

April 14, 2011

TO: Project Files
FROM: CRC Traffic Team
SUBJECT: Value of Truck Freight Crossing the I-5 Bridge

Introduction

The Columbia River Crossing's Purpose and Need statement identifies impaired freight movement as one of the six specific needs to be addressed by any proposed action. I-5 is part of the National Truck Network and is the most important freight freeway on the West Coast. I-5 provides connections and access to domestic waterways, international freight terminals and two transcontinental railroad lines. Freight volumes moved by truck are projected to more than double by the year 2030. Growing demand and congestion will result in increasing delay, costs and uncertainty for all businesses that rely on this corridor for freight movement.

At the December 5, 2008 Project Sponsors Council (PSC) meeting, the PSC created an action item for CRC project staff to research and develop an estimate of the yearly value of truck freight crossing the Columbia River on the I-5 bridges. The estimate was developed using the data and methodology described in this memo, and the results¹ were presented at the PSC meeting held on January 9, 2009.

This memo first describes aspects of freight movement and data germane to the calculation at hand on the regional level. Next, a description of freight movement across the Columbia River on the I-5 and I-205 bridge corridors is discussed, followed by a description of CRC truck counts from the October 2005 data collection effort. Finally, it is shown how the data combine to yield the calculated value of \$40.6 billion dollars for annual truck freight movement across the I-5 bridge in 2005.

Regional Freight Movement

Data from the *Commodity Flow Forecast Update and Lower Columbia River Cargo Forecast*², published by the Port of Portland, et al. in June 2002, was used to estimate the growth in yearly truck freight tonnage between the years 1997 and 2005. Baseline data used in the report comes from the 1997 Commodity Flow Survey. Annual truck freight tonnage for the year 2005 was needed because it corresponds to the baseline existing conditions data used for the CRC project.

Calculations of truck freight growth between the years 1997 and 2005 are based upon data shown in Table 13 on page 44 of the *Commodity Flow Forecast Update and Lower Columbia River Cargo Forecast* report. For the period between the years 1997 and 2000, growth was calculated from established data points from the 1997 Commodity Flow Survey and truck freight tonnage data from the year 2000. For the period from the years 2000 to 2005, the growth calculation was based upon truck freight tonnage forecasts made in the report for future years (2010 and 2030).

In the year 1997 the regional truck tonnage was 166.6 million tons and in the year 2000 it was 197.2 million tons. This produces an 18.4 percent increase in regional truck tonnage for the three-year period from 1997 to 2000.

For freight growth beyond the year 2000, a growth rate was determined by calculating the compound annual growth rate (CAGR) between the year 2000 and the final regional truck tonnage forecast year of 2030. Data from the *Commodity Flow Forecast Update and Lower Columbia River Cargo Forecast* report (Table 13, page 44), lists regional truck tonnage for the year 2000 (197.2 million tons) and forecast truck tonnage for the year 2030 (380.0 million tons). Using these values, the CAGR between the years 2000 and 2030 was determined to be 2.21 percent.

Freight Movement in the I-5 and I-205 Corridors

The *CRC Freight Existing Conditions Report*³, completed in May 2007, states (Page 1-1, Section 1.2) that there are 28.2 million tons of truck freight moving across the I-5 and I-205 bridges in the year 1997 (the data year is not explicitly stated in the report). The data references an older report titled, *Regional Economic Effects of the I-5 Corridor/Columbia River Crossing Transportation Choke Points*⁴ that was published in April, 2003 by the Oregon Department of Transportation, et al., and was based on the results of *1997 Commodity Flow Forecast*. That report shows (Figure 17, page 31) the sum total of truck freight tonnage crossing the I-5 and I-205 bridges. Summing the values for all commodity segments labeled on the pie chart yields a net tonnage of 28.2 million tons moving across the I-5 and I-205 bridges in the year 1997.

Using the 18.4 percent growth factor calculated in the previous section for the years between 1997 and 2000 and applying this factor to the 1997 truck freight tonnage (28.2 million tons) given in the *CRC Freight Existing Conditions Report*, yields a year 2000 annual total of truck freight of 33.4 million tons crossing the I-5 and I-205 bridges.

Applying the annual growth rate (2.21 percent) to the 33.4 million tons calculated for the year 2000 and then for the subsequent five years and ten months until October 2005 (the year and month corresponding to the CRC existing truck counts, see below) yields a year 2005 annual total of truck freight of 38.0 million tons crossing the I-5 and I-205 bridges.

Value of Truck Freight on the I-5 Bridge

Data collected by the CRC in October 2005, shows that approximately 18,700 trucks cross the I-5 and I-205 bridges on a daily basis. I-5 carried about 11,000 trucks, or 59 percent of the total crossings. Applying this percentage to the year 2005 total truck tonnage (38.0 million tons) crossing the Columbia River on the I-5 and I-205 bridges yields a yearly I-5 bridge truck tonnage of 22.4 million tons.

As shown in Tables 13 and 19 in the *Commodity Flow Forecast Update and Lower Columbia River Cargo Forecast*, the truck tonnage and total value of commodities shipped by truck for the year 2010 are 223.1 million tons and \$405.0 billion dollars, respectively. This yields a per ton value of \$1,815 for truck freight. This value was confirmed by Scott Drumm at the Port of Portland in an email to Zachary Horowitz at the CRC dated December 19, 2008 (Exhibit 1).

Given a total tonnage moved by truck across the I-5 bridge in the year 2005 of 22.4 million tons and a per ton value of truck freight of \$1,815, yields a total value of truck freight crossing the I-5 bridge in the year 2005 of \$40.6 billion dollars.

References

¹ http://columbiarivercrossing.org/FileLibrary/MeetingMaterials/PSC/PSC_MeetingMaterials_010909.pdf

² http://www.portofportland.com/PDFPOP/Trade_Trans_Studies_LCR_Cmdty_Flw_Rpt.pdf

³ <http://columbiarivercrossing.org/FileLibrary/TechnicalReports/TruckFreightExistingConditions.pdf>

⁴ http://www.columbiarivercrossing.org/FileLibrary/NonCRCRelatedDocuments/I-5_Partnership_Regional_Economic_Effects.pdf

⁵ <http://oregonstate.edu/cla/polisci/sites/default/files/faculty-research/sahr/inflation-conversion/excel/infcr17742010.xls>