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Cross-Border Travel Through the Cascade Gateway

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Introduction. Over the past 10 months, our Institute teamed with the Whatcom Council of Governments (WCOG) to conduct a survey of travelers crossing the Canada – U.S. border through the Cascade Gateway (i.e., the group of four ports-of-entry serving the I-5 corridor). The need for such a survey was identified by a binational forum called the International Mobility and Trade Corridor project (IMTC).¹ From time to time, new questions arise about how to improve mobility through the border. Should a cross-border public transit route be developed? If so, from where to where? Should connector roads be built parallel to the border, allowing travelers to shift easily from one port to another in response to traffic? An “origin/destination” (O/D) travel survey is the best tool with which to answer such questions. In such a survey, the driver of a car is quizzed in some detail about his travel patterns. IMTC conducted an O/D survey in 1999, but much has changed at the border since then, and a new survey was needed. In our survey, we collected 20 distinct items of data during each interview, as listed in Figure 1. We conducted interviews in both summer and winter, to account for seasonal variations in travel, and on both weekdays and weekend days, to account for differing patterns of travel within a week.

In all, we conducted about 16,000 interviews and organized the data within a Microsoft Access database. Aside from raw responses, the database also contains weighted values, derived by comparing the *number of surveys collected* at a given port within a given hour to the *total count of vehicles* passing through that port during that hour. This article describes some findings of the project. Other analyses of the data will be forthcoming, both from our Institute and from WCOG, but the most valuable outcome of the project is the database itself, which is available from WCOG.² The project would not have been possible

without the tremendous cooperation of the federal inspection agencies and the state/provincial transportation agencies. We are grateful for their cooperation.

Who Travels, and Why. Table 1 summarizes the purposes of travelers’ trips, collated separately for American and Canadian residents. The table incorporates the entire set of data (i.e., summer, winter, weekday, weekend, all four ports) and therefore provides a general snapshot of why people cross through the Cascade Gateway as of 2007. The center columns of the table, summing vertically to 100 percent, reveal the relative prevalence of each trip purpose *within each nation’s residents*. In contrast,

the right-most columns provide a *nation-to-nation comparison* of the prevalence of a given trip purpose. Looking, for example, at shopping, the center columns of the table reveal that 33.4 percent *of the Canadian residents we surveyed* crossed the border for that purpose, as did 4.7 percent *of the American residents*. The right-most columns show that 92 percent *of the people crossing the border to shop* were Canadian residents. The table reveals many items of interest:

- Overall travel through the Cascade Gateway is 61 percent Canadian, comparable to the value of 63 percent measured in 1999. Given that the near-border population (i.e., within 40 miles

of the border) is 13 times larger in Canada than in the U.S., Canadian travel dominance is to be expected.

- There are four trip purposes notably dominated by Canadians: shopping, recreation, pickup of mail at a U.S. post office box, and flying out of a U.S. airport.
- Today’s 92 percent Canadian proportion of cross-border shoppers compares to a value of 78 percent in 1999. The strong Canadian dollar has had an impact.
- There are several trip purposes dominated by U.S. residents, despite the near-border population imbalance

Figure 1. Data Collected During Each Survey

- Port-of-entry (I-5, SR543, SR539, SR9)
- Direction of travel (north, south)
- Date of interview
- Time of interview
- Type of vehicle
- Issuing agency of license plate
- Number of occupants
- Residence of driver *
- Origin of trip *
- Destination of trip *
- Purpose of trip
- Duration of trip
- Frequency of cross-border travel
- Passport possession (yes, no)
- Plan for WHTI compliance
- Type of lane (NEXUS or regular)
- In NEXUS lane: whether entire family is enrolled
- In regular lane: why not enrolled in NEXUS

* For locations in the near-border region, drivers pointed at a folio of maps and we catalogued responses relative to numbered traffic analysis zones depicted on the maps

Table 1. Trip Purposes Tabulated by Nation of Residence

Trip Purpose	Canadian Residents		U.S. Residents		Comparative Prevalence of Purpose	
	weighted #	% of total	weighted #	% of total	Canadian	U.S.
Shopping	12,634	33.4%	1,160	4.7%	92%	8%
Recreation	8,641	22.9%	6,328	25.9%	58%	42%
Vacation	8,047	21.3%	7,593	31.1%	51%	49%
Family Visit	3,181	8.4%	4,261	17.4%	43%	57%
Mail	1,151	3.0%	39	0.2%	97%	3%
Airport	972	2.6%	705	2.9%	58%	42%
Church	245	0.6%	503	2.1%	33%	67%
Doctor/dentist	95	0.3%	282	1.2%	25%	75%
School	75	0.2%	350	1.4%	18%	82%
<i>Subtotal: Discretionary</i>	<i>35,039</i>	<i>92.7%</i>	<i>21,221</i>	<i>86.8%</i>	<i>62%</i>	<i>38%</i>
Work commute	1,177	3.1%	1,081	4.4%	52%	48%
Business	1,596	4.2%	2,151	8.8%	43%	57%
<i>Subtotal: Work-related</i>	<i>2,773</i>	<i>7.3%</i>	<i>3,232</i>	<i>13.2%</i>	<i>46%</i>	<i>54%</i>
Total	37,812	100.0%	24,453	100.0%	61%	39%

mentioned earlier: business travel, family visits, and trips to church, school, and doctors/dentists. For a disproportionate number of U.S. residents, Canada appears to figure heavily in their day-to-day lives. There is speculation that some of these residents might in fact be Canadian citizens choosing, perhaps for economic reasons, to live in the U.S.

- Family visits comprise a sizable fraction of trips for residents of both Canada and the U.S. Many families apparently straddle the border.

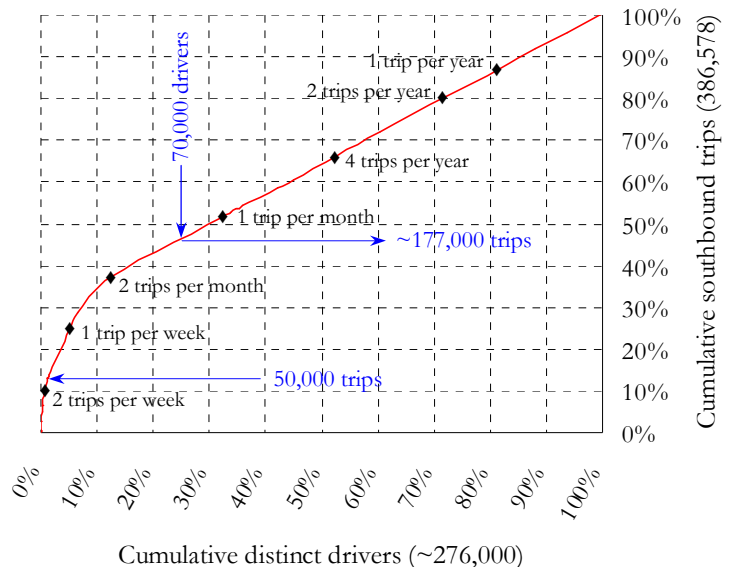
Frequency of Travel. When evaluating ways to expedite cross-border travel, analysts often pose the question, “At our port, does the clientele consist of a relatively small number of people, each making many crossings, or does it consist of a large number of people who cross infrequently?” For the Cascade Gateway, Figure 2 provides insight regarding this issue. The figure is a cumulative graph of distinct drivers and their corresponding trips, with select points upon the graph highlighted to aid discussion. To construct the figure, we mimicked the methodology recently used by a CBP contractor to conduct an economic assessment of the WHTI “passport law.”³ We used our July 2007 survey data, applying it to the universe of 386,578 cars that entered the U.S. that month through the Cascade Gateway, as counted by CBP.⁴ We estimate that those car trips were completed by about 276,000 drivers.

At the start, the graph rises quickly, with small numbers of drivers responsible for relatively large numbers of trips. The first labeled point notes that drivers traveling at a frequency of 2 trips per week (or greater) are responsible for 10 percent of the trips, although they comprise less than 1 percent of the drivers. The final point reveals that 87 percent of trips are made by drivers traveling at a frequency of 1 trip per year (or greater). The remaining 13 percent of trips were made by drivers

who cross less frequently than yearly. A peak summer travel month was deliberately chosen for this project in order to adequately sample these infrequent travelers.

Because the analytical period is 1 month in length, the graph is a straight line beyond the point labeled “1 trip per month,” implying that each trip beyond that point is completed by a distinct driver. (I.e., if a driver we interview in July claims to cross just twice per year, we assume that he will make no other trip in July.)

Figure 2 is useful for evaluating enrollment levels in the NEXUS trusted-traveler program. In our region, CBP reports that approximately 70,000 people are enrolled in NEXUS. Figure 2 shows us that, if by happy coincidence that enrollment consisted of exactly those drivers engaged in the most frequent cross-border travel (i.e., the leftmost 70,000 drivers), about 46 percent of the southbound trips (~177,000 per month) would pass

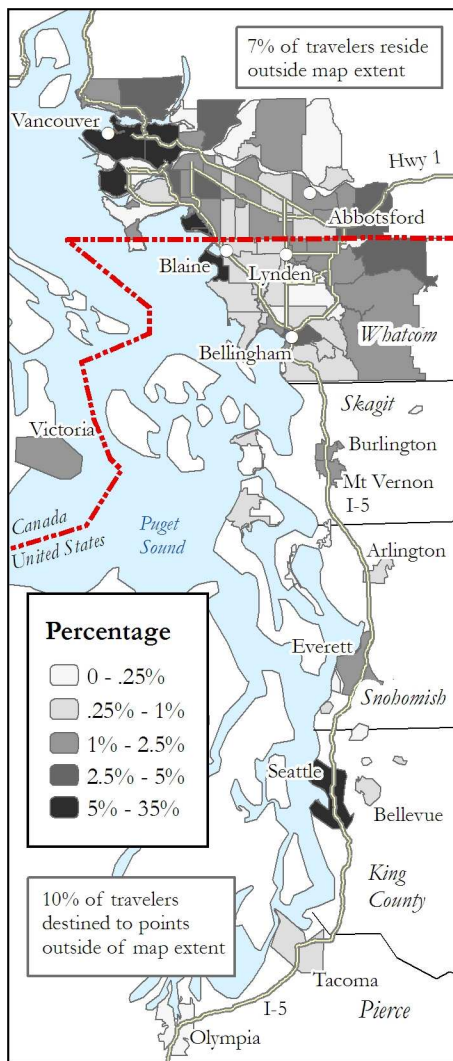
Figure 2. Relationship Between Total Trips and Distinct Drivers (July 2007)

through the NEXUS booths. In reality, on the order of 50,000 trips per month pass through NEXUS. If, again by coincidence, those *trips* were exactly the ones undertaken by the most frequent travelers, Figure 2 shows that those trips would be accomplished by about 2 percent (~7,500) of the drivers. It is apparent that our regional NEXUS enrollment is not perfectly efficient. There exist many high-frequency travelers who are not enrolled in NEXUS (or are failing to use the booths), and there exist many enrollees who are low-frequency travelers. Given the existence of many high-frequency non-NEXUS drivers, more marketing of the program would apparently be beneficial.

Where People Travel. Figures 3 and 4 provide a general snapshot of travel patterns through the Cascade Gateway, with each nation's residents separately examined. We will use Figure 3 to illustrate the methodology underlying construction of both figures and then speak to what the figures reveal.

Figure 3 looks at cross-border trips undertaken by residents of Canada. The figure uses the combined data from both the summer (July 2007) and winter (February 2008) survey periods. The shaded polygons *north* of the border represent a mapping of drivers' responses about where they *live*. Many small polygons are evident because data was recorded with reference to traffic analysis zones (TAZs) used by Canadian transportation planners. The shaded polygons *south* of the border show the *places visited* by Canadian residents during their visits to the U.S. Again, in the near-border region, responses were mapped to TAZs used by planners in Washington. In regions further from the border, responses were

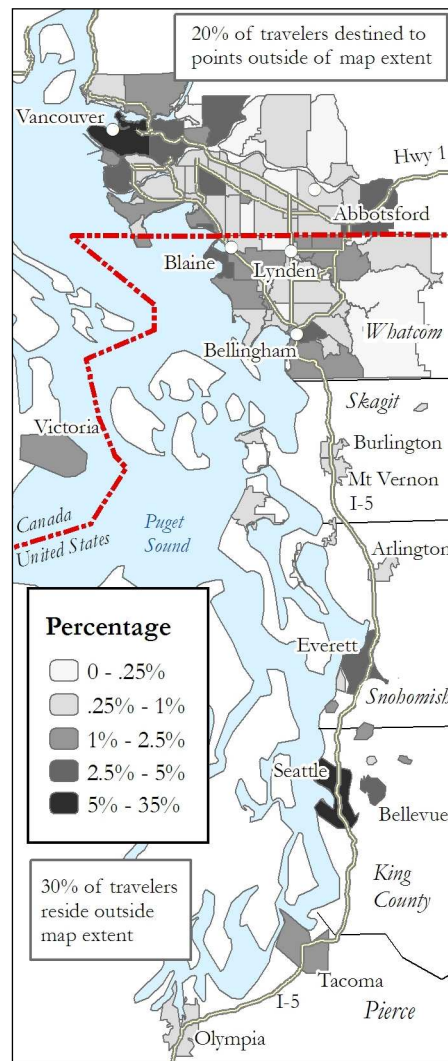
Figure 3. Canadian Residents — Where Their Trips Begin and End



mapped to cities or to other named places such as “rural King County.” Progressive gray-scale shading is used to show the percentage of Canadian residents associated with each mapped place. Finally, text boxes at the top and bottom of the figure identify the percentage of data records that plot at locations beyond the figure's extent.

Turning now to the story told by the figures, hold the page at arm's length and notice that the near-border region is generally darker in Figure 3. This is a visual indication of the extent to which the travel of Canadian residents is of a more localized nature. Only 7 percent of those travelers *live*

Figure 4. U.S. Residents — Where Their Trips Begin and End



outside the map's extent, so a large percentage of them contribute to the shading evident north of the border. Because urban development is widespread across the Lower Mainland of B.C., there are many polygons that merit darker shading. Likewise, only 10 percent of their trips are *destined* to places outside the map's extent. Many of their trips end in Whatcom County (at both the cities along I-5, as well as rural destinations to the east), so shading is again prevalent near the border. In contrast, Figure 4 notes that 30 percent of U.S. residents live beyond the figure's extent, and 20 percent of their trips are destined to Canadian places not depicted. Those factors reduce the volume of ink available for plotting on the figure. And with respect to how much of that ink is displayed near the border, major cities distant from the border (e.g., Seattle, Everett, Tacoma) are home to many travelers, and U.S. residents generally are destined to a small number of places, most of which are in the Vancouver metro area.

Though Figures 3 and 4 are “30,000 foot” snapshots

of regional travel patterns and are not designed for study of a specific policy issue, they nevertheless hint at the usefulness of O/D analysis. They imply, for instance, that intercity rail would better serve the travel patterns of U.S. residents, many of whom start their trips in main cities to the south and end their trips in Vancouver.

Travel Documents. As a final example of the kind of insight to be gleaned from the O/D database, Table 2 provides information about the kinds of documents possessed by travelers. This topic has been of popular interest because of the impending deadline for implementation of the WHTI “passport law,” which will require people entering the U.S. at the land borders to possess approved travel documents by June 2009. Table 2 uses only the February 2008 survey responses, providing the latest available data. The table identifies rates of possession of NEXUS cards and passports, both of which qualify as approved documents under the WHTI. The table identifies the rates exhibited by U.S. and Canadian *residents* (not citizens, as we did not collect citizenship data) from three points of view: overall rate; rate as associated with purpose of travel; rate as associated with travel frequency. The latter two views represent a dissection of the overall data using two of the available criteria. In each view, the weighted fraction of travelers using and/or possessing a NEXUS card is first presented, and the fraction possessing a WHTI-compliant document is next presented.⁵

The overall data show that compliance with the WHTI is already widespread in the Cascade Gateway region. The data also imply a greater level of compliance by Canadians than by Americans. The relatively greater use of NEXUS by Canadians is of note. Not surprisingly, the degree of WHTI compliance is even higher for travelers engaged in work-related travel. It is safe to assume that people will procure the documentation necessary to sustain their livelihood.

The final dissection, based upon frequency of travel, is included to address the oft-raised question of whether a survey administered *at* the border can adequately describe the status of people who rarely cross the border. We point out that many such people *did* cross the border while our project was underway and therefore were sampled. (In the earlier discussion of travel frequency, recall that a sizable fraction of July trips are made by infrequent travelers.) In our sample, a WHTI compliance rate of over 85 percent was evident among travelers who cross the border at a frequency of twice per year or less.

Table 2. Possession of Travel Documents by Certain Categories of Travelers (February 2008)

	Canadian	U.S.
Overall		
NEXUS holder	28.8%	20.5%
WHTI compliant	92.8%	89.8%
Work-related travelers		
NEXUS holder	37.5%	28.8%
WHTI compliant	97.6%	91.4%
Discretionary travelers		
NEXUS holder	28.2%	18.9%
WHTI compliant	92.4%	89.5%
Frequent (>2/yr) crossers		
NEXUS holder	33.3%	30.5%
WHTI compliant	93.8%	92.0%
Rare (<=2/yr) crossers		
NEXUS holder	2.0%	0.6%
WHTI compliant	86.6%	85.5%

Endnotes.

1. IMTC is a group of stakeholders that strives to improve mobility through the Cascade Gateway. The group includes officials from transportation agencies (Transport Canada, BCMOT, WSDOT, USDOT, WCOG), inspection agencies (CBSA, CBP), and other sectors (e.g., private sector, NGOs, municipalities, transit providers). Information about the IMTC can be found on the WCOG website at: www.wcog.org/Border/About-IMTC/58.aspx
2. Staff at the WCOG can be contacted at: wcog@wcog.org
3. The method relies upon drivers' responses to a question about how frequently they cross the border. Those responses are recorded within a set of categories, such as “2 times per month.” The method first calculates what percentage of the survey responses fall within each category (e.g., 9.05 percent of the responses are in the “2 times per month” category). The resulting percentages are then applied to the total number of southbound trips through the Gateway, yielding the number of trips attributable to each category (e.g., 9.05 percent of 386,578 total trips equals 34,985 trips made by people traveling 2 times per month). Finally, the trip-count values are divided by their respective frequencies, yielding a corresponding number of drivers (e.g., 34,985 trips equates to 17,492 distinct drivers making 2 trips each). The trips attributable to each frequency category are then accumulated in order, starting with the highest frequency. The methodology is discussed on page 4-34 of the contractor's report, titled “Regulatory Assessment for the Proposed Rulemaking: Documents Required for Travel within the Western Hemisphere,” which can be retrieved at: <http://www.regulations.gov/fdmspublic/ContentViewer?objectId=090000648025988d&disposition=attachment&contentType=pdf>
4. Monthly trip counts compiled by CBP can be retrieved at www.transtats.bts.gov/bordercrossing.aspx
5. The NEXUS value is the sum of drivers actually in the NEXUS lane, together with drivers in regular lanes claiming to hold NEXUS cards (although not using them for that trip). The WHTI-compliant value includes the above NEXUS responses, combined with other regular-lane drivers that hold passports. See page 1 for a discussion of the weighting methodology.

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