

2015/16 IMTC Border Freight Operations Study Data Collection Report



whatcom council of governments

February 2017



IMTC

INTERNATIONAL MOBILITY &
TRADE CORRIDOR PROGRAM

This page is intentionally blank.

TABLE OF CONTENTS

TABLE OF CONTENTS	3
INTRODUCTION.....	5
THE INTERNATIONAL MOBILITY AND TRADE CORRIDOR PROGRAM.....	5
COMPONENTS OF THE BORDER FREIGHT OPERATIONS STUDY	5
Field Data Collection	6
Carrier Company Interviews.....	6
Dangerous Goods	6
PAST COMMERCIAL VEHICLE STUDIES	7
GEOGRAPHY	8
FUNDING	8
PROJECT MEMBERS	9
DATA COLLECTION SCHEDULE	9
DATA COLLECTION METHODOLOGY	9
2016 Data Collection	9
Pacific Highway Crew Positions and Data Fields	11
Lynden-Aldergrove and Sumas-Abbotsford/Huntingdon Crew Positions and Data Fields	12
2015 Data Collection	13
RECORDS COLLECTED.....	13
2016 Data Collection Records	13
2015 Data Collection Records	13
CASCADE GATEWAY FREIGHT TRAFFIC.....	14
Commercial Vehicle Volume by Port and Direction, 1995-2016	14
FAST LANE USAGE	15
Pacific Highway Share of Lane Type Usage (June)	15
VEHICLE CLASSIFICATION	16
Pacific Highway (June 2016)	16
Lynden-Aldergrove (July 2016).....	16
Sumas-Abbotsford/Huntingdon (July 2016).....	17
WAIT TIMES - STANDARD LANES	17
Wait Times (minutes) by Port and Direction, Standard lanes (June/July 2016)	17
Wait Time Distribution by Direction, All Ports and Standard lanes (June/July 2016).....	18
Wait Time Profiles	18
Standard Lane Wait-Times during Survey Periods (2016).....	19
Pacific Highway Standard Wait-Time Observation Comparison (2016 & 2012)	19

WAIT TIMES VS QUEUE LENGTHS	20
Pacific Highway (June 2016)	21
Lynden-Aldergrove (July 2016).....	21
Sumas-Abbotsford/Huntingdon (July 2016).....	22
WAIT TIMES - FAST LANES	22
Wait Time Distribution by Direction, Pacific Highway FAST lanes (June 2016).....	22
INSPECTION TIMES	23
Inspection Time Distribution by Direction, All Ports and Standard lanes (2016).....	23
ORIGINS AND DESTINATIONS.....	24
Origin-Destination Pairs by Port	24
Pacific Highway.....	25
Lynden-Aldergrove.....	26
Sumas-Abbotsford/Huntingdon.....	27
COMMODITIES	28
Commerical Vehicle Movements by Primary Commodity Reported (June 2016)	28
CARRIER TRENDS	29
Carrier Companies Comprising 50 percent of Crossing Instances (June 2016)	29
FOR MORE INFORMATION.....	29

INTRODUCTION

The 2015/16 IMTC Border Freight Operations [BFO] study is a binationally coordinated data collection effort to assess the current state of commercial vehicle and goods movement through the Cascade Gateway – five land-border ports-of-entry connecting Western Washington State and Lower Mainland British Columbia. The primary data collection was performed in the summer seasons of 2015 and 2016. This report details the organization of the project and high level analysis of the collected data. Along with this report, a project database is the primary product of the effort and provides for ongoing near-term analyses. Other products from this study include a technical memo outlining field observations of the movement of dangerous goods and an industry-perspective report summarizing important border-related topics discussed in interviews with commercial carrier companies in the Cascade Gateway.

THE INTERNATIONAL MOBILITY AND TRADE CORRIDOR PROGRAM

The International Mobility and Trade Corridor Program [IMTC] is a voluntary, binational, regional coalition of government, business interests, and non-governmental entities established to support the improvement of safety, mobility, and security for the Cascade Gateway. The goals of the IMTC are to:

- G1. Coordinate planning
- G2. Improve regional, cross-border trade and transportation data
- G3. Support infrastructure improvements
- G4. Support coordinated implementation of U.S. and Canadian border policy
- G5. Improve operations

Since 1997, IMTC participants on both sides of the border have together funded projects totaling nearly \$40 million (USD) for Cascade Gateway initiatives.

The IMTC is administered by the Whatcom Council of Governments [WCOG], northwest Washington's border-area metropolitan planning organization [MPO] located in Bellingham, Washington.



IMTC border master planning peer exchange - June 8, 2016

COMPONENTS OF THE BORDER FREIGHT OPERATIONS STUDY

The project was co-managed by WCOG and the Border Policy Research Institute [BPRI] at Western Washington University [WWU]. Additionally, U.S. Customs and Border Protection [U.S. CBP] and Canada Border Services Agency [CBSA] were involved in the planning and execution of the data collection efforts.

Field Data Collection

In June and July of 2016, a field crew of eight undergraduate research assistants from WWU observed freight movements at three Cascade Gateway commercial border crossings: Pacific Highway, Lynden-Aldergrove, and Sumas-Abbotsford/Huntingdon. At each crossing, crewmembers used touch-screen tablets to collect data at various locations throughout the border arrival and queuing process, such as at end of the standard and FAST-lane queues, adjacent to primary inspection booths, and in primary inspection booths at U.S. CBP facilities.

Crewmembers recorded the time of arrival of commercial vehicles at border queue-end, the time of arrival and departure at primary inspection booths, vehicle types, carrier company information, dangerous goods placard information, commodity information, the origins and destinations of vehicles, and other data points. These data enabled the computation of queue wait and inspection times, determination of origin-destinations flows, categorization of commodities, and many other follow-on analyses.

Due to project funding sources, the July 2015 data collection was a limited scope, preliminary effort. A crew of two WWU students observed freight movements at the Pacific Highway and northbound Abbotsford/Huntingdon commercial crossings¹. Data collection fields included FAST lane versus standard lane usage, vehicle types, carrier company information, and dangerous goods placard numbers. Because the 2015 data were collected in the same time of year and only one year prior to the 2016 data, the two datasets are combined for certain analyses.

Carrier Company Interviews

Carrier company information and observed cross-border frequency of carriers supported an additional BFO scope of work: a set of carrier company interviews aimed at gathering direct industry perspectives on border related issues and regional freight strategies. Management of carrier companies observed crossing through the Cascade Gateway most frequently were contacted and interviewed by WCOG staff following the 2015 data collection effort.

Dangerous Goods

An in-depth analysis of the movement of dangerous goods has been compiled as a supporting technical memo to this report. Field crewmembers noted any dangerous goods placards on commercial vehicle loads, recording the associated hazard classification and U.N. numbers. These data, combined with origin-destination analyses, support better visualization of the truck-borne circulation of dangerous goods through the Cascade Gateway.

¹ Due to the Aldergrove commercial facility being under construction during the 2015 field work, Lynden-Aldergrove was not visited until the 2016 portion of the project.

PAST COMMERCIAL VEHICLE STUDIES

The IMTC has looked to refresh data on the movement of commercial vehicles in the Cascade Gateway about every five years since 2000. Similar commercial vehicle operations studies [CVOs] were conducted in 2000 and 2009. Improvements made to infrastructure and operations in the border environment after a preceding survey were also assessed.

Since the 2009 CVO study, a number of improvements have been made to the Cascade Gateway commercial crossings, the connecting transportation network, and to technology in general. These, among of other improvements, include:

- A new automated commercial vehicle staging area at Pacific Highway southbound
- The rerouting of the commercial approach at Pacific Highway northbound
- The adoption of paperless e-manifests
- Improvements to State Route 539 leading to the CBSA Aldergrove commercial facility
- A completely rebuilt CBSA commercial facility at Aldergrove



Project Manager Hugh Conroy managing data collection in 2009

GEOGRAPHY

The survey was conducted at three Cascade Gateway commercial ports-of-entry for both directions of traffic:

Pacific Highway (Interstate 5/State Route 543 & B.C. Highway 15)

Lynden-Aldergrove (State Route 539 & B.C. Highway 13)

Sumas-Abbotsford/Huntingdon (State Route 9 & B.C. Highway 11)



The Cascade Gateway ports-of-entry

FUNDING

The 2015/16 BFO was funded 80 percent through a grant from the U.S. Federal Highway Administration [FHWA]. The required 20 percent match for the grant was provided by B.C. Ministry of Transportation and Infrastructure [BC MoTI], Transport Canada, BPRI, and WCOG.

Though not funding partners for the project, U.S. CBP and CBSA contributed invaluable staff hours to help plan the project and facilitate the work of the field crew in and around the ports-of-entry.

PROJECT MEMBERS

- Field Research Assistants: 2 WWU students in 2015, 8 WWU students in 2016
- Field Supervisors: Danny Edgel (BPRI), Jaymes McClain (WCOG)
- Project Managers: Jaymes McClain, Hugh Conroy (WCOG), Melissa Fanucci (WCOG), Laurie Trautman (BPRI)
- Inspection agency assistance – special thanks to: Ronald McMillan (U.S. CBP), Dan Bubas (CBSA), Phillip Stanford (U.S. CBP), Bernie Pitura (CBSA), Jose Rene Ortega (U.S. CBP), Ryan Vanderstar (CBSA)
- Post-processing: Danny Edgel, Jaymes McClain

DATA COLLECTION SCHEDULE

2016

PORT-OF-ENTRY	DIRECTION	SURVEY DAYS	TIME
Pacific Highway	Southbound	M-Th, June 20-23	8:00am – 11:30pm & 12:00pm – 3:00pm
Pacific Highway	Northbound	M-Th, June 27-30	
Lynden-Aldergrove	Northbound & Southbound	T-F, July 5-8	
Sumas-Abb./Hunt.	Northbound & Southbound	M-Th, July 11-14	

2015

PORT-OF-ENTRY	DIRECTION	SURVEY DAYS	TIME
Pacific Highway	Southbound	M-Th, July 6-9	8:00am - 4:00pm
Pacific Highway	Northbound	M-Th, July 13-16	
Abbotsford/Hunt.	Southbound	M-Th, July 20-23	

DATA COLLECTION METHODOLOGY

2016 Data Collection

For the 2016 field work, the field crew worked at three sequential positions at each port-of-entry. Each position recorded the license plate of the commercial vehicle that was being observed so that the different positions' observations of the same vehicle could be linked together in the database. This allowed for border wait-time and queue length calculations as well as a more comprehensive profile for each commercial vehicle crossing the border.

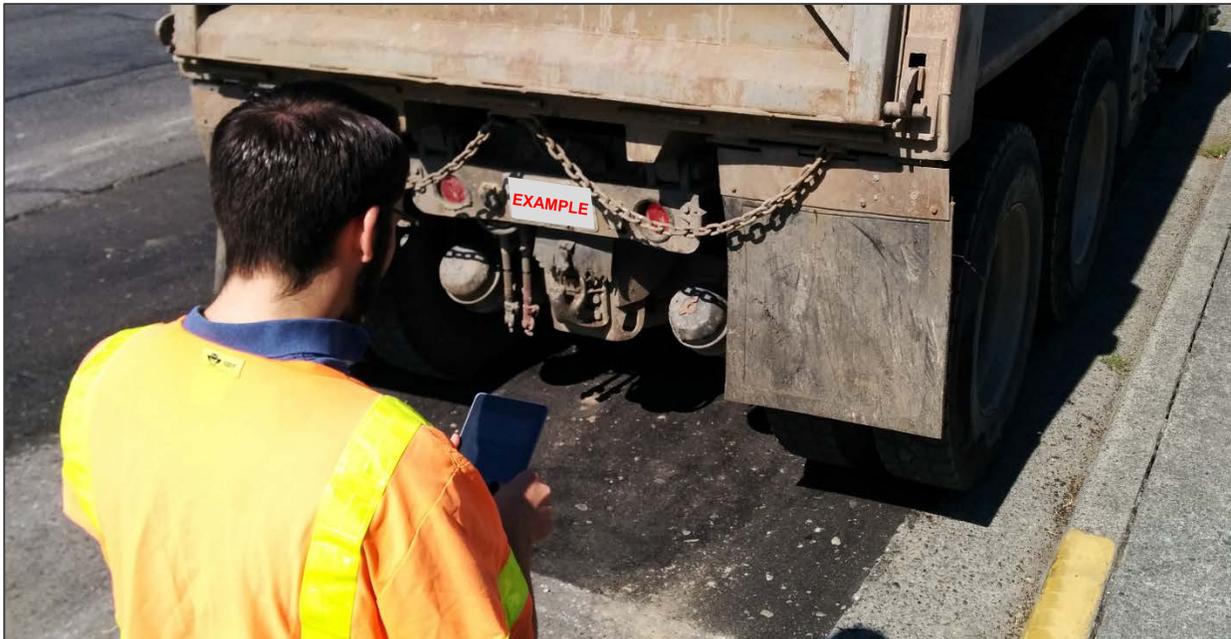
The queue-end position monitored the arrival of commercial vehicles at the end of the border lineup. The crewmember timestamped the moment a vehicle stopped at queue end. At the Pacific Highway crossing, a position monitored the FAST lane queue separately from the standard queue.

Near the primary inspection booths, a crewmember recorded observable vehicle information. This included the license plate state or province of the vehicle, the type of vehicle (chosen from a predefined picklist), the name of the carrier company on the side of the tractor (when given), and the dangerous goods placard hazard classification and U.N. numbers (if present). For northbound surveying, the time of vehicle arrival at primary inspection and the time of inspection end were also recorded at this position.

Crewmembers were positioned in the primary inspection booth(s) during southbound data collection in order to record more detailed information about each commercial vehicle. With help from U.S. CBP

officers, they recorded the empty/loaded status of the vehicle, the origin and destination of the vehicle's current trip, the main commodity that was currently being hauled (or, if empty, the main commodity that was dropped off or was going to be picked up), whether the vehicle was providing a less-than-loaded [LTL] service, whether a cash transaction occurred between driver and inspector, and the time of vehicle arrival at primary inspection and the time of inspection end. For northbound, the "primary inspection" data fields were collected outside of the booths directly from drivers, either when they were waiting in queue (at Pacific Highway and Abbotsford/Huntingdon) or after they had left inspection (at Aldergrove). The "cash transaction" data point was not recorded (since this does not occur at CBSA commercial crossings) and the timestamps for inspection start and end were recorded from another position, as previously described.

At Pacific Highway, surveyors recorded trusted trader status of drivers, companies, and goods when able. This included whether or not the driver possessed a FAST card, if the carrier company was enrolled in the Customs-Trade Partnership Against Terrorism program [C-TPAT] or the Customs Self Assessment/Partners in Protection programs [CSA/PIP], and if the goods/importer were C-TPAT or CSA/PIP approved.



A field crewmember records the license plate of a truck

It should be noted that every survey day the crew took a break from 11:30 am to 12:00 pm. No data was collected during this break. Staggered crewmember breaks throughout the day would have created multiple instances of vehicles being missed as survey positions were temporarily understaffed and crewmembers swapped positions. With everyone taking a break in one half-hour increment, the data collected before and after the break are more reliable and only one clear gap in data collection exists versus a longer period of unknown data gaps.

Pacific Highway Crew Positions and Data Fields



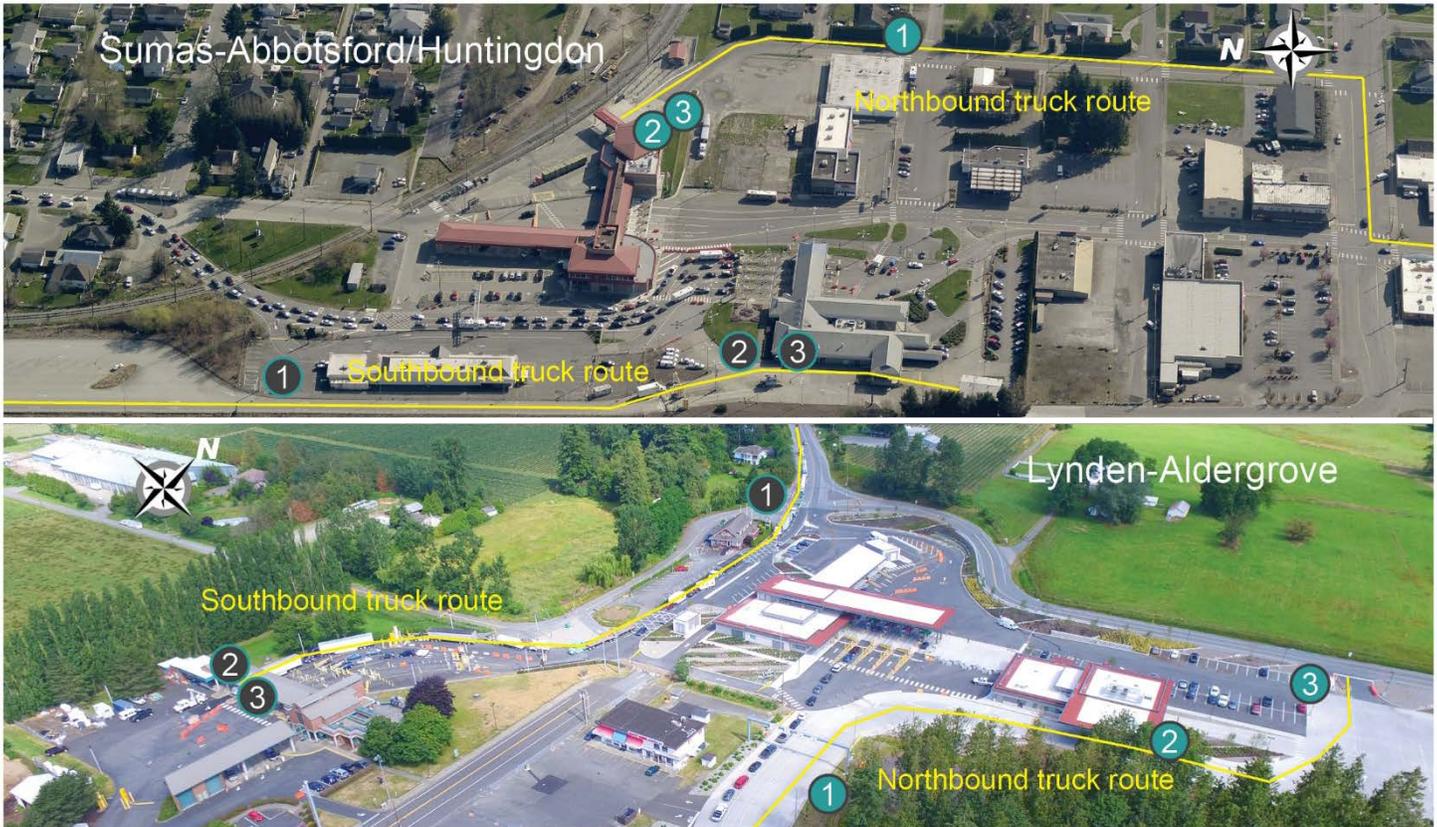
Northbound

- ① Standard Queue End
 - Time of queue-end arrival
- ② FAST Lane Queue End
 - Time of queue-end arrival
- ③ Vehicle Information
 - License plate state/province
 - Vehicle classification
 - Carrier company name
 - Dangerous goods placard info
 - Time of inspection booth arrival
 - Time of primary inspection completion
- ④ Driver Interview
 - Empty/loaded cargo status
 - Origin of current trip
 - Destination of current trip
 - Main commodity (or, if empty, what was dropped off or what will be picked up)
 - Less-than-truckload (LTL) status

Southbound

- ① Standard Queue End
 - Time of queue-end arrival
- ② FAST Lane Queue End
 - Time of queue-end arrival
- ③ Vehicle Information
 - License plate state/province
 - Vehicle classification
 - Carrier company name
 - Dangerous goods placard info
- ④ Primary Inspection
 - Time of inspection booth arrival
 - Empty/loaded cargo status
 - Origin of current trip
 - Destination of current trip
 - Main commodity (or, if empty, what was dropped off or what will be picked up)
 - Less-than-truckload (LTL) status
 - Cash transaction observation
 - Time of primary inspection completion

Lynden-Aldergrove and Sumas-Abbotsford/Huntingdon Crew Positions and Data Fields



Northbound

- ① Queue End
 - Time of queue-end arrival
- ② Vehicle Information
 - License plate state/province
 - Vehicle classification
 - Carrier company name
 - Dangerous goods placard info
 - Time of inspection booth arrival
 - Time of primary inspection completion
- ③ Driver Interview
 - Empty/loaded cargo status
 - Origin of current trip
 - Destination of current trip
 - Main commodity (or, if empty, what was dropped off or what will be picked up)
 - Less-than-truckload (LTL) status

Southbound

- ① Queue End
 - Time of queue-end arrival
- ② Vehicle Information
 - License plate state/province
 - Vehicle classification
 - Carrier company name
 - Dangerous goods placard info
- ③ Primary Inspection
 - Time of inspection booth arrival
 - Empty/loaded cargo status
 - Origin of current trip
 - Destination of current trip
 - Main commodity (or, if empty, what was dropped off or what will be picked up)
 - Less-than-truckload (LTL) status
 - Cash transaction observation
 - Time of primary inspection completion

2015 Data Collection

As previously described, the 2015 data collection field outing was a smaller endeavor than its 2016 successor. Two field crewmembers collected data solely at one position at each crossing they visited (northbound and southbound Pacific Highway and northbound Abbotsford/Huntingdon). The crewmembers were located at the “vehicle information” positions shown in the previous port graphics. Because of the size of the crew, only readily observable information was captured. The 2015 data fields include:

- License Plate number
- FAST lane vs standard lane usage
- Vehicle classification
- Dangerous goods placard information
- Carrier company name
- Carrier company location (if also written on vehicle)
- Empty/loaded cargo status (if observable)

Though the crew was composed of only two research assistants, nearly 5,000 records were collected in the three weeks of field work.

RECORDS COLLECTED

The following tables show the number of commercial vehicle profiles that were constructed from the three data collection positions. The 2016 field crew collected 5,577 total vehicle records in the four weeks of data collection. In the three-week effort in 2015, 4,953 records were collected.

The 2016 field crew collected only 11 percent more records than the preceding year’s crew despite being comprised of six more research assistants and spending one more week in the field. This is due to the organization of the two data collection efforts. In 2015, the field crew spent an hour longer each day in field than the following year, and each vehicle profile consisted of one data collection position’s record. The 2016 crew, though larger, was spread out to multiple positions, each position recording vehicles whose full border-crossing profile (from queue-end to end of inspection) was later linked together in the database to create the total number of records shown in the table.

2016 Data Collection Records

PORT-OF-ENTRY	SOUTHBOUND	NORTHBOUND	
Pacific Highway	1613	1661	3274
Lynden-Aldergrove	520	253	773
Sumas-Abbotsford/Huntingdon	874	656	1530
	3007	2570	5577

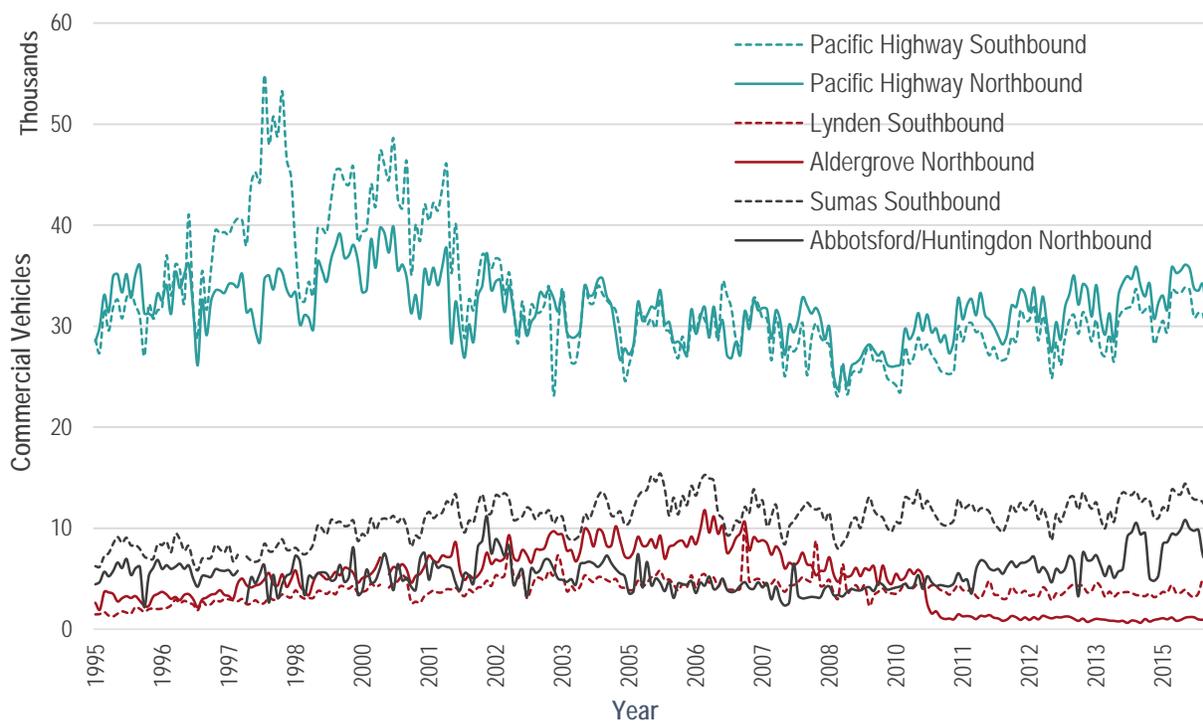
2015 Data Collection Records

PORT-OF-ENTRY	SOUTHBOUND	NORTHBOUND	
Pacific Highway	1968	2092	4060
Abbotsford/Huntingdon	-	893	893
	1968	2985	4953

CASCADE GATEWAY FREIGHT TRAFFIC

Commercial traffic through the Cascade Gateway predominantly travels through the Pacific Highway ports-of-entry, which have processed 72 percent of the traffic over the past twenty years. In 2015 there were about 65,000 commercial vehicle crossings total through Pacific Highway per month, averaging 71 percent of the total per month traffic traveling through the three primary commercial crossings. At Lynden-Aldergrove there were about 4,800 recorded commercial vehicle crossings per month for 2015, accounting for over 5 percent of all Cascade Gateway traffic. At Sumas-Abbotsford/Huntingdon, the 22,000 monthly crossings in 2015 made up nearly 24 percent of all traffic. The graph below shows absolute volume breakouts by port and direction for Cascade Gateway commercial traffic over the past two decades.

Monthly Commercial Vehicle Volume by Port and Direction, 1995-2016



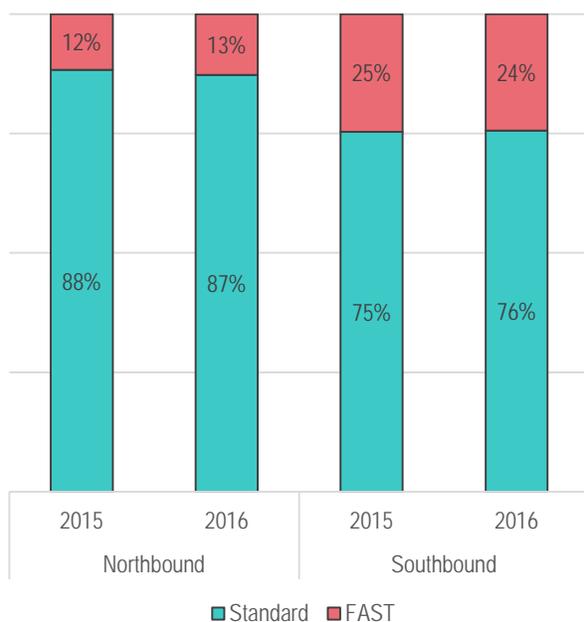
Sources: U.S. Bureau of Transportation Statistics and Statistics Canada

FAST LANE USAGE

In the Cascade Gateway, FAST lanes are only located at the U.S. CBP and CBSA Pacific Highway commercial ports-of-entry. As part of the joint U.S.-Canada FAST program, compliant commercial vehicles can use the FAST approach lanes to bypass standard queue lanes, similar to the NEXUS program for passenger vehicles. To be compliant for the FAST programs, a driver must possess a FAST card (recognized by both countries) and the carrier company and goods or importer must be compliant with trusted traders program(s) administered by the country that the vehicle is entering.

There are two commercial approach lanes northbound at Pacific Highway – one for FAST compliant commercial traffic and one for standard traffic. As of 2016, the FAST lane leads to a dedicated FAST booth (one third of CBSA’s commercial inspection booths), although empty trucks are also allowed to use the FAST lane. Southbound, the FAST lane begins in the truck staging area just south of 2nd Ave off of B.C. Highway 15. FAST compliant traffic must wait with all other traffic north of 2nd Ave, however once in the staging area FAST vehicles are given priority from automated signals to enter the final approach lanes to the three U.S. CBP inspection booths.

Pacific Highway Share of Lane Type Usage (June)



A small portion of the southbound staging area infrastructure at Pacific Highway is dedicated for FAST traffic (one staging lane of twelve total lanes). During the June data collection, nearly a quarter of southbound commercial traffic was observed using the FAST lane – a higher rate than observed in earlier years. It should be noted, however, that there is little to no enforcement in the staging area, meaning it is hard to determine how many vehicles using the FAST lane are actually FAST program compliant.

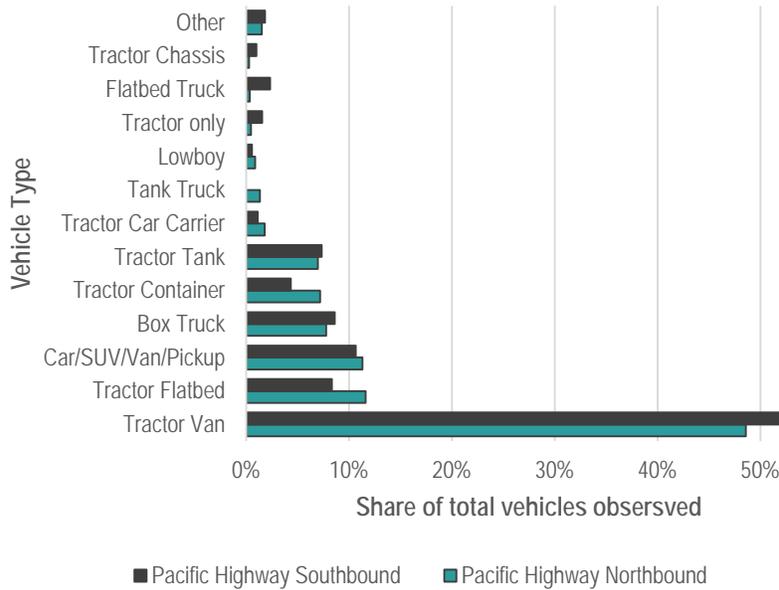
The share of commercial traffic using the FAST lane northbound is about half of the southbound share, yet a greater share of the primary inspection infrastructure is currently dedicated for FAST.²

² CBSA is working with WSDOT on implementing a FAST-first signal at the Pacific Highway northbound commercial port of entry in early 2017. This would open up all three primary inspection booths to all commercial vehicles, with priority given to FAST lane traffic.

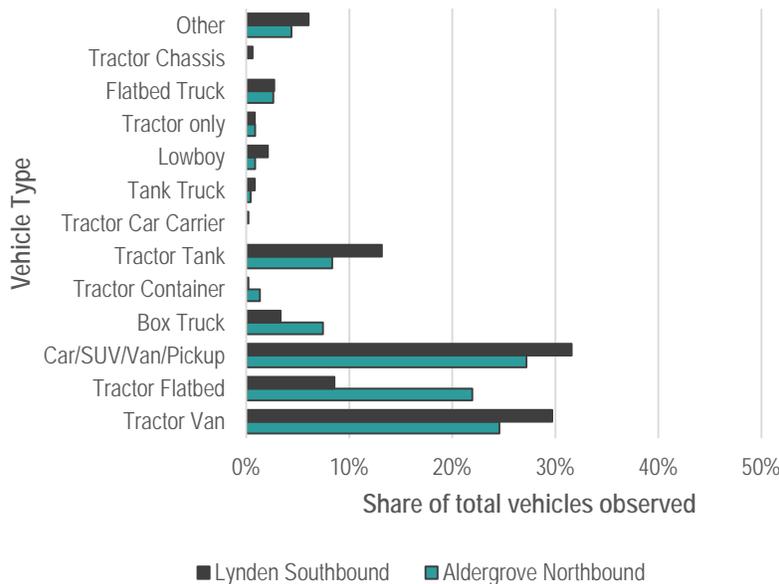
VEHICLE CLASSIFICATION

Research assistants recorded classifications of commercial vehicles using a picklist of standard vehicle types. The following charts show the share of each vehicle type observed at each border crossing in the 2016 data collection effort.

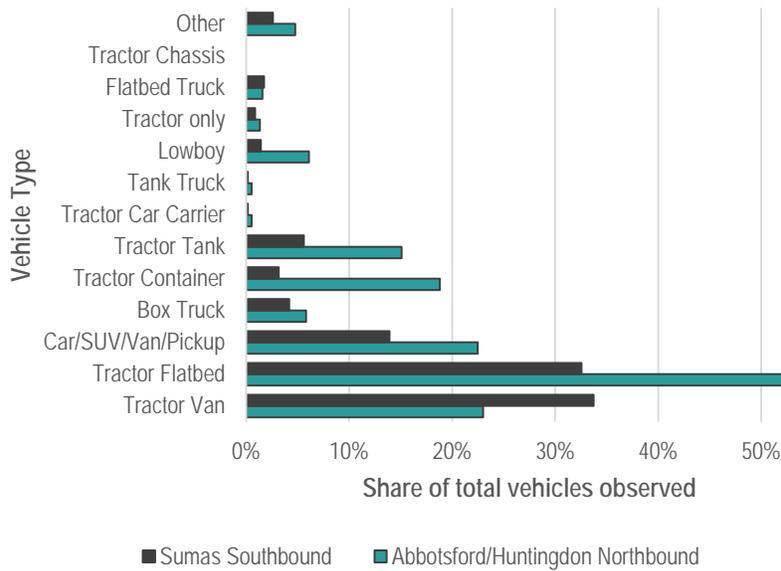
Pacific Highway (June 2016)



Lynden-Aldergrove (July 2016)



Sumas-Abbotsford/Huntingdon (July 2016)



WAIT TIMES - STANDARD LANES

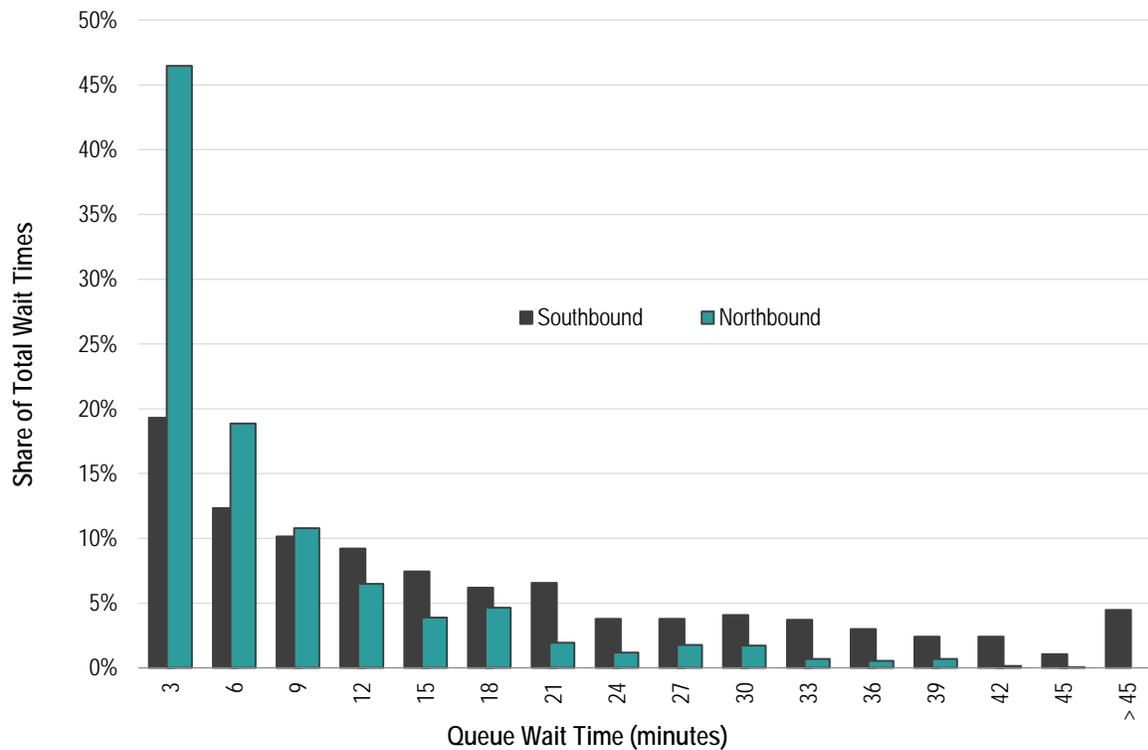
During the 2016 field work, as each commercial vehicle made its way through the border, research assistants recorded the time, or *timestamped*, when each vehicle initially stopped at the end of the border queue and when they stopped at a primary inspection booth. The two timestamps were used to calculate the border wait-time of a specific vehicle. The table below shows the average wait-time of commercial vehicles for each port and direction during the data collection window of about 8 am to 3 pm on weekdays. A median value is also presented, omitting any extreme outlying values.

Wait Times (minutes) by Port and Direction, Standard lanes (June/July 2016)

	LYNDEN-							
	PACIFIC HIGHWAY		ALDERGROVE		SUMAS-ABB./HUNT.		ALL PORTS	
	NB	SB	NB	SB	NB	SB	NB	SB
Average	8.1	22.5	0.8	10.4	5.3	10.5	6.5	15.8
Median	5.0	18.9	0.3	3.9	2.4	9.5	3.4	11.6
n	1126	753	200	416	574	546	1900	1715

The histogram below plots the distribution of wait-times for all ports during the survey period, broken out by northbound and southbound travel.

Wait Time Distribution by Direction, All Ports and Standard lanes (June/July 2016)



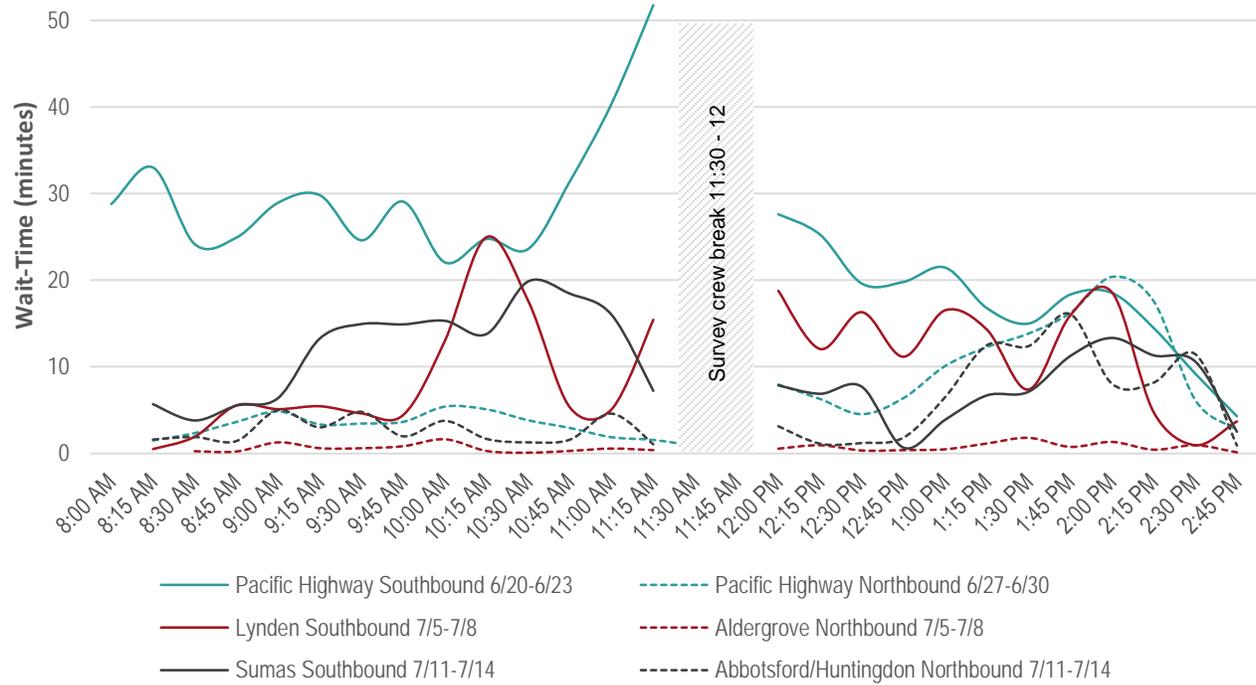
Research assistants timestamping trucks at Pacific Highway

Wait Time Profiles

Throughout each survey day there was consistent enough timestamping of commercial vehicles at queue-end and at primary inspection arrival that it was possible to build commercial vehicle border wait-time profiles for an average survey day. As previously explained, the field crew took a lunch break from 11:30 am to 12:00 pm each day, and no data was collected during this time.

The following chart shows the average standard lane wait-time (not including inspection) of commercial vehicles for the four days of surveying at each port, broken out in fifteen minute increments.

Standard Lane Wait-Times during Survey Periods (2016)



Pacific Highway Standard Wait-Time Observation Comparison (2016 & 2012)



Additional data source: Cascade Gateway Border Data Warehouse

The previous chart compares the wait-times calculated from the 2016 BFO field observations with wait-time estimates from the Cascade Gateway Border Data Warehouse. The Warehouse archives data from loop detectors in the border approach roadways. The loops detect the passage of vehicles, and through algorithms established by the Washington State Department of Transportation [WSDOT] and BC MoTI estimate vehicle volumes and border wait-times in five minute increments.

Looking at the same four-day period in June 2016, the wait-time estimates from the Warehouse match the survey calculations very well at northbound Pacific Highway. In the opposite direction, the profiles follow a similar trend save for a spike just after 11 am in the survey calculations. This discrepancy could be caused by a number of factors. At Pacific Highway southbound, the commercial vehicle queue is dispersed into a large truck staging area just before the inspection booths. Commercial vehicles are both organized into staging area queue lanes and are released from the staging area by an automated system of loop detectors and signals with little active enforcement. Drivers can also park and visit the duty free store, which occurs between the survey positions whose timestamps are used for wait-time calculations.

Also included in the chart are Warehouse wait-time estimates from June 2012. With annual truck volumes at Pacific Highway up by nearly 9 percent³ from 2012 to 2015, the estimated wait-times southbound are noticeably higher in 2016 than from four years prior – about 2.4 times⁴ higher during this time of year. Northbound wait-times are similar in 2016 as they were in 2012.

WAIT TIMES VS QUEUE LENGTHS

By having dedicated data collection positions at both the end of the queue and near the inspection booths, virtually all commercial vehicles were observed while positions were staffed. This allows for queue lengths to be calculated for any point during the field work time periods. Queue lengths were calculated by counting the number of vehicles that had entered the standard lane queue prior to a specific vehicle (as observed at the queue-end position) but had not yet exited the queue for inspection (as observed at the inspection booth positions).



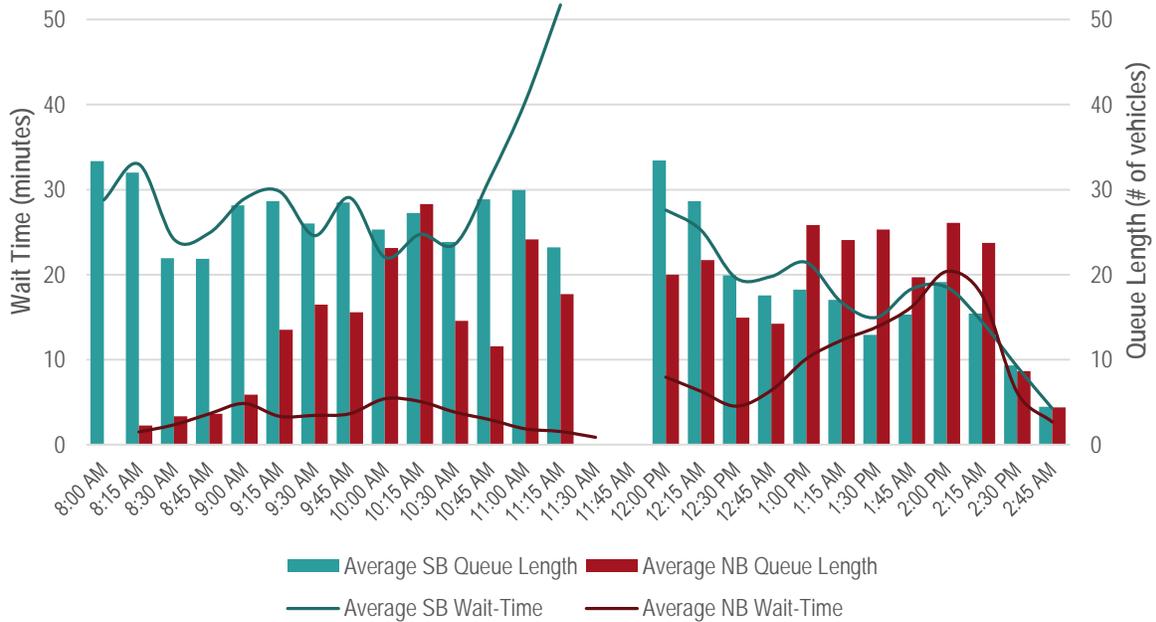
Trucks line up at the U.S. CBP Lynden (left) and the CBSA Pacific Highway (right) commercial facilities

³ From the U.S. Bureau of Transportation Statistics, 348,955 commercial vehicles crossed southbound at Pacific Highway in 2012 and 378,747 crossed in 2015 – an **increase of 8.54 percent**.

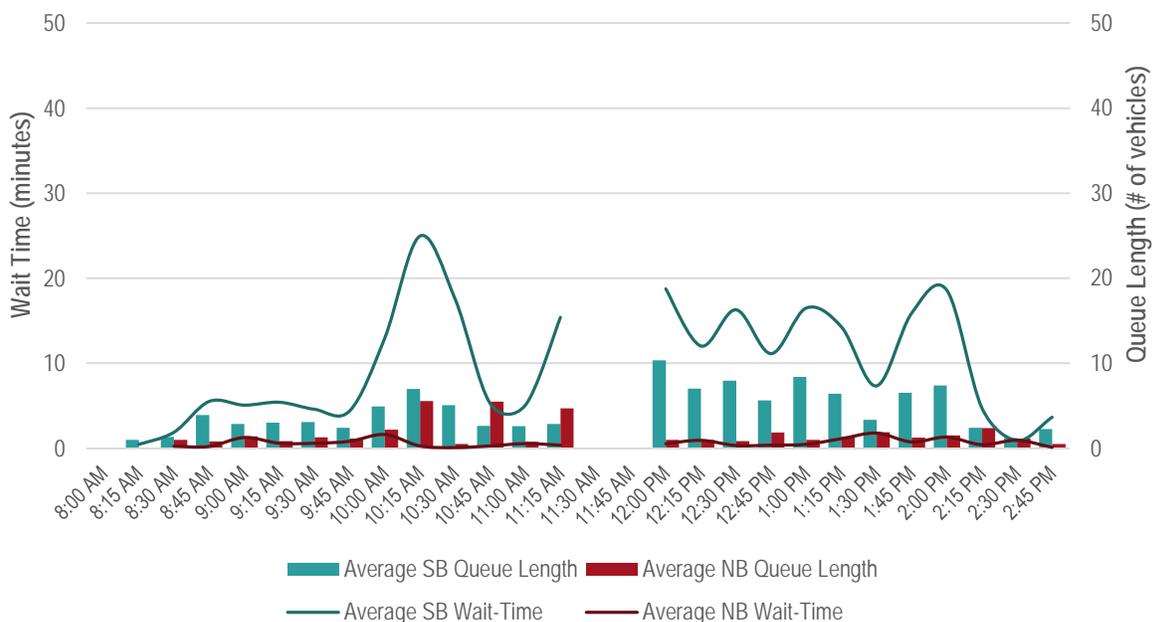
⁴ Using a similar time period as the BFO data collection (0800 to 1500, Monday to Thursday of the last full week of June), average wait-time estimates from the Cascade Gateway Border Data Warehouse were 7.8 minutes in 2012 and 18.5 minutes in 2016 – an **increase multiple of 2.37**.

In the following charts, standard border wait-times are plotted next to standard lane queue lengths, both averaged in fifteen minute intervals. This comparison shows the variation in port clearance rates. The lower the wait-time-to-queue-length ratio, the higher the processing rate of vehicles.

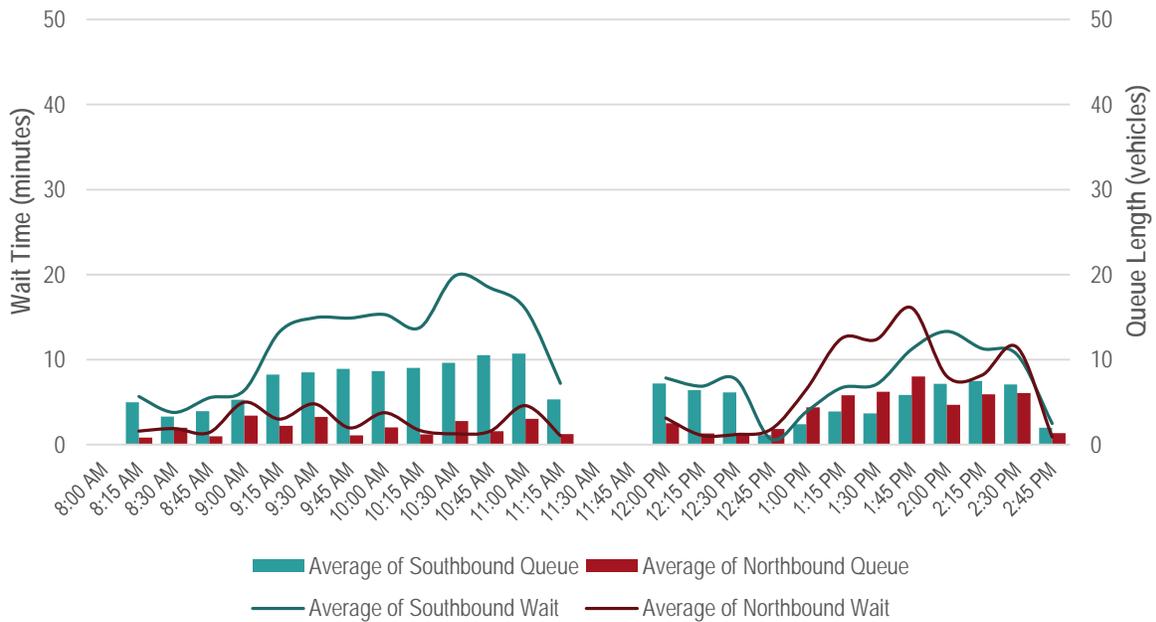
Pacific Highway (June 2016)



Lynden-Aldergrove (July 2016)

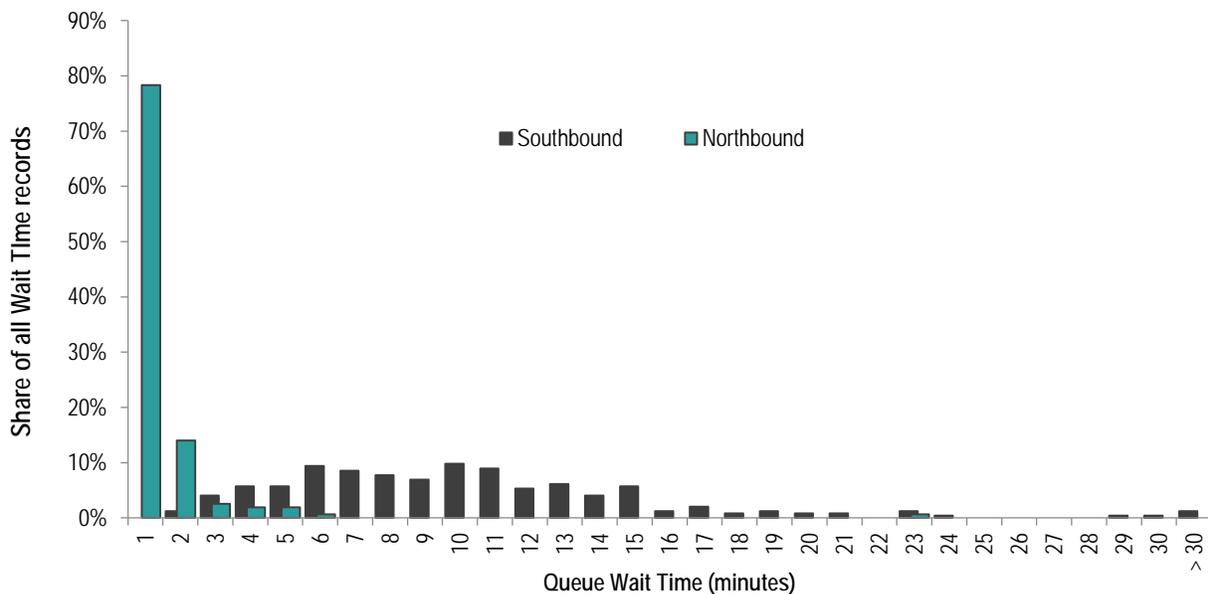


Sumas-Abbotsford/Huntingdon (July 2016)



WAIT TIMES - FAST LANES

Wait Time Distribution by Direction, Pacific Highway FAST lanes (June 2016)



The relationship between north- and southbound FAST lane wait-times is similar to that of standard wait-times. Northbound they are shorter and less variable than southbound, with nearly 80 percent of individual commercial vehicle wait-times under one minute. Meanwhile, 80 percent of individual southbound wait-times are over five minutes, with an average of nearly 10 minutes. This is likely due to the southbound FAST lane infrastructure, where, as noted earlier, the dedicated lane starts south of the intersection of 2nd Avenue and B.C. Highway 15. North of the intersection, FAST lane eligible vehicles

must wait in one general lineup with all standard vehicles on Highway 15. Northbound FAST vehicles enter a FAST lane leading up to a dedicated FAST inspection booth.

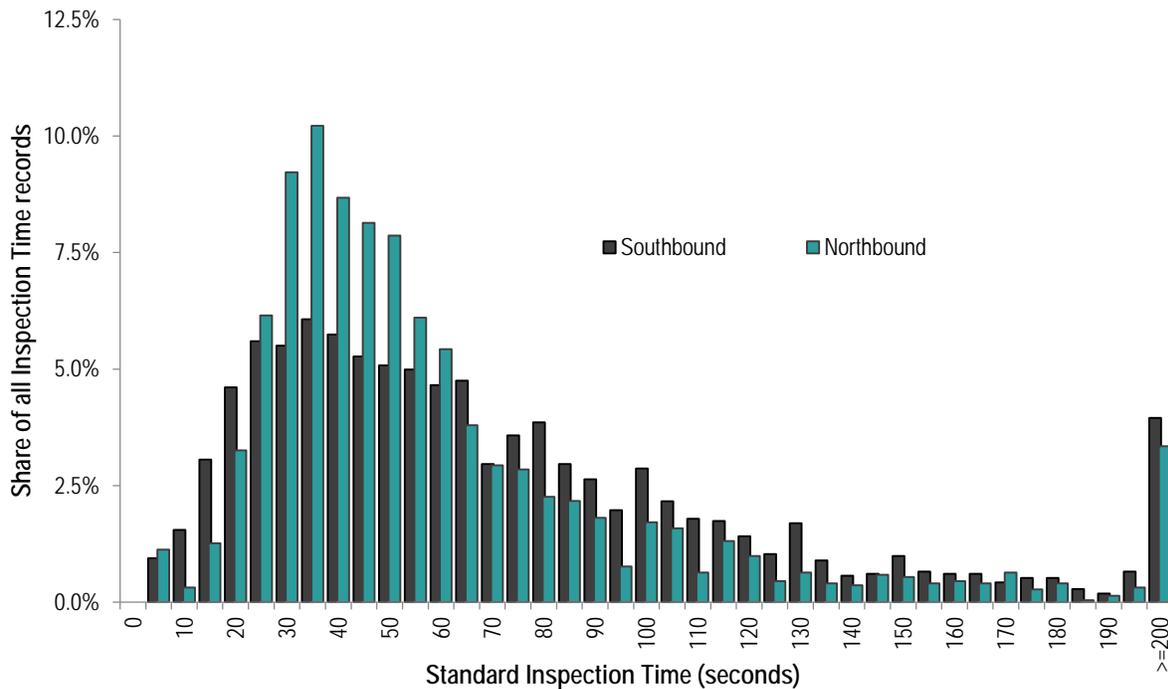


Trucks wait for inspection at the CBSA Pacific Highway commercial facility

INSPECTION TIMES

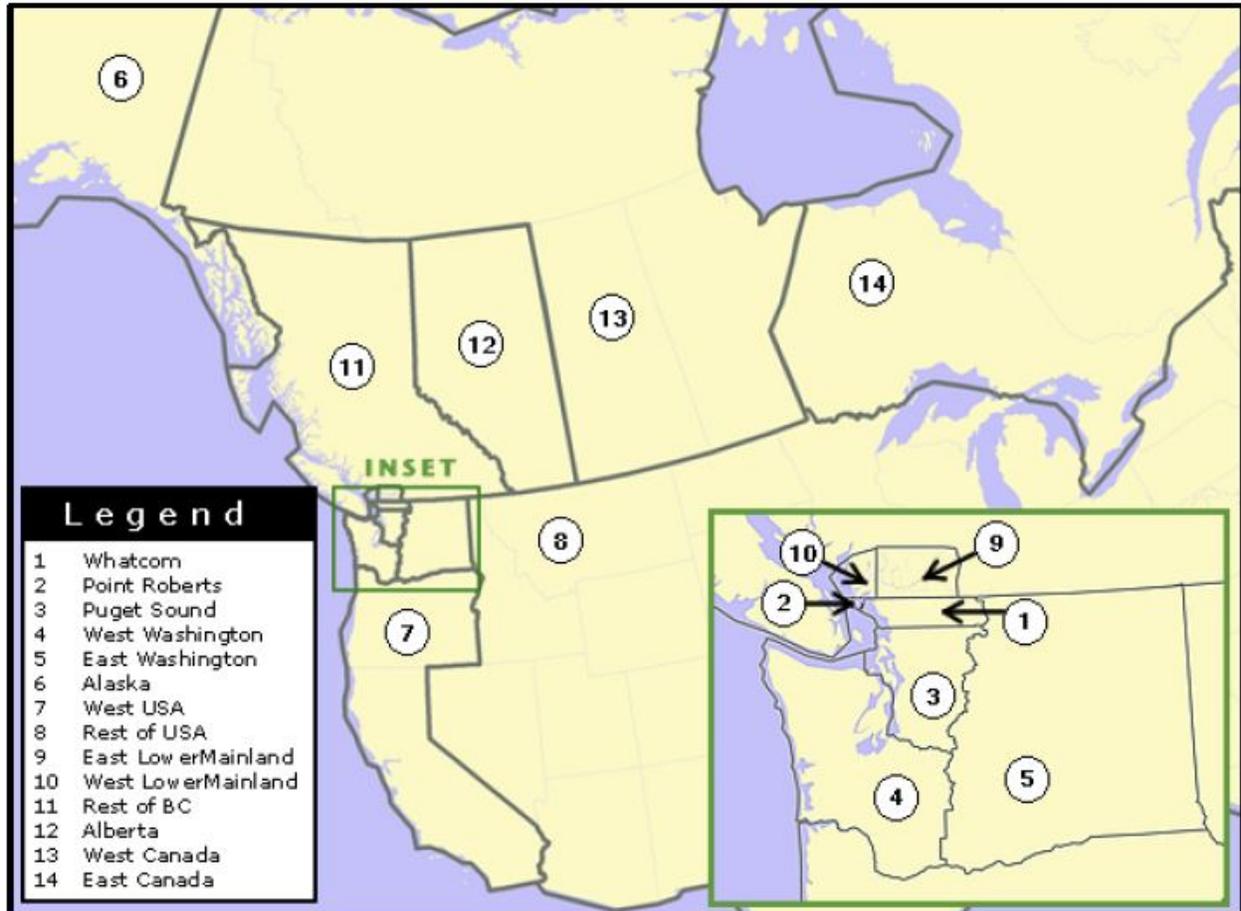
Inspection times in general are more consistent across directions of travel and ports-of-entry than wait-times. However, inspection times, similar to previously discussed queue wait-times, are more variable for southbound travel than for northbound travel. Southbound inspections also take ten seconds longer on average than northbound inspections. This is true also for FAST inspection times, with median inspection times for northbound and southbound vehicles at 29 and 51 seconds, respectively.

Inspection Time Distribution by Direction, All Ports and Standard lanes (2016)



ORIGINS AND DESTINATIONS

The highest resolution of geography recorded for truck origins and destinations was city-level. Because of the sheer number of cities recorded, origin-destination [O-D] analysis at this level, if including all O-D pairs, takes a lot space to visualize. For the following O-D analyses, cities (and certain states and provinces) have been combined using a system of geographic areas called superzones, which were developed in previous IMTC studies.



Superzones. The B.C. Lower Mainland is split into East and West by B.C. Highway 15 (and, continuing north, the Pitt River).

Origin-Destination Pairs by Port

By looking at commercial vehicle trip ends filtered by which port-of-entry they use, we can better understand the patterns that emerge in the circulation of goods through the Cascade Gateway.

Pacific Highway

PACIFIC HIGHWAY NORTHBOUND		DESTINATION						Total	
		Alaska	Alberta	Eastern Canada	Eastern Lower Mainland	Point Roberts	Rest of BC		Western Lower Mainland
ORIGIN	Eastern Washington				0.1%			1.3%	1.4%
	Puget Sound		0.5%	0.2%	2.5%	0.5%	0.7%	36.5%	40.8%
	Rest of USA		0.1%		0.8%		0.5%	5.0%	6.4%
	Western USA	< 0.1%			2.3%	< 0.1%	0.3%	11.5%	14.2%
	Western Washington		0.2%		0.6%		< 0.1%	3.5%	4.4%
	Whatcom County		0.1%		2.9%	1.6%	0.7%	27.5%	32.8%
Total		< 0.1%	0.9%	0.2%	9.1%	2.2%	2.3%	85.2%	100.0%

PACIFIC HIGHWAY SOUTHBOUND		DESTINATION					Total	
		Eastern Washington	Puget Sound	Rest of USA	Western USA	Western Washington		Whatcom County
ORIGIN	Alaska		0.1%		< 0.1%			0.2%
	Alberta	0.1%	0.1%		0.4%	0.1%	0.1%	1.0%
	Eastern Canada	0.3%	< 0.1%		0.5%		0.1%	1.0%
	Eastern Lower Mainland	0.4%	2.8%	0.5%	2.7%	0.4%	1.7%	8.4%
	Point Roberts		0.3%				0.4%	0.7%
	Rest of BC	0.2%	0.5%	0.1%	0.4%		0.7%	1.9%
	Western Canada		0.1%		0.1%		< 0.1%	0.4%
	Western Lower Mainland	3.3%	32.7%	5.6%	14.7%	3.1%	26.8%	86.2%
Total		4.3%	36.8%	6.3%	18.9%	3.7%	30.1%	100.0%

The Pacific Highway crossing connects the I-5 corridor in Washington with B.C. Highway 99 and the Trans-Canada Highway (by way of B.C. Highway 15). The majority of trips passing through this port in either direction are going to and from Puget Sound and Western Lower Mainland, which contain the Seattle and Vancouver metro areas, respectively. However, trip-ends in the U.S. are more diverse— a noticeable share of trips to and from Whatcom County and the Western U.S. (Oregon and California) also have trip-ends in the Western Lower Mainland.

Lynden-Aldergrove

ALDERGROVE NORTHBOUND		DESTINATION					Total
		Alberta	Eastern Canada	Eastern Lower Mainland	Point Roberts	Rest of BC	
ORIGIN	Eastern Washington			0.4%			0.4%
	Puget Sound		0.4%	22.4%		0.9%	6.0%
	Rest of USA			0.4%			0.4%
	Western USA	0.4%		5.2%			2.6%
	Western Washington			3.0%			0.9%
	Whatcom County			39.7%	0.4%		16.8%
Total		0.4%	0.4%	71.1%	0.4%	0.9%	26.7%

LYNDEN SOUTHBOUND		DESTINATION					Total
		Eastern Washington	Puget Sound	Rest of USA	Western USA	Western Washington	
ORIGIN	Alaska				0.4%		0.4%
	Alberta	0.2%		0.2%			0.2%
	Eastern Lower Mainland	3.0%	14.2%	0.2%	4.0%	2.3%	27.8%
	Point Roberts						0.4%
	Rest of BC	0.2%	0.2%		0.4%	0.2%	0.8%
	Western Canada						0.2%
	Western Lower Mainland	2.1%	11.7%	1.1%	4.4%	1.1%	24.6%
Total		5.5%	26.1%	1.5%	9.3%	3.6%	54.0%

Though it is about 11 miles east of Pacific Highway, Aldergrove sees a strong share of commercial trips northbound to the Western Lower Mainland. The majority of these trips are coming from within Whatcom County. There is no state route in northern Whatcom County that connects I-5 and SR 539, the approach highways to the Pacific Highway and Aldergrove crossings, respectively.

Southbound, an even larger share of Western Lower Mainland trips passes through Lynden. The Lynden commercial port is permit-only, meaning only industry within a limited geographic vicinity to the port are permitted to cross southbound. However, empty loads are also permitted southbound. Nearly 70 percent⁵ of the trips southbound through Lynden that originated in the Western Lower Mainland were observed to be empty – a high share that could indicate congestion avoidance at the closer, busier Pacific Highway crossing.

⁵ Of the 212 commercial vehicle trips passing through the southbound Lynden commercial port of entry and observed originating in Western Lower Mainland, 148 (or 69.8%) were recorded having an empty load.

Sumas-Abbotsford/Huntingdon

ABBOTSFORD- HUNTINGDON NORTHBOUND		DESTINATION						Total
		Alaska	Alberta	Eastern Canada	Eastern Lower Mainland	Rest of BC	Western Lower Mainland	
ORIGIN	Eastern Washington				1.3%		0.2%	1.5%
	Mexico				0.2%			0.2%
	Puget Sound	0.2%	0.8%	0.2%	18.0%	4.0%	2.5%	25.8%
	Rest of USA				2.9%	0.8%	0.5%	4.2%
	Western USA				2.4%	0.3%	1.0%	3.7%
	Western Washington				3.0%	0.3%	0.2%	3.5%
	Whatcom County	0.2%	0.7%	0.2%	46.5%	1.3%	12.1%	61.0%
Total		0.3%	1.5%	0.3%	74.4%	6.9%	16.5%	100.0%

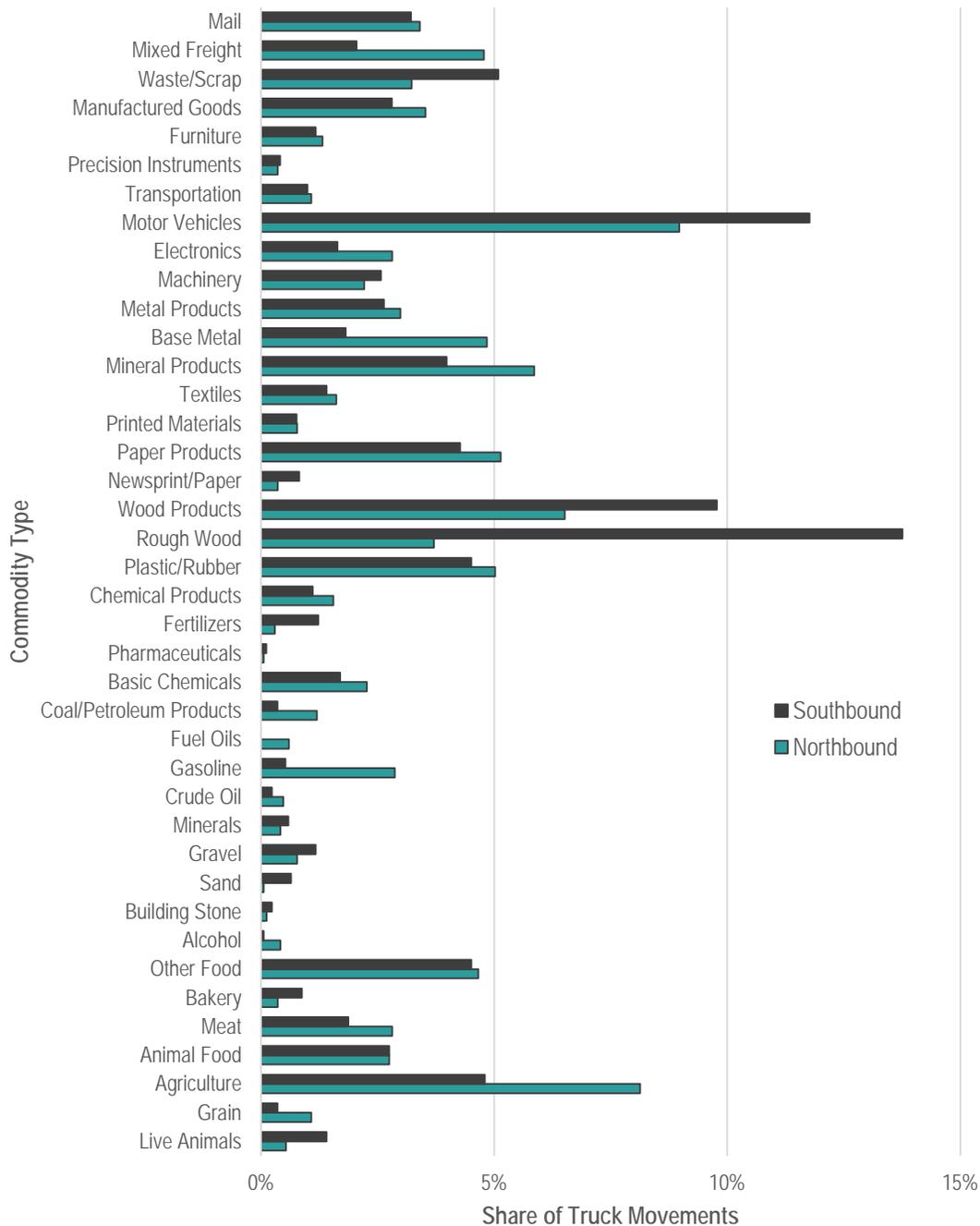
SUMAS SOUTHBOUND		DESTINATION						Total
		Eastern Washington	Puget Sound	Rest of USA	Western USA	Western Washington	Whatcom County	
ORIGIN	Alaska		0.9%		0.1%			1.0%
	Alberta		1.0%		0.9%		0.4%	2.2%
	Eastern Canada	0.4%	0.4%		0.2%		0.1%	1.1%
	Eastern Lower Mainland	2.5%	12.4%	3.1%	6.6%	1.7%	37.8%	64.1%
	Rest of BC	0.2%	2.6%	0.5%	1.5%	0.4%	3.6%	8.8%
	Western Lower Mainland	0.9%	4.2%	1.7%	2.6%	0.2%	13.0%	22.7%
Total		4.0%	21.5%	5.3%	11.9%	2.4%	55.0%	100.0%

The Sumas-Abbotsford/Huntingdon ports-of-entry primarily serve industry with an Eastern Lower Mainland or Whatcom County connection, as the data above shows. Of note is the share of commercial crossings with trip-ends being those two superzones, where trips southbound through Sumas are almost 10 percentage points less than northbound through Abbotsford-Huntingdon. This indicates a wider geographic range of carriers crossing southbound than northbound, caused in part by the permit limitation at Lynden southbound.

COMMODITIES

The number of records per commodity type represents the number of commercial vehicles that reported hauling that commodity – or, if the vehicle was currently empty, the main commodity that was last hauled across the border or was about to be picked up and brought back. This is not an indication of weight for value, but a summarization of the flow of commercial vehicles through the Cascade Gateway by commodity type.

Commercial Vehicle Movements by Primary Commodity Reported (June 2016)



Looking at the Cascade Gateway altogether, the goods traveling north are more diversified than south. Wood commodities, like rough wood (logs and wood for fuel) and wood products (lumber and other

finished wood products), make up the largest percentage of instances of goods coming into the U.S., with automobiles (and automobile parts) also making up a large share. The largest share of commercial vehicle movements into Canada are imports of automobiles and agricultural products (excluding animal feed and grains).

CARRIER TRENDS

By recording the names of carrier companies crossing the border, we can get a better sense of the distribution of companies in the trucking industry operating in the Cascade Gateway. Those carrier companies observed crossing most frequently are of particular interest – an additional element of BFO is reaching out to the management of these companies and gathering their feedback on a range of border related topics commonly discussed at IMTC meetings. Their feedback helps inform core IMTC agencies by providing unique industry perspectives on both known and previously unnoticed border-related issues.

Carrier Companies Comprising 50 percent of Crossing Instances (June 2016)

PORT	DIRECTION	CARRIERS OBSERVED	NO. OF CARRIERS COMPRISING 50% OF CROSSINGS	SHARE OF CARRIERS COMPRISING 50% OF CROSSINGS
Pacific Highway	Northbound	485	61	12.6%
Pacific Highway	Southbound	486	68	14.0%
Lynden/Aldergrove	Northbound	79	17	21.5%
Lynden/Aldergrove	Southbound	142	23	16.2%
Sumas/Huntingdon	Northbound	193	25	13.0%
Sumas/Huntingdon	Southbound	251	39	15.5%

The above table gives an indication as to the distribution of carrier companies crossing at each port-of-entry. For instance, from the field observations in June of 2016, as few as 17 individual carrier companies accounted for half of all trips crossing north through the Lynden commercial crossing.

FOR MORE INFORMATION

Please direct any questions or comments regarding the 2015/16 IMTC Border Freight Operations Study to the following project managers:

Jaymes McClain

Planner I

Whatcom Council of Governments
(360) 685-8391

jaymes@wcog.org

Melissa Fanucci, AICP

Principal Planner

Whatcom Council of Governments
(360) 685-8388

melissa@wcog.org

Hugh Conroy

Director of Planning

Whatcom Council of Governments
(360) 685-8384

hugh@wcog.org