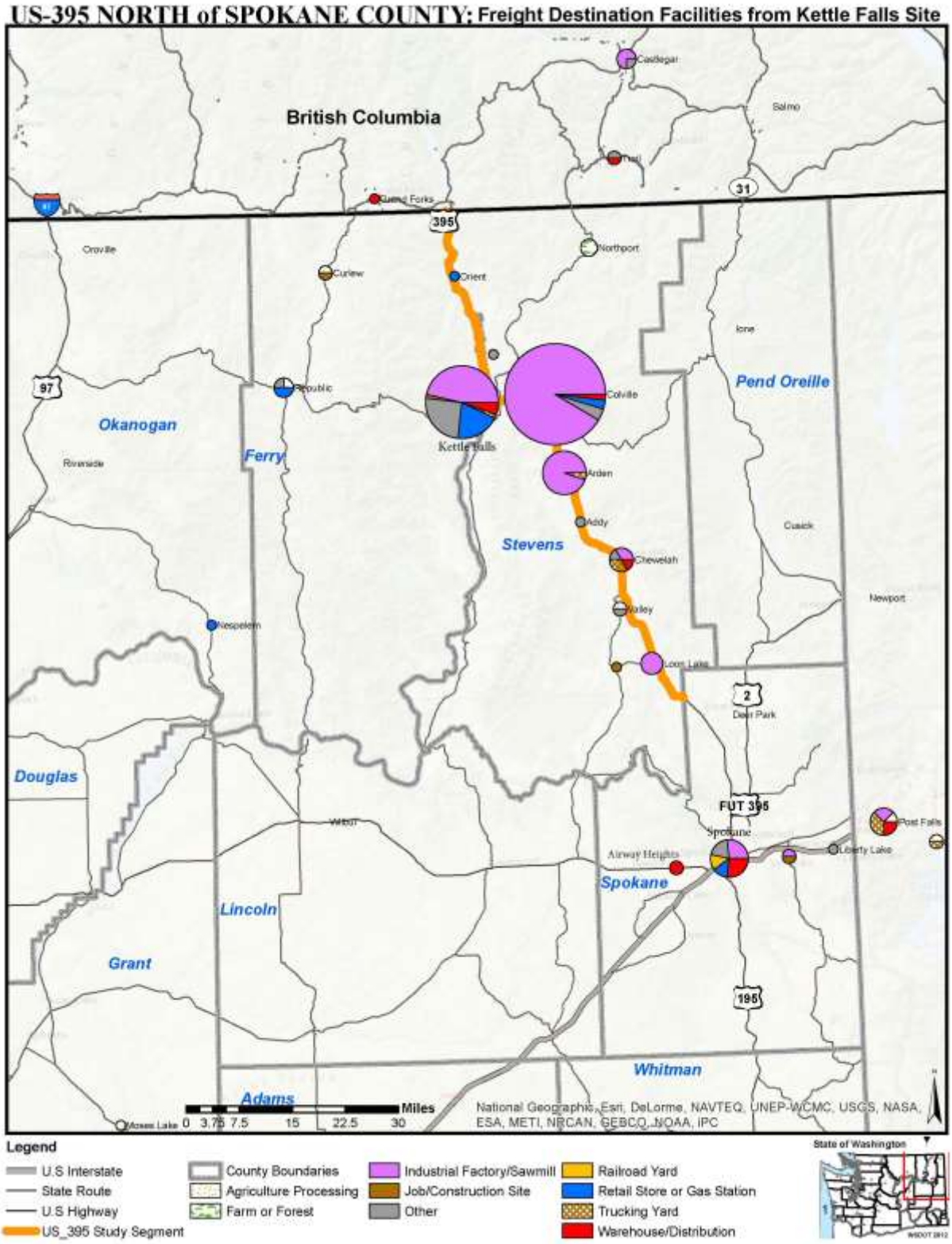


Figure 7.38: Destination Facility Types.

Facility Destination	Trucks Carrying Cargo		Trucks Without Cargo		All Trucks	
	Count	Frequency	Count	Frequency	Count	Frequency
Trucking yard	11	3%	58	20%	69	11%
Railroad yard	2	1%	1	0%	3	0%
River or Ocean Port	0	0%	0	0%	0	0%
Airport	0	0%	0	0%	0	0%
Industrial factory/sawmill	181	55%	72	25%	253	41%
Agriculture processing facility	9	3%	9	3%	18	3%
Warehouse/distribution	40	12%	36	13%	76	12%
Farm or forest	4	1%	25	9%	29	5%
Retail store or gas station	24	7%	5	2%	29	5%
Job/construction site	10	3%	9	3%	19	3%
Other	48	15%	68	24%	116	19%
Total	**329**	**100%**	**283**	**100%**	**612**	**100%**

Figure 7.39: Major Commodity (Top 10) hauled by truck trip

SCTG	Description	Number of Occurrences	Average Cargo Weight (lb.)	Total Tonnage	Total Value
25	**Logs and other wood in the rough**	166	54,728	4542	$ 495,262
26	**Wood products**	50	52,214	1305	$ 465,854
41	**Waste and scrap**	20	39,465	395	$ 214,587
20	**Basic chemicals**	17	49,065	417	$ 345,587
22	**Fertilizers**	14	62,788	440	$ 152,339
7	**Other prepared foodstuffs and fats and oils**	11	11,780	65	$ 83,560
34	**Machinery**	10	20,610	103	$ 922,856
43	**Mixed freight**	9	18,486	83	$ 326,346
35	**Electrical and office equipment**	5	25,855	65	$ 2,658,757
36	**Motorized and other vehicles (including parts)**	5	14,324	36	$ 329,624

Figure 7.40: Origin and destination of (Top 3) major commodity by truck trip.

SCTG	Description	Main Origin Destination			
		Origin City	Origin State	Destination City	Destination State
25	Logs and other wood in the rough	Kettle Falls, Inchelium, Tonasket, Republic	WA	Colville, Kettle Falls, Arden	WA
		Midway	British Columbia		
26	Wood products	Kettle Falls	WA	Spokane, Wallula	WA
		Kelowna	British Columbia	Castlegar	British Columbia
41	Waste and scrap	----	WA	Kettle Falls, Spokane	WA
			British Columbia		

7.6 Major Truck Companies Operating on the Study Segment

Over the duration of the survey, nearly 1830 different truck corporations, companies, or operators were identified. Despite the overall breadth, the top 20 accounted for more than a quarter (28%) of all truck trips. Figure 7.41 highlights the operators for whom at least 25 or more trips for the overall duration of the surveys.

Figure 7.41: Respondent frequency for operators with at least 25 observations.

Trucking Company	Company Location State	Company Location Cities	Count
DCT Chambers Trucking	BC	Castlegar	7
		Kelowna	1
		Vernon	22
	BC Total=		30
	ID	Boise	2
	ID Total=		2
	WA	Arden	1
		Colville	2
		Kettle Falls	25
		Seattle	12
		Spokane	1
		Usk	1
		Wallula	1
	WA Total=		43
DCT Chambers Trucking Total			75
Sunshine Disposal & Recycling	WA	Addy	32
		Arden	2
		Colville	3
		Spokane	3
Sunshine Disposal & Recycling Total	WA Total		40
Big Foot Trucking Inc.	WA	Kettle Falls	23
		Rice	12
Big Foot Trucking Inc. Total	WA Total		35
Boise Cascade	ID	Boise	4
	ID Total		4
	WA	Arden	1
		Boise	1
		Kettle Falls	11
		Wallula	18
	WA Total		31
Boise Cascade Total			35
Hansen Logging	WA	Chewelah	32
Hansen Logging Total	WA Total		32
Washington Trucking Inc.	WA	Everett	16
		Spokane	14
Washington Trucking Inc. Total	WA Total		30
Sutco Contracting	BC	Grand Forks	1
		Kelowna	1
		Salmo	25
Sutco Contracting Total	BC Total		27
Swanson Hay Co.	WA	Mead	4
		Spokane	21
Swanson Hay Co. Total	WA Total		25

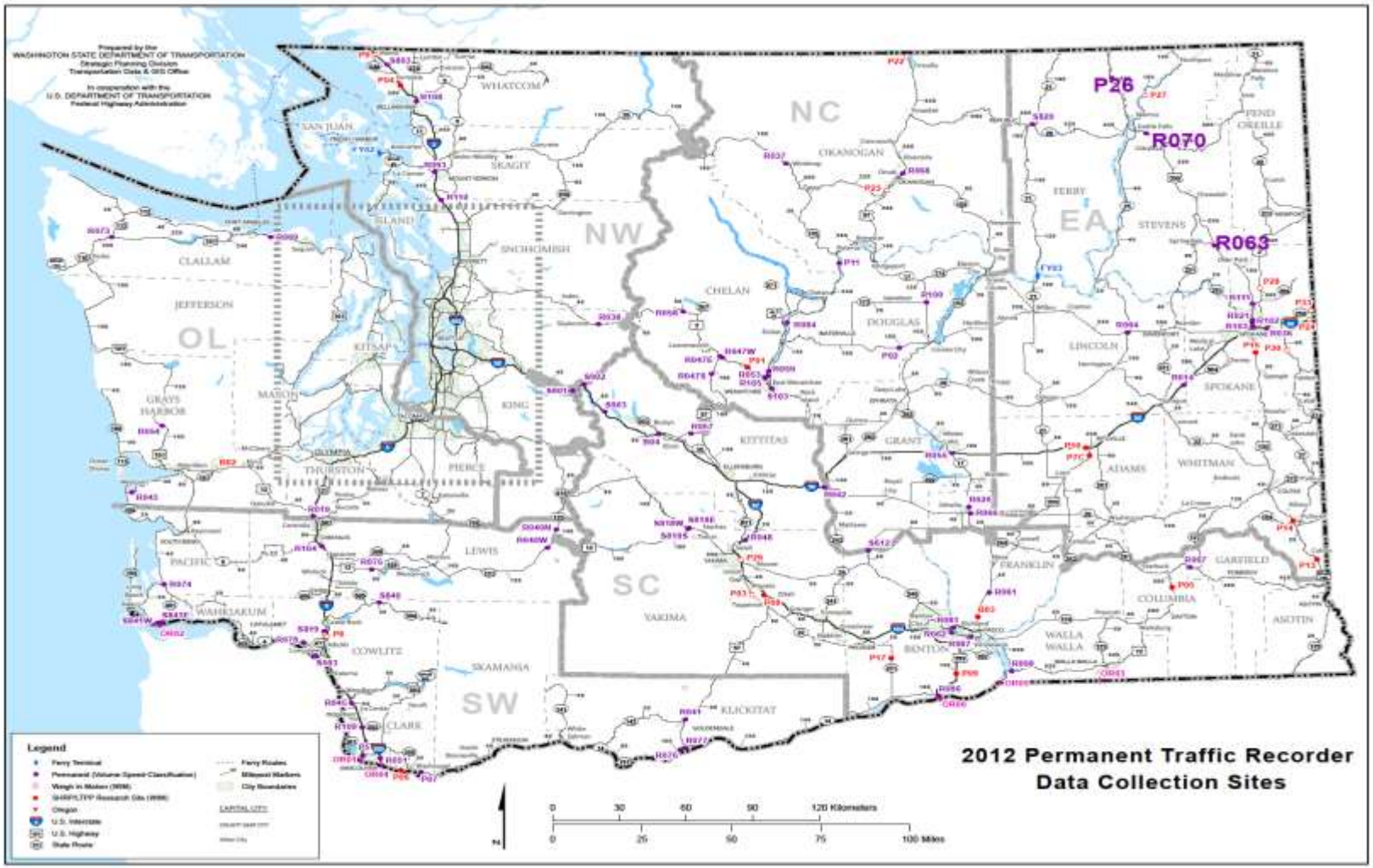
8 Conclusion

The preceding sections highlight several of the major themes of the data collected in the 2012-2013 intercept survey in the NE region of US-395 in Washington. The survey instrument is available in Appendix D to gauge the full detail of information collected from the drivers. The survey effort successfully completed in excess of 90% of attempted interviews with drivers. This result is indicative of the excellent work provided by the volunteer crew of Service Club members and the eagerness of the drivers themselves to contribute to a better understanding of roadway conditions.

Accompanying this report is the full data set generated from the survey effort. The first several tabs include pivot tables allowing the formulation of many differing aggregations of the data beyond what is included in this report. These pivot tables may be used to generate tables relating to any number of potential questions related to differing characteristics of the network, drivers, or commodity being transported.

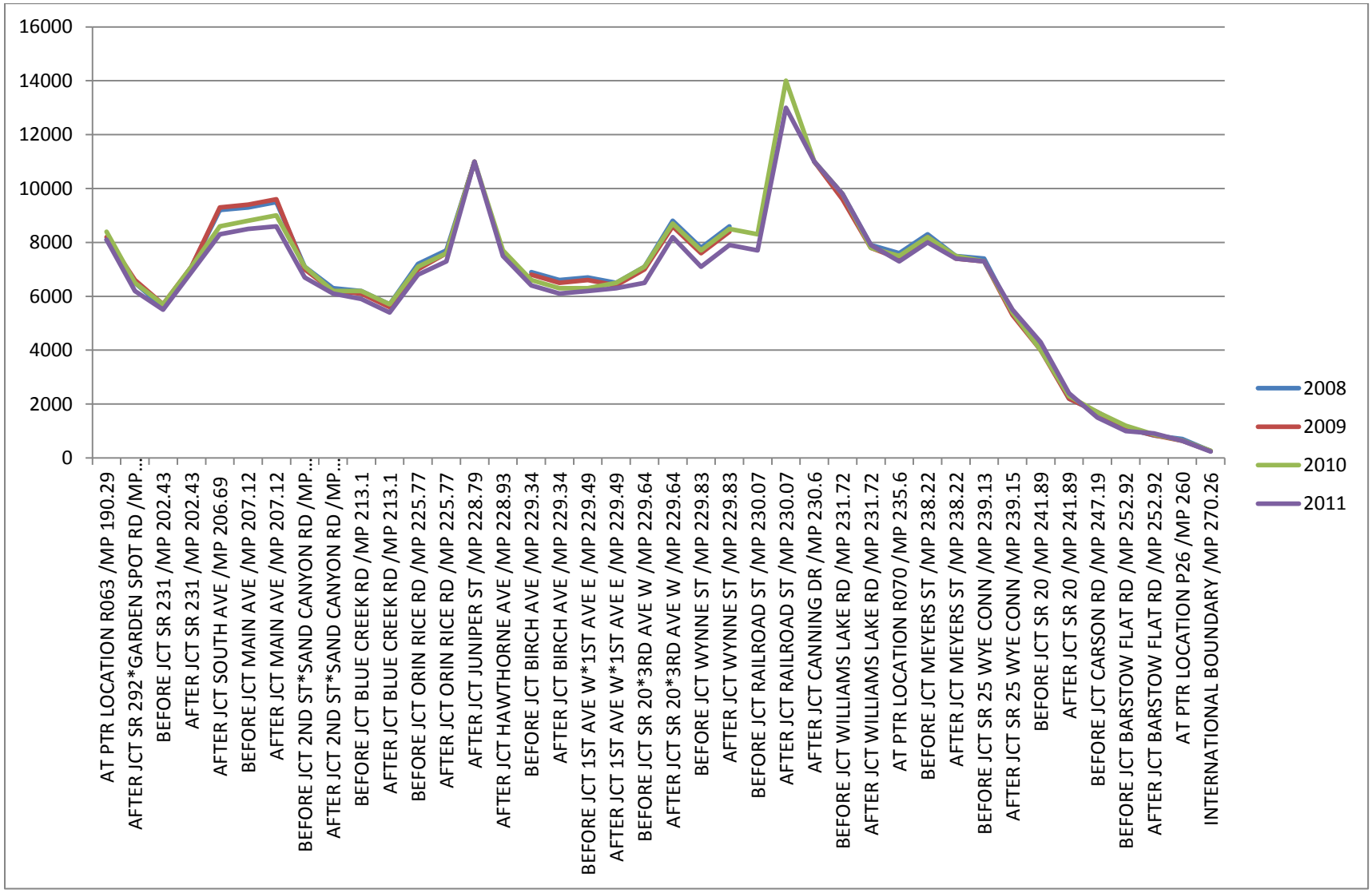
APPENDIX A.

FIGURE A.1: PTRs Location Map.



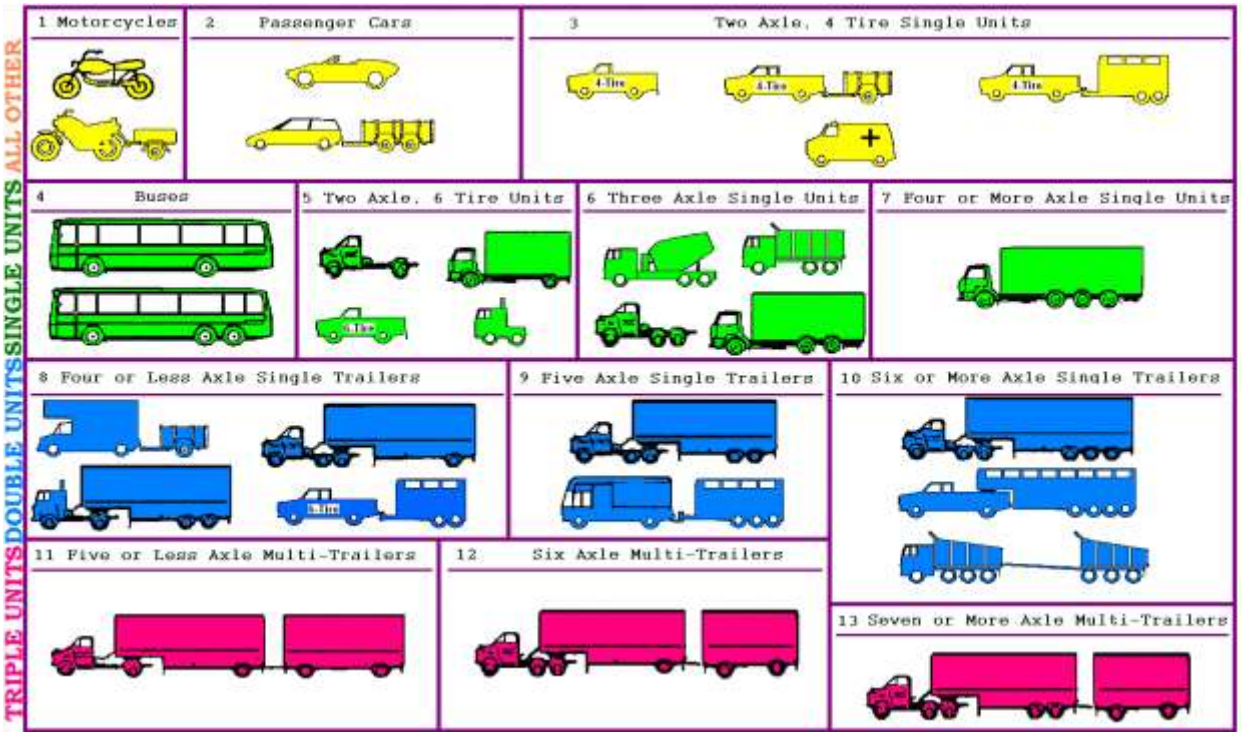
Source: WSDOT Annual Traffic Report

FIGURE A.2: Annual Traffic Report year 2008 to 2011 on US 395, both ways.



Source: 2012 WSDOT Annual Traffic Report

FIGURE A.3. Vehicle classification.



Source: WSDOT Annual Traffic Report

APPENDIX B

NOTE: Discussion contained with Appendix A relates to the larger survey effort conducted by the FPTI. Surveys were conducted not only in the US 395 corridor, but also over Snoqualmie pass and the greater Wenatchee region. Methods used between survey locations remained consistent.

Methodology

Data Collection Methods and Issues

The FPTI origin and destination (O-D) survey was designed to provide a statistically reliable and comprehensive database of freight truck movements on select highway corridors in the state of Washington. A varied set of truck trip and shipment characteristics were determined and incorporated into the survey. Examples of such information include the carrier, truck type, unloaded truck weight, payload weight, commodity type, and the origin and destination facility type(s) (See Appendix D for Instrument). Detailed information on the highways and routes used by the drivers was also collected as an aid in identifying the major and minor freight corridors within and through Washington.

Ten interview sites at permanent weigh stations (6), ports of entry (1), and other sites (3) deemed safe by the Washington State Patrol's Commercial Vehicle Enforcement Officers (CVEOs) were utilized to implement the driver survey. Unlike previous FPTI O-D surveys that broadly covered the entire state, the 2012-2013 surveys targeted WSDOT identified corridors of interest.

Data was collected during a four-week period in each season (Fall (October-November 2012), Winter (January-February 2013), Spring (April-May 2013), Summer (July-August 2013), Fall (Oct-Nov 2013)) (Figure B-1). The sequential surveys were conducted to allow seasonal traffic flow comparisons to be made. Data collection was conducted on the same day of the week for the specified sites to allow continuity between seasons. As a rule of thumb, surveys were not conducted on holidays or on Mondays and Fridays so as to avoid any generated unusual flow patterns. Surveys on I-90 were conducted over 24-hr periods (2pm-2pm). All other sites began operation in the early morning hours, 5, 6, or 7am dependent upon historic truck counts. To best

capture the highest volume of traffic, all effort was made to capture the time period in which greater than 80% of the truck traffic could be reasonably expected to pass the survey sites. Evening shutdown of the survey operations was dependent upon the density of truck flow and was typically halted when volumes reached fewer than five trucks per hour.

Figure B.1: Survey Schedule.

DATE	LOCATION	HOURS
October 23, 2012	I-90 W of Cle Elum WESTBOUND	24hr beginning 2:00pm
October 24, 2012	I-90 W of Cle Elum EASTBOUND	24hr beginning 2:00pm
October 30, 2012	US-2 W of Wenatchee EASTBOUND	5:00am –
November 1, 2012	US-2 W of Wenatchee WESTBOUND	5:00am –
November 6, 2012	SR-28 E of Wenatchee EASTBOUND	5:00am –
November 8, 2012	SR-28 E of Wenatchee WESTBOUND	5:00am –
January 29, 2013	US-2 W of Wenatchee EASTBOUND	5:00 am –
January 29, 2013	US-395 Kettle Falls SOUTHBOUND	7:00 am -
January 31, 2013	US-2 W of Wenatchee WESTBOUND	5:00 am –
February 5, 2013	SR-28 E of Wenatchee EASTBOUND	5:00 am –
February 5, 2013	US-395 Chewelah NORTHBOUND	7:00 am -
February 7, 2013	SR-28 E of Wenatchee WESTBOUND	5:00 am –
February 12, 2013	US-395 Deer Park SOUTHBOUND	7:00 am -
February 13, 2013	US-97 N of Brewster at US-97/SR-17	7:00 am -
February 19, 2013	I-90 W of Cle Elum WESTBOUND	24hr beginning 2:00pm
February 20, 2013	I-90 W of Cle Elum EASTBOUND	24hr beginning 2:00pm
April 23, 2013	I-90 W of Cle Elum WESTBOUND	24hr beginning 2:00pm
April 24, 2013	I-90 W of Cle Elum EASTBOUND	24hr beginning 2:00pm
April 30, 2013	US-2 W of Wenatchee EASTBOUND	5:00 am –
April 30, 2013	US-395 Kettle Falls SOUTHBOUND	7:00 am -
May 2, 2013	US-2 W of Wenatchee WESTBOUND	5:00 am –
May 7, 2013	SR-28 E of Wenatchee EASTBOUND	5:00 am –
May 7, 2013	US-395 Chewelah NORTHBOUND	7:00 am -
May 9, 2013	SR-28 E of Wenatchee WESTBOUND	5:00 am –
May 14, 2013	US-395 Deer Park SOUTHBOUND	7:00 am -
May 15, 2013	US-97 N of Brewster at US-97/SR-17	7:00 am -
July 23, 2013	I-90 W of Cle Elum WESTBOUND	24hr beginning 2:00pm
July 24, 2013	I-90 W of Cle Elum EASTBOUND	24hr beginning 2:00pm
July 30, 2013	US-2 W of Wenatchee EASTBOUND	5:00 am –
July 30, 2013	US-395 Kettle Falls SOUTHBOUND	7:00 am -
August 1, 2013	US-2 W of Wenatchee WESTBOUND	5:00 am –
August 6, 2013	SR-28 E of Wenatchee EASTBOUND	5:00 am –
August 6, 2013	US-395 Chewelah NORTHBOUND	7:00 am -
August 8, 2013	SR-28 E of Wenatchee WESTBOUND	5:00 am –
August 13, 2013	US-395 Deer Park SOUTHBOUND	7:00 am -
August 14, 2014	US-97 N of Brewster at US-97/SR-17	7:00 am -
October 29, 2013	US-395 Kettle Falls SOUTHBOUND	7:00 am -
November 5, 2013	US-395 Chewelah NORTHBOUND	7:00 am -
November 12, 2013	US-395 Deer Park SOUTHBOUND	7:00 am -
November 13, 2012	US-97 N of Brewster at US-97/SR-17	7:00 am -

Approximately 9,000 driver interviews were collected (roughly equivalent per season) to complete the entire origin and destination survey. Refer to Section 1 for I-90 specific counts. Additionally, estimates of the number and direction of non-sampled trucks were made during the interview periods. Estimates are based either on actual truck counts established during the collection period or on historic counts under similar conditions. Actual counts were taken where feasible. These counts were then used to construct weighted estimates of total truck volumes at each location by season. The results presented in this study are derived from these weighted truck trip estimates.

The driver interviews were conducted by a team of Washington State University personnel assisted by members of local Lions clubs throughout the survey regions. Survey locations were typically staffed by 4 to 6 individuals, resulting in 60-150 personnel hours accrued conducting driver interviews each survey day. Driver participation in the survey was high, with locations reporting 95 to 100 percent response rates. A copy of the survey questionnaire is included as Appendix B of this report.

Data Management, Analysis and Modeling Procedures

This section briefly highlights key procedures used within this data framework. More detailed information can be found in Strategic Freight Transportation Analysis Report Number 2, "*Freight Truck Origin and Destination Study: Methods, Procedures and Data Dictionary*."[4]

Data Management

It is important to maintain effective management of data during collection, entry into a database, and during all subsequent analyses. Following and implementing appropriate management techniques helps ensure that the compiled database accurately reflects the statewide freight movements in Washington. There are three possible sources of error that can be attributed to on-site data collection issues. Systemic problems arise from poorly worded questions, incorrect interview procedures and/or problems stemming from sub-optimal site selection. Data problems may come from drivers who provide inaccurate information in response to the survey questions.

[4] http://www.sfta.wsu.edu/research/reports/pdf/Rpt_2_Data_Dictionary.pdf

Finally, interview personnel may fill out the survey incorrectly, providing inaccurate data regarding vehicle information or driver responses.

Errors stemming from improper data collection technique were minimized through a constant monitoring of the survey and data entry personnel. On-site monitoring allowed specific problems to be immediately addressed with the interviewer. Problems identified during data entry were addressed during the following survey season.

One persistent entry error occurred relative to the weight of cargo. Respondents occasionally indicated their gross vehicle weight (GVW) rather than their cargo only weight (payload). Where this event was readily identifiable (e.g. where the combined answers of the empty and cargo weights of the truck grossly exceeded 105,500 pounds), the data entry was adjusted such that the empty truck weight was subtracted from the identified GVW to obtain a payload weight. Surveys that were identified as not being able to be reliably adjusted, were not included in any calculation of the respective variable.

Data Analysis and Modeling

The data obtained in the driver interviews was entered into a MS Excel database in table format. Additional information from various sources was systematically added to the database in order to provide greater depth of analysis. For example, traffic counts from the WSDOT Traffic Data Office were used when and where feasible to verify and correct the sample weights obtained during the survey period.

The use of the MS Excel platform also allows for the incorporation of database information from such sources as the US Census Bureau, the USDOT Bureau of Transportation Statistics and other federal, state and local transportation databases. Linkage of these various databases was and is accomplished by the use of the Standard Classification of Transported Goods (SCTG) code. This code was identified using information obtained during the driver interview about the primary commodity content of the cargo being transported. This information is critical to identifying commodity flows and volumes moving on state highways.

In order to best present the survey data in a meaningful manner, site specific seasonal weight factors based upon the total number of trucks passing each survey site during the day of the survey was calculated. Where feasible, truck counters, either tube or permanent, were used to estimate the total volume. To calculate the seasonal weight factor for each site/season, the total number of trucks in a 24-hour period was divided by the total number of surveys collected at each site. The seasonal weight factor is used to expand the collected data characteristics to represent the entire population of trucks at each survey location. This expanded information was a representation based upon the total number of daily truck trips.

APPENDIX C

SCTG Description specifics

1- Live animals and live fish cattle cattle-cows calves cows calves	**7- Other prepared foodstuffs and fats and oils** dairy energy drink - red bull food products food service products food service supplies Ice cream milk products pepsi products soft drinks water samples
2- Cereal grains Oats Wheat seed	
3- Other agricultural products Trees Produce Garden seeds Flowers, Plants plants and trees grass seed apples	**8- Alcoholic beverages** Alcohol alcoholic beverages beer booze liquor pop water Wine
4- Animal feed and animal products round bailers(hay) pet food baled hay hay animal feed empty honey supers hay	**11- Natural sands** bag of sand bagged rocks bridge rock products sheet rock silica fume silica sand stones white rock
5- Meat, fish, seafood seafood 2 pigs/3 beef-dead	
6- Milled grain and bakery products buns tortilla chips bread cookies/crackers return bread snacks bakery products	**12- Gravel and crushed stone** gravel asphalt
7- Other prepared foodstuffs and fats and oils beverages Bottle water chips, snacks coffee corn syrup	**13- Nonmetallic minerals nec** calcium dolomite land, rock lava rocks salt salt (for roads) sand

14- Metallic ores and concentrates
lead
mine mills
ore
zinc & radiator cores

18- Fuel oils
bio-fuel
diesel
fuel
gas
gasoline products
hargon gas
oil
petroleum

19- Coal and petroleum products, nec
propane tanks
propane

20- Basic chemicals
acid
ammonium sulfate
argon
argon gas
cupric sulfate
explosives, oxidizers, acids
ferrous sulfate crystals
hazard materials
liquid Argonne
liquid nitrogen
liquefied gas
mulch
O^2 tank
Sulfate
sulfuric acid

22- Fertilizer
Fertilizer
farm supplies-fertilizer

23- Chemical products and preparations
cleaning solvents
lubricating oil
motor grease and oil
Resin

24- Plastics and rubber
empty container
tire
empty milk crates

25- Logs and other wood in the rough
Green lumber
hog fuel
hog-bark
logging
lumber
timber
wood

26- Wood products =
caskets
cedar
cedar chips - mulch
cedar lumber
cedar mulch
cedar shavings
cedar siding
cedar wood chips
chips
chips from tree trimming
pallets
ply trim
ply/lumber
plywood
plywood veneer
plywood-lumber
raw bark/chip
slab
windows
wood beams
wood burning pellets
wood chips
wood curls
wood logs
wood pellets
wood posts
wood product
wood residuals
wood shavings
wooden pallet
wooden trusses

27- Pulp, and paper products
shredded paper
paper rolls

28- Paper or paperboard articles
us mail
packages

30- Articles of textiles or leather
clothes and furniture
clothing gloves
linens
Liner
tvs, clothes
uniforms

31- Nonmetallic Mineral Products
Abrasives
block
brick
building materials
building supplies
cement
concrete
concrete blocks
DM Cement
dry cement
dry wall
precast concrete
retaining wall block
top soil
utility buildings

32- Primary/semi-finished base metal
aluminum
fence panels
Fencing
gal. steel beams
iron and metal
lead
non-ferrous metals
racks
stainless steel
stall bread
steel products
steel roofing
zink

33- Articles of base metal
irrigation pipe
metal flashing
tanks
tools
wall studs metal

34- Machinery
agriculture equipment
asphalt Paving Equipment
backhoe
blasting Angel
blasting mats
caterpillar dozer
concrete pumping equipment
cooler parts

crate of fasteners
deere excavator
drills-compressor
dryer, flooring
dump truck
empty chip truck
excavation equipment
farm equipment
front end loader
genie boom
Janitorial Supply
laundry machine equipment
logging equipment
machine parts
machinery
manlift
Misc Plumbing Parts
motor engine parts
motorcycles
pickup truck
plumbing supplies
repair equipment
skid steer (equipment)
snow blower
tree processer
tree trim equipment
washing machines
water heater
wood stoves

35- Electrical and office equipment
air conditioning coils
appliance
appliances, windows
ATV/motors
batteries
custodial supplies
electric supplies
electrical maintenance materials
fiber-optic cable
hvac products
refrigeration coil
stove + parts
stoves, ranges
xerox machines

36- Motorized and other vehicles (including parts)
auto parts
automobiles
car
cars for auction
carts
engine aggregate
manufactured tractor parts
parts
pulling truck
scrap car
tractor
tractor in tow
transmission
truck needing repair
utility truck
utility vehicle

37- Transportation equipment, nec.
boat
boat parts
boat trailers
cores

38- Precision instruments and apparatus
insulation
Insulator
medical supplies
testing equipment

39- Furniture, and Accessories
Cabinets
fire place parts
furniture
furniture, appliances
home furnishings
household goods
mattress

40- Miscellaneous manufactured products
golf stuff
nursery plants
Fixed Boat tools

41- Waste and scrap
collecting medical waste
crushed metal and scrap
garbage
hazard waste
human waste
medical waste
saw dust
Scrap metal
scrap metal from mine
sewage
shavings
Sheet Metal Products
slag
solid waste
trash
used cooking oil
used motor oil
waste
wood waste (fuel)

43- Mixed freight
dust control
freight load-utility truck
goods
groceries
Huch Hoe
mill mud
misc
misc items
peeler post
peelers
pizza

APPENDIX D: Survey Instrument

SURVEY QUESTIONNAIRE

US-395 **CONFIDENTIAL**

Washington State Department of Transportation and
Washington State University
Truck Traffic Survey

[Please Fill Questions 1-7 prior to or as approaching the Truck]

Interviewer and Site Information:

1) Station location:_____
2) Initials of interviewer:_____
3) Time of interview:_____
4) Date of interview:_____

Basic Truck Characteristics:

5) Truck Configuration
[Check only *one* truck configuration]
[See Quality Control Notes for definitions]

1. ☐ Straight truck
2. ☐ Truck and trailer
3. ☐ Tractor only
4. ☐ Tractor and trailer
5. ☐ Tractor with two trailers
6. ☐ Other (specify) _____

6) Total number of axles on the ground _____

7) Is a hazardous material placard displayed? 1. ☐ Yes ID #_____ 2. ☐ No

[Please ask the driver the following questions]

Basic Truck/Company Information

8) Trucking company name:_____
9) Trucking company home base: City_____ State/Province_____
10) What is the **unloaded** weight of this vehicle? _____ lbs.

Cargo Information

11) Is this vehicle carrying cargo, or is it empty? ☐ Carrying Cargo (Ask Q12-21) ☐ Empty (Ask Q22-28)
12) What is the major commodity on board:_____
13) How much does the cargo you are carrying today weigh?_____
14) What is the dollar value of the cargo you are carrying today?_____

Complete only the **one** column that applies to **this** trip. No round-trip information, please!

Trucks CARRYING cargo:	**Trucks WITHOUT cargo:**
Where did you pick-up this cargo?	**Where did this trip without cargo begin?**
15) City _____	22) City _____
16) State/Province _____	23) State/Province _____
17) Facility: [see Quality Control Notes]	24) Facility: [see Quality Control Notes]
a. ☐ Trucking yard	a. ☐ Trucking yard
b. ☐ Railroad yard	b. ☐ Railroad yard
c. ☐ River or ocean port	c. ☐ River or ocean port
d. ☐ Airport	d. ☐ Airport
e. ☐ Industrial factory or sawmill	e. ☐ Industrial factory or sawmill
f. ☐ Agricultural processing facility	f. ☐ Agricultural processing facility
g. ☐ Warehouse/distribution center or post office	g. ☐ Warehouse/distribution center or post office
h. ☐ Farm or forest	h. ☐ Farm or forest
i. ☐ Retail store or gas station	i. ☐ Retail store or gas station
j. ☐ Job or construction site	j. ☐ Job or construction site
k. Other _____	k. ☐ Other _____
Where is the destination of your cargo?	**Where will your trip without cargo end?**
18) City: _____	25) City: _____
19) State/Province _____	26) State/Province _____
20) Facility: [See Quality Control Notes]	27) Facility: [See Quality Control Notes]
a. ☐ Trucking yard	a. ☐ Trucking yard
b. ☐ Railroad yard	b. ☐ Railroad yard
c. ☐ River or ocean port	c. ☐ River or ocean port
d. ☐ Airport	d. ☐ Airport
e. ☐ Industrial factory or sawmill	e. ☐ Industrial factory or sawmill
f. ☐ Agricultural processing facility	f. ☐ Agricultural processing facility
g. ☐ Warehouse/distribution center or post office	g. ☐ Warehouse/distribution center or post office
h. ☐ Farm or forest	h. ☐ Farm or forest
i. ☐ Retail store or gas station	i. ☐ Retail store or gas station
j. ☐ Job or construction site	j. ☐ Job or construction site
k. Other _____	k. ☐ Other _____
21) Do you have intermediate stops? Circle: Yes or No Where? _____	28) Do you have intermediate stops? Circle: Yes or No Where? _____

29) What Washington highways and Spokane area streets were used to travel between the two locations identified above? Write out the highways used to get between the two locations identified above.
_____ (Remember, **accurately** highlight [yellow] attached maps!)

30) With what frequency does this truck travel the above route?

a. ☐ Daily
b. ☐ Once a Week
c. ☐ Several Times a week
d. ☐ Occasionally (1-3 times/mo.)
e. ☐ Rarely (<1 time/mo.)
f. ☐ Don't Know

31) In your opinion, where are the worst bottlenecks in the area shown on the Spokane region map? (Please indicate [in pink highlight] the section where the bottleneck occurs.) What is the suspected typical cause?
_____

32) When the US-395 North Spokane Corridor (NSC) is completed to I-90, how will your typical routes through Spokane be revised?

a. ☐ I will use NSC
b. ☐ I will still use Division
c. ☐ I will use a different route (list: _____)
d. ☐ I am not sure yet
e. ☐ Does not apply