

March 3, 2008

**TO:** Doug Ficco and John Osborn  
**FROM:** CRC Transportation Planning/Traffic Engineering Team and CRC Financial/Economic Specialists  
**SUBJECT:** Review of Columbia River Crossing-Economic Analysis Memorandum by Joe Cortright dated February 13, 2008  
**COPY:**

## Review of “Columbia River Crossing – Economic Analysis” Memorandum by Joe Cortright dated February 13, 2008

Columbia River Crossing (CRC) staff has been requested to review the above referenced memorandum because claims stated in the document are contradictory to analysis results obtained over the last two years by the CRC project. The memorandum seems to provide two contradictory arguments: the argument that the project will cause an increase in traffic and at the same time the argument that pricing will significantly reduce traffic in the corridor. Mr. Cortright’s memorandum is incorrect because:

1. The memorandum doesn’t use actual CRC data but rather information from a preliminary 2002 study;
2. The memorandum describes the induced demand effect that is relevant to new corridors or brown field investments and not a mature corridor such as CRC where the investment’s purpose is to improve traffic flow, mobility and safety within a limited segment of highway;
3. The memorandum neglects the impact of transit as an integral part of the investment to reduce congestion and provide an alternative, affordable, and sustainable mode of transportation to the region; and
4. The memorandum ignores the effect of pricing as a mechanism to ensure efficient traffic management and provide revenues for the project, therefore, reducing the burden on tax payers.

This review addresses the memorandum providing detailed responses and supporting information under the five key issues identified in Mr. Cortright’s memorandum:

### Key Issue #1

**Mr. Cortright:** *“The Big Bridge Will Induce Additional Traffic: CRC’s own projections show that the bridge will generate 20,000 more trips per day across the Columbia River than the no-build alternative.”*

**CRC Response:** CRC’s traffic projections show that under the replacement bridge alternative, which would provide the replacement bridge itself, auxiliary traffic lanes between closely-spaced interchanges, high capacity transit, tolls, and a high-quality pedestrian and bicycle facility, would reduce cross-river vehicle-trips by 3,000 trips per day compared to the No-Build alternative while at the same time there will be an additional one million people in the greater Portland/Vancouver Metro region.

**Supporting Information:** The data shown in Mr. Cortright's memo are not estimates used in the CRC DEIS, but instead are from a study conducted as a follow-up to the I-5 Transportation and Trade Partnership project in 2002. This earlier study conducted preliminary investigations for a completely different bridge, highway, and transit project than those currently being studied. Over the past few years, additional studies have been conducted and alternative multi-modal packages have been screened and refined as a part of the project's environmental review process.<sup>1</sup> Based on these studies and direction from the CRC Task Force, the current CRC "build" alternatives include tolling I-5, an expanded high capacity transit system, and specific auxiliary lane improvements tailored to resolve safety problems

The traffic analysis in the CRC DEIS include a forecast of cross-river (via I-5 and I-205) daily vehicle-trips in 2030. Since the CRC project would include tolling of I-5 and provision of high capacity transit in addition to the auxiliary lane improvements, it is estimated that the replacement bridge alternative would reduce cross-river vehicle trips by 3,000 trips per day compared to a no-build scenario (I-5 would reduce by 6,000 vehicle trips shown in Figure 1 below but vehicle trips would increase by 3,000 on I-205).

## Key Issue #2

**Mr. Cortright:** *"The Big Bridge Won't Reduce Congestion: The big bridge will make traffic worse, not better, by overwhelming capacity in other parts of the I-5 system."*

**CRC Response:** CRC's traffic analysis shows that the CRC project would reduce the duration of traffic congestion at the I-5 crossing by up to 9.5 hours per day compared to no-build conditions and would not exacerbate over-capacity conditions at other locations on I-5.

**Supporting Information:** As discussed under "Key Issue #1", Mr. Cortright has used data from a non-tolled and different bridge, highway, and transit configuration than is currently being considered by the CRC. Mr. Cortright's conclusions also do not consider the travel patterns of vehicles using I-5's Columbia River crossing. CRC traffic analyses have found that between 68 and 75 percent of all peak direction traffic crossing the I-5 Bridge either enters, exits, or both enters and exits I-5 within the five-mile area between SR 500 and Columbia Boulevard. Therefore the proposed auxiliary lanes would principally be used by interchanging traffic within the bridge influence area and would provide safer conditions for automobile and truck movement, not through-capacity that overloads other parts of I-5.

CRC forecasts show that the provision of tolls and high capacity transit would reduce traffic levels and congestion on I-5 and within North Portland to that less than expected under a no-build scenario, as shown in the following illustration.







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<sup>1</sup> The working paper cited in Mr. Cortright's memo (Working Paper 10.2 conducted for the I-5 Transportation and Trade Partnership project) included the following in its first paragraph:

"The Oregon Department of Transportation (ODOT) and Washington State Department of Transportation (WSDOT) are preparing to undertake environmental studies of Columbia River Crossing Project alternatives. It is possible that tolling options will be included in these studies. The analysis documented in this Working Paper (WP) is preliminary in nature, and seeks only to provide tolling traffic and revenue information for project scoping."

In other words, the information in the 2005 working paper cited by Mr. Cortright does not pertain to the current CRC project alternatives.

A new Interstate 5 bridge over the Columbia River with high capacity transit and tolls would produce less traffic and pollution in 2030, compared to the No Build option.

Options	Hours of Congestion	Average daily traffic
<b>Existing bridge</b>	6	 134,000
<b>No Build by 2030</b>	15	 184,000
<b>2030 New Bridge</b>		
<b>No HCT, no tolls</b>	8	 225,000
<b>HCT, no tolls</b>	7	 210,000
<b>No HCT, tolls</b>	6	 193,000
<b>HCT, tolls*</b>	5.5	 178,000

\*CRC project proposal

Figure 1  
I-5 Bridge ADT and Duration of Congestion

**Key Issue #3**

**Mr. Cortright:** *“Big Bridge Tolls Will Reduce Use of I-5 Sharply”*

**CRC Response:** The CRC project is proposing provision of tolls. Compared to a non-tolling scenario, tolling the I-5 bridge would reduce daily vehicle-trips crossing the Columbia River on I-5 by 15 percent. Moreover, the key issues identified in Mr. Cortright’s memorandum are logically inconsistent with each other. In Key Issue #1 and 2 the problems are that the bridge increases river crossing traffic and overwhelms I-5, while the problem in Key Issue #3 is that the project reduces traffic on I-5.

**Supporting Information:**

Value pricing transportation facilities is supported by many in the transportation and environmental community because it provides a workable way to regulate traffic volumes through the toll rate structure. The optimal pricing structure is one that encourages transit use and time shifts from peak to off-peak periods, minimizes diversion, eliminates unnecessary trips, and allows for traffic volumes on the tolled facility that maximizes the efficiency of the facility. Within the Portland region, the I-5 Bridge is uniquely capable of accomplishing these objectives due to its travel patterns, proximity to existing light rail facilities, and the limited ability of many travelers to efficiently take an alternative route. While the toll rates assumed for the DEIS as still preliminary, they demonstrate that tolling I-5 can accomplish these objectives.

The 15 percent reduction in I-5 river crossings compared to the No-Build alternative was determined through an extensive effort of regional traffic modeling and micro-simulation traffic assignments. The CRC project team, working with Metro, RTC, and national tolling experts, developed travel demand modeling algorithms that were calibrated to personal travel behaviors. The algorithms consider such variables as toll value by direction and time of day, value of travel time by trip purpose (e.g., work, recreational, freight), and elasticities related to trip destination, trip route, and mode of travel.

While the SurveyUSA and focus group results referenced in the Cortright memorandum provide some additional data, they are wholly inadequate to use for simply extrapolating to a conclusion. The SurveyUSA question did not address, for example, the consequences of using an alternative route or not taking a trip that would be relevant to a trip-making decision. The Metro model, on the other hand, does address these factors. Moreover, the CRC Project has retained some of the top tolling experts in the country to ensure the tolling results from the modeling are realistic.

#### Key Issue #4

**Mr. Cortright:** “\$4 Billion is a lot of money we don’t have; spending \$4 billion on this project means that much less for all the region’s other transportation needs.” “\$4 billion is roughly the total amount of resources identified in the Regional Transportation Plan for all new transportation investments in the region in the next 20 years ... This project will use up virtually all of the region’s capacity to finance new transportation investments for a decade or more.”

**CRC Response:** Mr. Cortright’s memorandum significantly overstates the impact funding the CRC Project has on funding other transportation projects in the region. Most of the revenues anticipated for the CRC Project would not be available for other projects in the region. With the exception of funding for preliminary engineering, the revenues planned for the CRC Project are not included in Metro’s \$15.82 billion<sup>2</sup> financially constrained RTP, and thus do not use up “virtually all” of the region’s capacity for new projects – if anything it could help to add to that capacity. About 22 percent of CRC’s budget is dedicated to alternative mode (i.e.; HCT, bike, pedestrian) improvements – and that does not include funds used for TDM measures, such as tolling equipment.

#### **Supporting Information:**

While Mr. Cortright’s statement “*Money spent on this project—from any source, including earmarks, will not be available for alternative transportation investments*” may be tautologically accurate, it obfuscates how much of the monies spent on the CRC project would be available for alternative transportation investments in the region without CRC. This issues is addressed below. For simplicity of discussion, this memorandum uses the \$3.6 billion high-end cost estimate of the replacement bridge-LRT to Clark College alternative (which represents a mid-point cost estimate among the alternatives).<sup>3</sup>

A substantial amount of funding is anticipated to come from the State of Washington, and would not be available to the region without the CRC Project. For example, WSDOT or C-TRAN would be the grantee of the \$689 million New Starts grant proposed for CRC, which avoids the pitfalls of having two large New Starts requests coming from TriMet (Milwaukie LRT being the other) at the same time. Moreover, WSDOT would provide toll credits to match the New Starts grant, saving the region millions of dollars of local transit funds that would otherwise be required for the HCT component of the project. In addition, WSDOT is anticipated to provide \$475 - \$715 million (depending on the amounts of toll bonds and federal discretionary funds secured) of the required state funding. Without the CRC Project, these revenues would not be available to the region.

The region will get some federal discretionary grants over the next several years whether or not there is a CRC Project. However, the CRC Project is in a unique position to secure a substantially larger amount of discretionary funds than would otherwise be available to the region due to (i) its importance as a “Corridor of the Future” and (ii) the fact that it would be a priority of two states and congressional delegations. In addition, it is anticipated that one-half of the discretionary earmarks would be secured through the State

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<sup>2</sup> Revenue estimate shown is in year-of-expenditure dollars; as are the cost estimates for the CRC Project. In 2007 dollars, the financially constrained RTP encompasses \$9.05 billion. See Metro, 2035 Regional Transportation Plan, Technical Appendix, Appendix 4-2, Table 7; January 18, 2008

<sup>3</sup> The range of capital cost for all of the CRC alternatives is between \$3.26 and 3.92 billion in year-of-expenditure dollars, depending on the cost estimate, bridge alternative, and transit alternative assumed. For simplicity, this response will focus on the high-end cost estimate of the replacement bridge-LRT to Clark College alternative, which costs about \$3.6 billion and approximately represents a mid-point estimate.

of Washington and would not otherwise be available to the region. Consequently it is reasonable to assume that well less than one-half of the federal discretionary funds included in the CRC Project would be available to the region absent the CRC Project.

In addition, the \$1.07 - \$1.35 billion anticipated from tolling the I-5 Bridge is uniquely available to the CRC Project, and does not take any money from any other project. In fact, it may enhance prospects for funding other projects by demonstrating the practicality of value priced-tolling and creating the back-office infrastructure that can be used for other tolling projects the region may wish to implement.

Regarding the potential impact of the state funding on the region's program, Mr. Cortright's memorandum implicitly assumes that whether or not there is a CRC Project: (i) there would be new state funds for transportation and (ii) the amount of new state funds would be the same. This assumption belies recent history in other states where transportation revenues were increased in part because they funded high-priority projects that garnered legislative support. So while one may speculate that CRC reduces the amount of new state revenues available to other projects, it may be equally reasonable to assume that the CRC Project can help get new state revenues for other projects by headlining a statewide package.

Mr. Cortright's memorandum incorrectly states the Regional Transportation Plan includes only \$4 billion for new investments. Metro's financially constrained RTP, which only addresses funding in the Oregon portion of the region, estimates that there are \$15.82 billion in year of expenditure dollars (or \$9.05 billion in 2007 dollars) for new projects through the year 2035 – and that does not include any of the revenues associated with the CRC project except for a relatively small amount of preliminary engineering funds. Even if one accepts Mr. Cortright's assumption that all of the Oregon state and Oregon-portion federal discretionary funds associated with CRC would be available to other projects absent CRC, which we believe is highly unlikely, that would represent roughly 10% of the financially constrained revenue, not "*virtually all of the region's capacity*," as stated in Mr. Cortright's memorandum. Furthermore this percentage is commensurate with the fact that 10% of regional traffic growth is anticipated in the I-5 and I-205 corridor according to the Cortright memorandum.

Lastly, it should be noted that alternative mode (HCT and bike/pedestrian) improvements included in the CRC make-up \$756 - \$807 million (22 percent) of the total project cost of the replacement bridge-LRT to Clark College alternative (used here for discussion purposes) – and that does not include the capital costs of the TDM measures included in the project (such as tolling equipment, etc.). This contribution toward alternative modes is almost certainly higher than would be made absent CRC through state and federal discretionary funds during the CRC time frame.

### Key Issue #5

**Mr. Cortright:** "The Financing Plan for the CRC is shaky and speculative. It depends on tax increases that have not been approved. Just the state/regional share would require a 15 cent a gallon tax on all gas sold in the metro region."

**CRC Response:** Assuming the entire state/regional share is to be funded through a tax increase, the required Oregon fuel tax increase would be in the range of 1.1 to 2.0 cents per gallon, not the 15-cents per gallon increase proposed in the Cortright memorandum. Mr. Cortright is correct that the finance plan depends on yet-to-be-approved funding; but this is the case for virtually all projects at the DEIS-stage since the preferred project usually must be selected before the funding entities commit their funds, and the preferred alternative cannot be selected until after the DEIS comment period closes.

**Supporting Information:** The current CRC finance plan assumes that the "state/regional" funding for the highway component of CRC comes from the States of Oregon and Washington; no regional or city/county gas tax revenues are presumed. The "regional" funding sources in the current CRC finance plan solely address the transit component of the project.

Looking at, for example, the Replacement Bridge-LRT to Clark College alternative, the aggregate state/regional revenues requirement for the highway component ranges between \$0.830 and \$1.430

billion, depending on the cost estimate, toll estimate, and discretionary highway funding estimate used. It is currently assumed that Oregon and Washington would each contribute one-half of the required amount. While the actual package of Oregon taxes, fees, and other revenue sources that may be used to fund ODOT's share of CRC capital costs must be developed through the legislative process, this response will focus on the fuel tax option raised in the Cortright memorandum.

In fiscal year (FY) 2008 the Oregon motor vehicle fuel tax is expected to gross about \$17.5 million per penny of tax.<sup>4</sup> State law requires certain transfers and expenses be paid from gross fuel tax revenues. As a result, a 1 cent fuel tax in FY 2008 produces about \$16.0 million net revenues for transportation projects. The Oregon Constitution also requires that the proportion of highway revenues paid among the major vehicle classes, primarily passenger vehicles and heavy trucks, match the relative financial burden each places on the transportation system. This concept is commonly referred to as cost responsibility. To maintain cost responsibility, an increase in fuels tax would be paired with a proportionate increase in motor carrier fees and taxes. An increase in motor carrier fees and taxes proportionate to a 1 cent increase in fuel tax would generate about \$8.5 million in FY 2008. Thus, a package of a 1 cent fuel tax and a proportionate amount of motor carrier taxes and fees would generate about \$24.5 million in net revenues in FY 2008. These revenues are estimated by ODOT to grow on average at about 1.5% per year.

A tax increase of 1.1 to 2.0 cents per gallon with a commensurate increase in motor carrier fees would be sufficient to meet Oregon's \$430 to \$715 million share of state/regional funding for the Replacement Bridge-LRT to Clark College alternative, assuming (i) the entire state contribution came from a new tax increase, (ii) the proceeds from the entire increase was dedicated to CRC, and (iii) uniform-payment, subordinated highway revenue bonds are issued in 2010 with a 25-year term. To the extent any existing revenues are applied, the required increase would be reduced. Other state funding packages are possible, but none require a tax increase the size offered in the Cortright memorandum.

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<sup>4</sup> Net revenue estimates for gas/equivalent weight-mile tax and associated growth rates from ODOT, Summary of Transportation Economic and Revenue Forecasts, June 2007.