NOTEBOOK 2

TAB J: FINANCING PLAN (2010)

CURRENT PROJECT COST ESTIMATE

Based on fall 2009 design refinements and additional engineering, construction is expected to cost $2.6 - $3.6 billion. Estimates are based on year of expenditure dollars, or the projected year the money would be spent. The estimate assumes that construction could begin in 2012 and last five to seven years. The cost range does not include operating and maintenance costs.

The cost estimates are for construction of a replacement bridge with light rail to Clark College and interchange and pedestrian/bicycle improvements on five miles of I-5. This cost estimate includes the savings resulting from several design refinements, described in the following section.

The cost and time to complete a project is subject to many variables, including inflation, demand for materials or labor and the availability of funding. The cost estimate range is determined through a risk-based analysis that estimates the probability that actual construction costs will fall somewhere within the range.

FUNDING SOURCES

Multiple sources will help fund construction of the Columbia River Crossing project:

- Federal government
- State of Oregon
- State of Washington
- Tolling the I-5 bridge

The U.S. Department of Transportation has pledged to support the project with a grant from its Corridors of the Future program. Additional financial information will be published with the Final Environmental Impact Statement, expected in 2010.

FUNDING STRATEGY OVERVIEW

ODOT and WSDOT are requesting funding for the CRC's highway component in the Projects of National Significance (PNS) account to ensure that the project competes at the national level against other megaprojects rather than at the regional and local level against local and state project funding requests in the Portland/Vancouver metro region. There are no other projects in the Portland/Vancouver metro region or the rest of the state of Oregon that would be

competitive in this program; however, there are several projects in Washington that could be competitive.

The states believe there is an excellent opportunity to secure significant funding for the project with regional support, and believe the $400 million in federal highway program funds assumed in the finance plan is reasonable given our experience in securing megaproject funds in SAFETEA-LU, the current interest seen in funding projects of regional and national significance, and the likely growth in the size of the federal transportation program.

OUR EXPERIENCE IN SAFETEA-LU/CREATION OF PROJECTS OF NATIONAL AND REGIONAL SIGNIFICANCE (PNRS)

There are two general types of earmarks:

- "Above the line"/megaproject earmarks, which provide large amounts of additional money for larger projects, and this funding does not come out of a state's normal formula funding.
- "Below the line", mainly known as High Priority Projects, which generally provide smaller amounts; these come out of formula money states, metro regions, and local governments otherwise would receive. Each member of Congress generally receives an allocation of funds to distribute to projects under this program.

These two types of earmarks are generally distributed separately, so there is not a direct connection between what you get in one group and what you get in another.

In SAFETEA-LU Congress created the Projects of National and Regional Significance and National Corridor Infrastructure Investment programs as "megaproject" programs to provide funding to projects that are nationally or regionally important and therefore arguably deserve significant federal funding and which are unlikely to be completed without significant federal funding because of their size.

These two programs provided a total of $3.6 billion. Oregon and Washington received a total of $420 million in megaproject money in SAFETEA-LU from PNRS, Corridors of the Future, and the Bridge programs:

- Oregon received a total of $200 million to complement and extend the OTIA III State Bridge Program.
- Washington received $220 million in PNRS money for the Alaska Way Viaduct program; Washington received this money in part because the region's congressional delegation and local stakeholders were united in their support for the request.

By comparison, $17.3 billion was provided for 5,500 earmarks in the two main "below the line" earmark programs, so the vast majority of money is for smaller earmarks. Receiving significant megaproject earmarks didn't reduce earmarks for other state and local agency requests and didn't reduce formula funding for OR and WA:

- Oregon still received $332 million in earmarks for other projects.
- Washington received $299 million in money for state and local agency projects; about 2/3 of that went to projects in Puget Sound—the same region that contains the Alaska Way Viaduct.

GOING FORWARD: CONGRESSIONAL PROPOSALS AND THEIR IMPACTS TO CRC AND OTHER REQUESTS

In the House bill proposed by Chairman Oberstar and Congressman DeFazio, known as the Surface Transportation Authorization Act, these PNRS and Corridors programs are consolidated into a Projects of National Significance Program, and they are refocused and expanded significantly. The funding level would go from $3.6 billion for PNRS and Corridors in SAFETEA-LU to a proposed level of $25 billion—a nearly sevenfold increase.

Chairman Oberstar wants to refocus the program on projects of truly national significance; he dropped regional from the title and the selection criteria in the bill reflect this: The program's purpose is to fund projects that "generate national economic and mobility benefits, including improving economic productivity by facilitating international trade, relieving congestion, and improving transportation safety by facilitating passenger and freight movement" and "cannot easily be addressed or funded through State apportionments of Federal surface transportation funds."

Unlike the TIGER program, the criteria focus on much larger projects and with a stronger freight focus. The criteria closely match the CRC because it is an Interstate route with heavy freight volumes and provides access to international ports. With support from the region, CRC will be more likely to be successful in this program and bring additional resources into the region to create jobs.

EARMARK VERSUS DISCRETIONARY

Chairman Oberstar does not want to earmark the PNS program; he wants to leave it to US DOT as a discretionary competitive grant program. If it's left as a discretionary program, CRC is expected to be very competitive, and $400 million would be very reasonable, as it's just 1.6 percent of the proposed funding level.

Two US DOT programs have demonstrated that significant grant awards are possible when US DOT has a lot of money in a discretionary program:

- In the New Starts program, grants are regularly running in the range of half a billion dollars, from a program that over the course of SAFETEA-LU had about $8 billion available.
- The ARRA High Speed and Intercity Passenger Rail program had $8 billion available, and we saw six separate grants of at least half a billion dollars—including one for $1.1 billion (FL) and one for $2.25 billion (CA).

The ARRA TIGER program awards weren't as large, but the program funding level was significantly lower and wasn't as focused on megaprojects.

If PNS is earmarked, Congress will likely spread the money around a bit more, but $400 million— $200 million per state— is still a very reasonable request given the priority of the project for the two states and the positions our delegation members occupy on congressional authorizing, appropriations, and finance committees.

The budgetary environment is now very favorable to megaprojects. Between PNS and TIGER, Congress has shown they strongly support funding for major projects that have regional and national significance. The Obama Administration has also added to the chorus in support of paying for big projects by requesting $4 billion in the FY 2011 budget to create the National Infrastructure Innovation and Finance Fund, a hybrid grant program/infrastructure financing fund that would provide grants and loans, for major projects, so even though they don't have a bill yet they've shown their support for funding major projects.

UNDERSTANDING TOLLING EFFECTS AND SETTING POLICIES

TOLLING STUDY COMMITTEE

The Tolling Study Committee was created in 2009 by the Washington Legislature to study a variety of CRC tolling scenarios and gather public feedback on tolling ideas for the project. The committee worked with the Oregon and Washington transportation departments to examine the following issues with input from the public: traffic diversion, technology to collect tolls electronically, traffic management and revenue potential.

The committee held two public listening sessions and two public work sessions in 2009 and conducted an online survey before submitting its final report on the scenarios and public input to the Oregon and Washington governors and state legislatures in January 2010.

Tolling Study Committee Members

Gail Achterman, Chair, Oregon Transportation Commission

Matthew Garrett, Director, Oregon Department of Transportation

Paula Hammond, Secretary, Washington State Department of Transportation

Carol Moser, Chair, Washington State Transportation Commission

No toll rate or policy has been set. Information gained from the tolling study will be used to help develop the project's finance plan. Actual toll rates and policies will be decided by the state transportation commissions.

The committee's report is included in this section of the notebook.

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FUNDING REPORT

ODOT Funding Sources

Date	Source	Amount Commited
Prior to 2004	Federal Earmark (H.J. Res. 2)*	$1.31
2005 to 2009	SAFETEA-LU Federal (2458 & 337)	$5.61
2005-2007	OTIA III (State Funds)	$5.00
2006	Federal Earmark (Bill 3058)	$0.79
2007	ODOT Federal Funds (State Match)	$4.60
2007	FY07 IMD Funds (C.O.F.)**	$7.50
2008	FY08 IMD Funds (Bill PL 110-161)	$0.68
2009	FY09 IMD Funds	$3.33
2009	Trans. Project Account (Bill 2001)	$30.00
2010	Federal Interstate Maintenance	$1.00

ODOT Total Funding Before Transfer to WSDOT	$59.82
Transfer out FY07 IMD Funds (C.O.F.)** to WSDOT	($7.50)
ODOT Total Funding After Transfer	$52.32

WSDOT Funding Sources

Date	Source	FED. #	PIN #	Finance Code	Amount Commited	Amount Authorized
2004	Federal Earmark	HP-0051(260)	400506A	GB	$3.00	$3.00
2004	Match (State Funds)	NO	400506A	AA	$0.07	$0.07
2005	Federal Earmark	HP-0051(266)	400506A	GB	$2.00	$1.97
2005	Match (State Funds)	NO	400506A	AA	$0.04	$0.00
2005-2007	TPA (State Funds)	NO	400506A	AZ	$10.00	$10.06
2005	SAFETEA-LU Federal	HP-0051(268)	400506A	GS	$7.00	$6.17
2005	SAFETEA-LU Federal	HP-0051(269)	400506A	GS	$1.00	$0.71
2007-2009	TPA (State Funds)	NO	400506A	AZ	$20.00	$19.94
2007	FY07 IMD Funds (C.O.F)**	IMD-0051(268)	400506A	CK	$7.50	$7.50
2009-2011	TPA (State Funds)	NO	400506A	AZ	$20.00	$20.00
2009	SAFETEA-LU Federal	HP-0051(177)	400506A	GS	$1.31	$1.31
2009	SAFETEA-LU Federal	HP-0051(254)	400506A	GS	$0.19	$0.00
2009	FY09 IMD Funds		400506A		$1.33	$0.00
2010	FY10 IMD Funds				$1.95	$0.00

WSDOT Total Funding Before (C.O.F.)** Transfer From ODOT	$74.20
Transfer FY07 IMD Funds (C.O.F.)** From ODOT	$7.50
WSDOT Total Funding After Transfer	$81.70
WSDOT and ODOT Total Funding After Transfer	$134.02
WSDOT Direct Expenditures Thru 3/23/2010	($85.46)
ODOT Direct Expenditures thru 2/28/10	($4.83)
WSDOT & ODOT Total Direct Expenditures Thru 3/23/2010	($90.29)
Both States Remaining Funds	**$43.73**

* Original Earmark of $3.5M - $2.2M spent on Pre-EIS Work (Larken Project)

**These funds are a $15 million, 2007 Interstate Maintenance Discretionary (IMD) earmark that Congress gave to Oregon. Oregon transferred these funds to Washington State for the CRC project in May 2008. These funds are obligated on Federal Aid # IMD-0051(268)

ODOT Federal Funds:	$12.72
WSDOT Federal Funds:	$16.63
ODOT State Funds:	$39.60
WSDOT State Funds:	$50.07
Cooridor of the Future Funds:	$15.00
Total:	$134.02

Data Current Thru 3/23/2010

Columbia River CROSSING

Columbia River Crossing Project Expenditure Summary

(2004 - March 31, 2010)

The following shows expenditures to date, by project discipline, for planning and development of the Columbia River Crossing Project.

Phase 1 - Environmental Impact Statement (EIS)

Description		Cost To Date
Engineering	Conduct preliminary planning and design of highway, bridge and interchange structures including geotechnical analysis, right of way identification, bicycle and pedestrian facilities and utility work for the EIS. Develop data for preparation of EIS technical reports such as preliminary cost estimates, traffic modeling and geometric analysis.	$39.4M
Environmental Study and Reports	Draft EIS technical reports, publish Draft EIS. Coordinate with regulatory agencies and local sponsoring agencies. Conduct and manage archaeological investigations. Consult with multiple tribal governments. Develop data and analysis for Biological Assessment.	$15.7M
Transit Planning & Preliminary Design	Conduct preliminary transit design, planning and engineering including alignment, station and park and ride locations, and station area planning. Conduct transit modeling. Coordinate between project partners and develop data for advisory working groups.	$9.7M
Finance Study and Reports	Research and develop financing options and opportunities, conduct tolling study.	$4.0M
Public Involvement and Communications	Maintain relationships with communities in the Bridge Influence Area (BIA) and provide regular updates. Conduct open houses and topic specific workshops. Collect public comment and respond to public inquiry. Draft and design all materials and coordinate with sponsor agency outreach staff for distribution. Develop and maintain project website. Coordinate media relations with project partners.Support advisory groups and committees. Maintain ongoing relationships with affected property owners.	$6.9M
Project Controls, Reporting and Quality Assurance	Provide project oversight and management. Develop and maintain records, interdisciplinary coordination and adherence to project delivery schedule and budget. Conduct preliminary project implementation, planning and project scope development. Prepare reports for state, local and federal entities.	$11.8M
Agency Partners and Tribes	Implement local and tribal governmental agreements. Collaborate on transit and transportation planning. Provide support to advisory groups and project development. Consult on potential impacts to cultural resources. Coordinate between state departments of transportation, cities, counties, regional planning organizations and other jurisdictional bodies.	$4.0M
Grand Totals:		$91.5M

Columbia River CROSSING

The conceptual finance plan below shows a range of CRC Project cost estimates based on the proposed project refinement recommendations and the latest results of the Cost Estimate Validation Process (CEVP). Costs and revenues are shown in year-of-expenditure dollars. The finance plan is preliminary; refinements are in process based on the recent results from the toll sensitivity, CEVP, and other analyses. The finance plan may be adjusted based on legislative, DOT, FHWA/FTA, public, and PSC reviews.

Preliminary Finance Plan Scenarios
In Billions of Year-of-Expenditure Dollars

		60% Probability	90% Probability
Cost			
	Highway	$2.40	$2.65
	Transit	$0.79	$0.89
	Total	$3.19	$3.54
Revenues			
Tolls		$1.15-$1.29	$1.25-$1.49
ODOT and WSDOT		$0.75-$0.85	$0.90-$1.00
Federal		$1.15-$1.19	$1.15-$1.39
	Highway	*$0.40*	*$0.40*
	Transit (New Starts)	*$0.75-$0.79*	*$0.75-$0.89*
	Total	$3.19	$3.54

The plan calls for securing $400 million in Projects of National and Regional Significance funding from the upcoming federal transportation reauthorization act. While the toll rate structure for the CRC Project will not be established until after tolling is authorized by the Washington legislature, the range of financial capacity from tolls that are shown above are based on the Tolling Study Committee analysis, which found a variety of rate structures capable of providing the amounts shown; no specific toll rate structure is assumed in the finance plan. The amount shown for the DOTs is subject to an intergovernmental agreement between the DOTs allocating cost responsibility and legislative approvals of the required funding, and could vary depending on final disposition of other elements of the finance plan. The New Starts funding presumes the recent statutory language secured by Senator Murray, and requires FTA approval of a Full Funding Grant Agreement based on the New Start rating regulations.

Appendix C – CRC Tolling Study Committee Report
Travel Demand Forecasting, Revenue Projections, Determination of Net Revenues, and Financial Capacity Analysis

Travel Demand Forecasting

Regional travel demand models are used to forecast how people may choose to travel in the future given projected growth patterns for population and employment as well as future transportation facilities. The Portland-Vancouver area regional travel demand model used for the Columbia River Crossing (CRC) project was developed jointly by the Portland-area Metro Regional Government (Metro) and the Southwest Washington Regional Transportation Council (RTC). The model, run by Metro and peer-reviewed by a national panel of experts in October 2008, applies a four-step process in estimating future travel demands:

Step 1: Person-trips are estimated from adopted regional growth projections and adopted regional transportation plans. Growth projections include population and employment forecasts throughout the metropolitan region. Transportation plans include future transportation facilities, including roadways, transitways, and bicycle and pedestrian facilities.

Step 2: Predicted person-trips are then distributed to zones across the metropolitan region. Over 25,000 network routes, or "links," are used in the model, as well as over 2,000 transportation analysis "zones." The model predicts how many people will want to travel from one zone to another via different links.

Step 3: Person-trips between each of the zones are broken down by mode of travel (drive alone, carpool, transit, bicycle, walking) based on each option's attractiveness when considering travel time and cost, as well as each traveler's socioeconomic characteristics. Travel costs include parking fees, transit fares, tolls, and automobile operating costs.

Step 4: The model assigns each trip to a specific routing in the model's network. For the CRC's tolling analysis work, the model predicts how many people are projected to cross the Columbia River on I-5 and I-205 via automobile and transit. The model is used to predict weekday peak period vehicle volumes across each bridge, which are later used to develop daily traffic demands.

The regional travel demand model is appropriate for comparing the relative weekday effects of travel across the Columbia River for different tolling scenarios. The model used for tolling analysis purposes allows relative generalizations to be made about I-5 and I-205, including vehicle and transit trips, and the duration of vehicular congestion experienced along each river crossing.

Daily and hourly traffic volumes in 2030 would vary for the I-5 bridge and the I-205 bridge with different tolling levels. Based on information included in the model regarding how much people value their time for different types of trips, lowering or raising toll rates affects how many people choose to pay the specific toll, divert to the alternative bridge, travel during another time of the day, take transit, or travel to a different destination altogether. The scenario analysis found:

- For most of the I-5 only toll scenarios, the majority of drivers would not change their travel patterns. Some would choose a new destination or a non-tolled route. Diversion to transit is minimal due to the already increased ridership associated with project improvements.

- Route diversion tends to increase as toll rates increase; however, the percentage of diversion tends to be lower during peak periods when travelers' willingness to pay tolls may be higher and/or alternative routes are congested, and thus, time consuming.

- For scenarios that toll both the I-5 and I-205 bridges, traffic levels would be higher on I-5 and lower on I-205 compared to tolling only the I-5 bridge. However, compared to the No Toll project scenario, total cross-river traffic demand would be less on both the I-5 and I-205 bridges as many trips would divert to transit or not be made across the Columbia River.

See the attached spreadsheet titled *Traffic Effects for Tolling Scenarios* for more detailed information about traffic diversion, average daily traffic volumes and hours of congestion predicted for each of the tolling scenarios.

Additional work refining one or two likely scenarios will be undertaken to inform financial planning and final rate setting prior to issuing toll revenue bonds. That analysis would independently review and refine many key assumptions, including land use projections, and also examine parts of the network beyond the I-5 and I-205 river crossings, such as key interchanges with these highways, and critical roadways and intersections. An updated and detailed toll traffic and revenue report is warranted before issuing debt, and would be required by the credit rating agencies if any of the bonds were to be backed solely by toll revenues.

Revenue Projections

The annual traffic and revenue projections produced for the CRC project are derived from outputs of the Metro regional travel demand model. The Metro model employs inputs for users' values of time as a surrogate for the relationship of time and cost reflecting the potential toll on the I-5 bridge crossing. The regional model was further supplemented by the development of a corridor level traffic model (VISSIM) which provided traffic operation capabilities to estimate the effect of future congestion in the corridor. This became the basis for "post-processing" the model results to refine traffic demand projections. The traffic and revenue projections show both the annualization of the direct Metro model results and the refined post-processed results, the latter of which bracket the mid-range of anticipated traffic and revenue impacts.

Ten toll scenarios that vary toll rates and toll locations (I-5 only or both I-5 and I-205 bridges) were developed by the CRC team for analysis, in conjunction with the Oregon and Washington departments of transportation. Toll rates were assumed to vary by time of day according to a fixed schedule that applies higher toll rates in peak periods and lower rates during off-peak times when demand is less. Toll rates were originally specified in constant year 2006 dollars in the project's Draft Environmental Impact Statement (EIS); however the actual tolls paid are assumed to increase with expected inflation, projected at 2.5 percent per year. See Exhibit 1 for information about each scenario.

It is expected that the toll collection will be all-electronic, which allows tolls to be collected without toll booths causing drivers to slow down to pay tolls. Thus, drivers would either have a transponder, paying the rates noted in Exhibit 1, or the vehicle would be identified via the license plate, in which case a $1.00 “pay-by-plate” processing fee would be added to each transaction. For example, a vehicle traveling during the peak period (6 am to 10 am) without a transponder would be charged $2.00 plus the $1.00 processing fee, or $3.00 for their trip in one direction.

Exhibit 1. Tolling Scenarios Evaluated

	Scenarios Analyzed	Min/Max Toll Rate (2006$)	Min/Max Toll Rate (2018$)	Tolls Collected	Toll Schedule Type	Tolling Start Date
Tolling I-5 Only	**Scenario 1A** *DEIS Toll Rate*	$1.00 / $2.00	$1.34 / $2.69	Each Way	Symmetric Variable Toll Schedule	July 1, 2018 (FY 2019)
	Scenario 1B *Lower than DEIS Toll Rate*	$1.00 / $1.50	$1.34 / $2.02			
	Scenario 1C *Flat Toll Rate*	$1.65	$2.22		Symmetric Fixed Toll Schedule	
	Scenario 1D *Additional Price Points*	$1.00 / $2.50	$1.34 / $3.36		Symmetric Variable Toll Schedule	
	Scenario 1E *1.5x DEIS Toll Rate*	$1.50 / $3.00	$2.02 / $4.03			
	Scenario 1F *2x DEIS Toll Rate*	$2.00 / $4.00	$2.69 / $5.38			
	Scenario 1G *3x DEIS Toll Rate*	$3.00 / $6.00	$4.03 / $8.07			
	Pre-Completion Tolling[1] *DEIS Toll Rate*	$1.00 / $2.00	$1.34 / $2.69	Each Way	Symmetric Variable Toll Schedule	July 1, 2013 (FY 2014)
Tolling I-5 and I-205	**Scenario 2A** *DEIS Toll Rate*	$2.00 / $4.00	$2.69 / $5.38	Southbound Only[2]	Symmetric Variable Toll Schedule	July 1, 2018 (FY 2019)
	Scenario 2B *Lower than DEIS Toll Rate*	$2.00 / $3.00	$2.69 / $4.03			
	Scenario 2C *Lower I-205 Toll*	I-5: $2.00 / $4.00 I-205: $2.00 / $3.00	I-5: $2.69 / $5.38 I-205: $2.69 / $4.03			

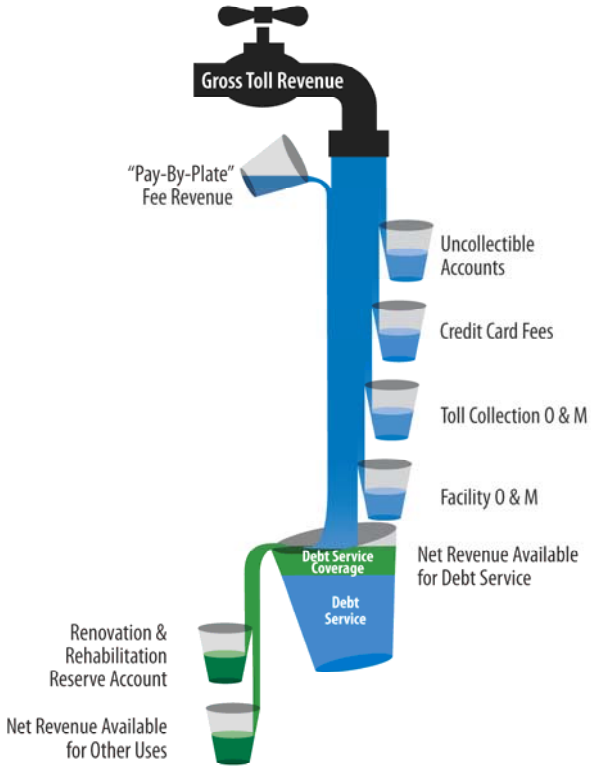
[1] Pre-Completion Tolling to be added to any other scenario

[2] A round-trip toll is collected on scenarios tolling Southbound only

The rates for commercial vehicles are assumed to be proportionately greater than passenger cars, roughly as a function of the number of axles for a commercial vehicle. For the purposes of this analysis, it is assumed that commercial vehicles will pay on an N minus one basis based upon axles, that is, a five-axle truck would pay four times the passenger car rate (five minus one times the passenger rate). Model volumes were provided for medium (three-axle) and large (five-axle) trucks. The exact commercial toll schedule will be a function of the future development of the electronic toll collection system. Toll schedules assumed for each scenario are shown on the attached spreadsheets, *Toll Rate Schedules for I-5 Scenarios* and *Toll Rate Schedules for I-5 and I-205 Scenarios*.

Determination of Net Revenues

To arrive at the portion of revenues available to support financing via the repayment of debt, several deductions must be made from gross toll revenues and fees. Key among these deductions is the obligation to pay for toll collection and facility operation and maintenance (O&M) costs for the bridge and roadway. The deductions from gross revenues include the following:



- Potential toll revenue lost due to uncollectable accounts
- Credit card and banking fees associated with toll payment and accounts
- Toll collection operations and maintenance costs, including maintenance, periodic replacement of equipment, back office costs and bridge insurance
- Routine operations and maintenance of the bridge and roadway facilities

Facility O&M costs include routine maintenance of the bridge and all roadways within the project area as well as incident response for the project area. After gross revenues have paid all of the above deductions, including toll collection and facility O&M costs, the remaining net revenue is available for debt repayment.

The net revenue stream represents the cash flow that can be used directly for financing to repay bonds, or to directly pay for construction if pre-completion tolling is implemented. In addition to bond repayment, there will be a periodic need for renovation and rehabilitation activities for the project. These costs are assumed to be funded out of excess net revenues after annual debt repayments that result from the debt service coverage requirement placed on net revenues. A reserve account may be created that would be funded from these excess net toll revenues.

Financial Capacity Analysis

Tolling the I-5 bridge does not have the financial capacity to yield a funding contribution equal to the $2.38 billion cost in year of expenditure dollars for the highway portion of the project. Rather, a number of funding sources will likely be needed to build the project, including federal and state (Oregon and Washington) funding sources combined with funding from tolls.

For the purposes of this analysis, the bridge is assumed to be substantially completed by the end of fiscal year 2018, with revenue operations beginning on July 1, 2018 (state fiscal year 2019). Toll bond proceeds are assumed to be received in the middle and latter years of construction to maximize their funding contribution, and other funding

sources are assumed to cover construction costs in the initial years. Other project improvements to the highway and interchanges would continue into 2019, and the last bonds needed to fund these completion activities are assumed to be issued after tolling has commenced.

The CRC toll bonds were assumed to be backed by other revenue sources, and the full faith and credit of one or both states to provide the bonds with a credit rating and interest costs equivalent to that of general obligation debt of either state.

The use of toll bonds will increase the total costs paid during and after construction due to the added interest and issuance costs. However, these financing costs are treated separately from the project capital cost during construction. Increased use of toll bonds will increase the total costs paid due to added interest and issuance. The construction cost does not increase as a result; rather it adds a financing cost both during and after construction.

State-backed bonds are limited by Washington State Constitution to a 30 year repayment period. Accordingly, debt with the maturity of up to 30 years was assumed to maximize the total proceeds that can be generated by the forecasted net toll revenue stream.

A minimum debt service coverage factor of 1.25 was assumed for state-backed debt whereby net toll revenues were maintained at 1.25 times the projected annual debt service. The intent of this is to provide some protection against draws on the revenue sources pledged to backup toll revenues, such as motor vehicle fuel tax revenues, in the event of lower-than-projected toll revenue performance.

Interest rates on state-backed bonds are assumed to be 6.00 percent for current interest bonds ("CIBs") and 6.50 percent for capital appreciation bonds ("CABs"), based on the current double-A credit ratings in both states. Issuance costs are assumed to be 0.2 percent of the total par amount of bonds issues for state-backed bonds. Additional costs would include 0.5 percent of the par amount for current interest bonds for underwriting (underwriter's discount) and 1.0 percent of the par amount for capital appreciation bonds.

Interest is assumed to be capitalized through the year before the project completion date, or up to two years after full toll collection commences. Earnings on invested funds (construction fund and capitalized interest fund) are assumed to be at an annual rate of 2.50 percent. While this might be higher than current yields on short-term investments, it is substantially less than the assumed future interest cost of borrowing, (between 6.0 and 6.5 percent for state-backed bonds), and thus represents approximately the same level of negative arbitrage currently being experienced by issuers of tax-exempt bonds.

Funding Range

Based on the analysis done for this report, several preliminary conclusions can be reached:

1. Tolling can contribute a significant amount of funding to the project.

2. Tolling cannot be the only funding source for the project. Several funding sources, including state (Oregon and Washington) and federal, will be needed to supplement tolling funds.

3. Toll rates on I-5 can only be raised so high before total revenue and funding decrease. The limit is approximately two times the toll rate studied in the project's Draft EIS.

4. State backing of the debt is necessary to maximize the toll funding contribution. By essentially making the debt equivalent to general obligation bonds, state-backing affords the debt a high credit rating and relatively low interest rates. Non-recourse debt that is backed solely by toll revenues is anticipated to carry a lower or minimum investment-grade credit rating, which would entail higher interest rates, increased capitalized interest costs, and higher debt service coverage requirements.

Further study is warranted as the project design and cost of the project are refined, or as more information is available about other funding sources.

Columbia River CROSSING

Traffic Effects for Tolling Scenarios

Scenarios	Average Daily Traffic Volumes			Diversion to I-205 Compared to No Toll Scenario	Average SB I-5 Duration of Congestion	Average NB I-5 Duration of Congestion	Total Average I-5 Duration of Congestion
	I-5 Bridge Total	I-205 Bridge Total	Total River Crossings				
Existing Conditions (2005)	**134,000**	**146,400**	**280,400**	**-**	**2.0 hrs**	**4.0 hrs**	**6.0 hrs**
No Build	**184,000**	**210,000**	**394,000**	**-**	**7.25 hrs**	**7.75 hrs**	**15.0 hrs**
No Toll Scenario	**220,000**	**203,000**	**423,000**	**-**	**5.5 hrs**	**1.5 hrs**	**7.0 hrs**
Scenario 1A	**181,000**	**216,000**	**397,000**	**13,000**	**3.5 hrs**	**1.0 hrs**	**4.5 hrs**
Scenario 1B	**190,000**	**211,000**	**401,000**	**8,000**	**4.0 hrs**	**1.0 hrs**	**5.0 hrs**
Scenario 1C	**175,000**	**215,000**	**390,000**	**12,000**	**3.75 hrs**	**1.0 hrs**	**4.75 hrs**
Scenario 1D	**173,000**	**218,000**	**391,000**	**15,000**	**3.25 hrs**	**1.0 hrs**	**4.25 hrs**
Scenario 1E	**154,000**	**224,000**	**378,000**	**21,000**	**2.75 hrs**	**0.75 hrs**	**3.5 hrs**
Scenario 1F	**133,000**	**231,000**	**364,000**	**28,000**	**2.0 hrs**	**0.5 hrs**	**2.5 hrs**
Scenario 1G	**89,000**	**240,000**	**329,000**	**37,000**	**1.0 hrs**	**0.0 hrs**	**1.0 hrs**
Scenario 2A	**198,000**	**177,000**	**375,000**	**-26,000**	**4.25 hrs**	**1.25 hrs**	**5.5 hrs**
Scenario 2B	**201,000**	**181,000**	**382,000**	**-22,000**	**4.5 hrs**	**1.25 hrs**	**5.75 hrs**
Scenario 2C	**192,000**	**185,000**	**377,000**	**-18,000**	**4.0 hrs**	**1.0 hrs**	**5.0 hrs**

SB = southbound | NB = northbound

Notes

1. Year 2030 results shown, except for Existing Conditions (2005).
2. Average duration of daily congestion levels shown.
3. All results are approximate.
4. The no toll scenario is included for comparison purposes. Tolling is needed to fund the project.

Columbia River CROSSING

Toll Rate Schedules for I-5 Toll Scenarios

		No Tolls	Tolling I-5						
			Scenario 1A Draft EIS Variable Toll: Toll structure from the Draft EIS **Raises ~$1.1 - $1.4 billion**	**Scenario 1B** Lower than Draft EIS Toll: Peak period tolls are lower than DEIS **Raises ~0$.9 - $1.2 billion**	**Scenario 1C** Fixed Rate Toll: Same toll all day; rate based on weighted average of Draft EIS variable toll **Raises ~$1.1 - $1.4 billion**	**Scenario 1D** Additional Price Points: Variable toll schedule; rates change more throughout day **Raises ~$1.2 - $1.5 billion**	**Scenario 1E** 1.5X Draft EIS Variable Toll: All tolls are 1.5 times the Draft EIS rates **Raises ~$1.4 - $1.8 billion**	**Scenario 1F** 2x Draft EIS Variable Toll: All tolls are twice the Draft EIS rates **Raises ~$1.6 - $2.1 billion**	**Scenario 1G** 3x Draft EIS Variable Toll: All tolls are triple the Draft EIS rates **Raises ~$1.2 - 2.0 billion**
		Studied for comparison purposes **Raises ~$0**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**
	Time Period		**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**
2006 Dollars	Midnight to 5 AM		$1.00	$1.00		$1.00	$1.50	$2.00	$3.00
	5 AM to 6 AM		$1.50	$1.25		$1.50	$2.25	$3.00	$4.50
	6 AM to 7 AM					$2.00			
	7 AM to 9 AM		$2.00	$1.50		$2.50	$3.00	$4.00	$6.00
	9 AM to 10 AM					$2.00			
	10 AM to 3 PM		$1.50	$1.25	$1.65	$1.75	$2.25	$3.00	$4.50
	3 PM to 4 PM					$2.00			
	4 PM to 6 PM		$2.00	$1.50		$2.50	$3.00	$4.00	$6.00
	6 PM to 7 PM					$2.00			
	7 PM to 8 PM		$1.50	$1.25		$1.50	$2.25	$3.00	$4.50
	8 PM to midnight		$1.00	$1.00		$1.00	$1.50	$2.00	$3.00
2018 Dollars	Midnight to 5 AM		$1.34	$1.34		$1.34	$2.02	$2.69	$4.04
	5 AM to 6 AM		$2.02	$1.68		$2.02	$3.02	$4.04	$6.05
	6 AM to 7 AM					$2.69			
	7 AM to 9 AM		$2.69	$2.02		$3.36	$4.04	$5.38	$8.07
	9 AM to 10 AM					$2.69			
	10 AM to 3 PM		$2.02	$1.68	$2.21	$3.36	$3.07	$4.04	$6.05
	3 PM to 4 PM					$2.69			
	4 PM to 6 PM		$2.69	$2.02		$3.36	$4.04	$5.38	$8.07
	6 PM to 7 PM					$2.69			
	7 PM to 8 PM		$2.02	$1.68		$2.02	$3.02	$4.04	$6.05
	8 PM to midnight		$1.34	$1.34		$1.34	$2.02	$2.69	$4.04

Notes

1. These are toll rate schedules analyzed for planning and testing purposes. Actual toll rates will depend on a final finance plan and will be determined by the Oregon and Washington state transportation commissions to meet legislative funding direction.

2. Toll funding contribution ranges assume 30-year state-backed debt.

3. No Toll scenario included for comparison purposes. Tolling is needed to fund the project.

4. Assumes medium trucks pay 2x and large trucks pay 4x the auto toll rate using a transponder; administrative fee would be added to process payments not involving a transponder.

5. Tolls are assumed to escalate at 2.5% per year to match the expected rate of inflation.

6. Tolling during construction could be added to any scenario. Rates assumed to match Scenario 1A, except there would be no toll from midnight to 5am. Tolling early could provide about $330 million in additional funds for construction.

Columbia River CROSSING

Toll Rate Schedules for I-5 & I-205 Toll Scenarios

		No Tolls	Tolling I-5 and I-205						
		Studied for comparison purposes **Raises ~$0**	**Scenario 2A** Draft EIS Variable Toll on Both Bridges: Draft EIS tolls on both bridges **Raises ~$2.8 - $3.4 billion**		**Scenario 2B** Lower than Draft EIS Toll on Both Bridges: Peak period toll is lower than Draft EIS rate **Raises ~$2.1 - $2.5 billion**		**Scenario 2C** Lower Toll on I-205: Peak period toll is lower on I-205 than I-5; variable rate toll on both bridges **Raises ~$2.4 - $3.0 billion**		
			Roundtrip Tolls		**Roundtrip Tolls**		**Roundtrip Tolls**		
	Time Period		**Northbound**	**Southbound**	**Northbound**	**Southbound**	**Northbound**	**Southbound I-5**	**Southbound I-205**
2006 Dollars	Midnight to 5 AM		No Toll Collected	$2.00	No Toll Collected	$2.00	No Toll Collected	$2.00	$2.00
	5 AM to 6 AM			$3.00		$2.50		$3.00	$2.50
	6 AM to 10 AM			$4.00		$3.00		$4.00	$3.00
	10 AM to 3 PM			$3.00		$2.50		$3.00	$2.50
	3 PM to 7 PM			$4.00		$3.00		$4.00	$3.00
	7 PM to 8 PM			$3.00		$2.50		$3.00	$2.50
	8 PM to midnight			$2.00		$2.00		$2.00	$2.00
2018 Dollars	Midnight to 5 AM		No Toll Collected	$2.69	No Toll Collected	$2.69	No Toll Collected	$2.69	$2.69
	5 AM to 6 AM			$4.04		$3.36		$4.04	$3.36
	6 AM to 10 AM			$5.38		$4.04		$5.38	$4.04
	10 AM to 3 PM			$4.04		$3.36		$4.04	$3.36
	3 PM to 7 PM			$5.38		$4.04		$5.38	$4.04
	7 PM to 8 PM			$4.04		$3.36		$4.04	$3.36
	8 PM to midnight			$2.69		$2.69		$2.69	$2.69

Notes

1. These are toll rate schedules analyzed for planning and testing purposes. Actual toll rates will depend on a final finance plan and will be determined by the Oregon and Washington state transportation commissions to meet legislative funding direction.

2. Toll funding contribution ranges assume 30-year state-backed debt.

3. No Toll scenario included for comparison purposes. Tolling is needed to fund the project.

4. Assumes medium trucks pay 2x and large trucks pay 4x the auto toll rate using a transponder; administrative fee would be added to process payments not involving a transponder.

5. Tolls are assumed to escalate at 2.5% per year to match the expected rate of inflation.

6. Tolling during construction could be added to any scenario. Rates assumed to match Scenario 1A, except there would be no toll from midnight to 5am. Tolling early could provide about $330 million in additional funds for construction.

Columbia River
CROSSING

January 2010

Columbia River Crossing Tolling Study Committee Report to the Washington and Oregon Legislatures

Washington State Department of Transportation

Oregon Department of Transportation

Paula Hammond
Secretary of Transportation
Washington State Department of Transportation

Carol Moser
Chair
Washington State Transportation Commission

Matthew Garrett
Director of Transportation
Oregon Department of Transportation

Gail Achterman
Chair
Oregon Transportation Commission

Table of Contents

Letter from Committee Members

January 19, 2010

To: Governor Chris Gregoire
Members of the Washington State Legislature

We are pleased to submit the Columbia River Crossing (CRC) Tolling Study Committee's report in accordance with ESSB 5352, as approved by the 2009 Washington State Legislature. Tolling is needed for the CRC project as a way to supplement federal and state funding and to manage traffic flow. The Committee was charged with evaluating the expected traffic diversion and funding contribution associated with tolling Interstate 5 (I-5), building awareness and engaging residents and bridge users in this preliminary discussion, coordinating with the transportation commissions and departments from both states, discussing a potential bi-state toll setting framework, and reporting back to the Governor and Legislature in 2010.

Ten scenarios were evaluated; some with tolls only on I-5 and others with tolls on I-5 and I-205, the adjacent crossing over the Columbia River. All scenarios assumed electronic tolling without the use of toll booths, and all but one included variable tolls, with rates that change throughout the day according to a set schedule.

Although tolling bridges across the Columbia River was done 40 years ago, many residents are unfamiliar with the concept. Those who have experienced tolling might not know about modern-day tolling involving transponders and variable rates. In response, the Committee and its staff created a Web site (http://tolling.columbiarivercrossing.org) and distributed fact sheets to explain the terms and technology. Residents, business owners and jurisdictions were engaged with a variety of outreach methods: open houses, listening sessions, presentations to neighborhood groups, informational booths at fairs/festivals, and an online survey. More than 13,000 people visited the Web site, at least 10,000 people received materials or participated in an event; over 4,200 completed the Web survey.

Public outreach efforts informed us about the following:

- Support exists for tolling during construction as a way to reduce costs.
- There is a high level of opposition to tolling I-205.
- Tolling as a funding source is not well understood. Many felt that federal funds or taxes should be sufficient.
- Learning more about variable tolling did not affect attitudes.

Scenario analysis shows that tolls can reduce traffic volumes and hours of congestion on the tolled facility. This is because some people will choose a new route, change their time of travel, take transit, carpool, or decide not to cross the Columbia River.

All of our findings are explained in this report and detailed appendices. All documents can be found online: http://tolling.columbiarivercrossing.org. For questions about the report, please contact Jennifer Ziegler at WSDOT at zieglej@wsdot.wa.gov or 206-464-1194. Copies of this report will also be provided to the Washington State Transportation Commission, and the Oregon Legislature, Oregon Governor and Oregon Transportation Commission.

We would like to acknowledge and thank the thousands of people that participated in this study, and the staff from both departments of transportation that were instrumental in this effort. We look forward to seeing the future steps in the toll setting process for the CRC project as they unfold.

Paula Hammond, Secretary, Washington State Department of Transportation
Carol Moser, Chair, Washington State Transportation Commission
Matthew Garrett, Director, Oregon Director of Transportation
Gail Achterman, Chair, Oregon Transportation Commission

Executive Summary

In 2009, the Washington State Legislature directed the Washington State Department of Transportation (WSDOT) to evaluate tolls as a means to finance the Columbia River Crossing (CRC) project, in coordination with the Oregon Department of Transportation (ODOT), and report its findings to the Legislature and Governor in 2010. To evaluate traffic and funding information and engage citizens on this issue, a Tolling Study Committee was convened.

Today's aging Interstate Bridge, crossing the Columbia River between Vancouver, Washington and Portland, Oregon, is snarled with traffic almost daily due to bridge lifts or collisions. The combination of congestion, narrow bridge lanes, short on-ramps and earthquake vulnerability makes for a corridor that needs improvement. The CRC project includes a replacement Interstate 5 (I-5) bridge, extension of the light rail line to Vancouver, and highway safety improvements. Funding will come from a variety of sources, including federal, state (Oregon and Washington), and tolling.

The 2009 legislation asked for an evaluation of toll scenarios to better understand the traffic effects, funding contribution, and public awareness and input about tolling to build the CRC project. The Committee and its staff studied 10 scenarios, which included tolling the I-5 bridge alone and tolling both I-5 and the parallel I-205 bridge. Electronic toll collection was assumed for all scenarios and all but one included variable toll rates, where tolls would change according to a set schedule. Extensive public outreach and engagement was conducted to provide information and receive comments about tolling in the Portland-Vancouver region. Findings from the technical evaluation and public conversations are contained within this report.

Overall Findings from Public Engagement

The Committee led an extensive public outreach and input-gathering effort in conjunction with the tolling scenario evaluation. Thousands of people engaged directly with this process by attending Committee meetings or public workshops, visiting the Tolling Study

DIMENSIONS ARE APPROXIMATE.

I-5 and I-205 provide the two direct connections between Portland and Vancouver.

Web site, taking part in a Web survey or writing to the Committee. Although tolling bridges over the Columbia River has occurred in the past, many current residents are not familiar with tolling as a funding or traffic management tool. Participants were given information about modern-day tolling, including electronic and variable rate toll schedules. Through these interactions, Committee members were able to gain a better understanding of the varied public concerns, questions, and attitudes related to tolling:

- Many commuters disapproved of tolling as a funding source, expressing that existing taxes should pay for an Interstate highway or the federal government should contribute more funds. Others understand that tolls will be needed to supplement other funding sources in order to build the project.
- Learning more about variable tolling as a way to improve traffic flow, as well as raise funds for the bridge, did not readily change attitudes about variable tolling.

- The freight and business community has a generally favorable response to the concept of tolling to fund the project and reduce the hours of congestion in the project area.
- Just over half of the survey respondents agreed that tolling early to reduce costs and debt would be a favorable way to move forward with the project.
- A high number of survey respondents indicated they would strongly oppose tolling I-205.

Many questions remain: the amount of funding needed from tolls, whether I-205 is a part of the financing or traffic management package, and whether discounts will be allowed for any bridge users.

Overall Findings from Scenario Analysis

The Committee evaluated 10 tolling scenarios. All but one assumed a variable rate toll that would change according to a set schedule. Some scenarios evaluated tolls only on I-5 and others included tolls on I-5 and I-205.

Financial Capacity

The scenarios examined could raise between $940 million and $3.36 billion in funding from tolls. The most an I-5 only scenario raised was $2.09 billion. With a toll on both I-5 and I-205, the funding contribution from tolls was typically more than the I-5 only tolling scenarios. Tolling early could raise an additional $330 million for any of the scenarios studied.

Traffic Conditions with Tolling

- Tolls lead to a decrease in the level of cross-river traffic demand and cause some vehicle trips to shift to uncongested off-peak times (when the toll is lower). As a result, the duration and magnitude of traffic congestion would be reduced.
- Daily and hourly traffic volumes in 2030 would vary for the I-5 bridge and the I-205 bridge with different tolling levels. For I-5 only toll scenarios, some trips would divert to I-205 to avoid paying the toll. For scenarios that toll both bridges, diversion to I-205 would be minimized and trips would shift to I-5 once the option of a non-tolled route was removed.

Diversion due to Tolls

- For most of the I-5 only toll scenarios, the majority of drivers would not change their travel patterns. Some would choose a new destination or a non-tolled route. Diversion to transit is minimal due to the already increased ridership associated with project improvements.
- Higher tolls on I-5 would cause more route diversion; however, the percentage of diversion tends to be lower during peak periods when travelers' willingness to pay tolls may be higher and/or alternative routes are congested, and thus, time consuming.
- For scenarios that toll both the I-5 and I-205 bridges, traffic levels would be higher on I-5 and lower on I-205 compared to tolling only the I-5 bridge. However, compared to the No Toll project scenario, total cross-river traffic demand would be less on both the I-5 and I-205 bridges as many trips would divert to transit or not be made across the Columbia River.

Next Steps

The Final Environmental Impact Statement will be produced in 2010 and the finance plan will continue to be developed over the next two years as the project's scope, budget and funding sources are refined. Project specifications and traffic data will inform the toll-setting process that is just beginning. The Oregon and Washington transportation commissions will work together to determine the appropriate structure for issuing debt, authorizing bonds and setting rates on a bi-state facility. Public engagement and community outreach will continue throughout this process.

Appendices on Disk and Available on the Web site (http://tolling.columbiarivercrossing.org):

Volume 1

A: ESSB 5352
B: Outreach activities and materials
C: Travel Demand Forecasting, Revenue Projections, Determination of Net Revenues, and Financial Capacity Analysis

Volume 2

D: All public comments received

Columbia River Crossing Project Background

I-5 is one of two highways that cross the Columbia River between Vancouver, Washington and Portland, Oregon. Approximately 135,000 vehicles travel across the Interstate Bridge each day. About $40 billion in freight crosses the river each year. Collisions on and near the bridge occur at a rate almost twice as high as on other similar urban highways.

The Interstate Bridge includes two side-by-side structures built in 1917 and 1958. Bridge lifts that allow river navigation halt vehicle traffic almost daily, lanes are narrow, there are no shoulders, and the aging structures are vulnerable to earthquakes. The interchanges on both sides of the bridge are closely spaced with short on and off ramps.

The Columbia River Crossing (CRC) project will replace the aging Interstate Bridge, improve closely-spaced interchanges and five miles of highway, extend light rail from Portland to Vancouver and enhance the bicycle and pedestrian path. Construction could start in 2012 or 2013 and would be complete by 2018. Once complete, commuters and freight will experience less congestion and improved safety; transit ridership will more than double by 2030; pedestrians and bicyclists will have a safer, more direct pathway; and the bridges' vulnerability to earthquakes will be significantly reduced.

Currently, bridge lifts act as a stop light on I-5, causing backups in Vancouver and Portland almost daily.

Crossing the Columbia River

Native American oral histories speak of the *Bridge of the Gods*, a legend that historians and geologists agree was born from a natural land bridge formed by a landslide that dammed the Columbia River more than 700 years ago, near Cascade Locks, 40 miles east of Portland.

The history of modern bridges across the Columbia River between Oregon and Washington, began in 1917, when the increasing importance of the river as a commercial port spurred investors to find an easier way to cross between the states. The bridge was tolled once built. A second bridge, built in 1958, was also tolled.

- Tolls were collected on the first bridge from 1917-1929; toll was $0.10 for a vehicle and driver ($1.70 today).
- The second bridge was tolled 1958-1966. Tolls were $0.20 for cars and $0.40 - $0.60 for trucks ($1.50 in today's dollars for cars and $3.00 – $4.50 for trucks).

Funding the Columbia River Crossing

In 2007, project costs were estimated to be between $3.1 and $4.2 billion. In November 2009, the project released updated cost estimates after conducting a thorough design refinement exercise. If the project's draft refinement recommendation is approved, costs could be reduced by $650 million, within a range of $2.6 to $3.6 billion. The cost reductions are the result of refined sub-structure cost estimates for the river crossing, design engineering and adjustments to interchange and highway designs.

Funding is anticipated from the federal government, states of Oregon and Washington and from tolling.

Previous and Future Finance Planning

The project's Draft Environmental Impact Statement (EIS) was published in May 2008 and included a chapter on project financing that identified potential funding scenarios. The draft finance information in the Draft EIS will be updated as the project design is refined over the next year. The Final EIS is expected in the summer of 2010 and will include more details on financial scenarios and ranges of funding contributions. A finance plan will be finalized after the Final EIS is released.

Columbia River bridges – example toll rates then and now

Two bridges across the Columbia River are tolled today:

- **The modern-day Bridge of the Gods,** built in 1926, 40 miles east of Portland, has a $1 toll today for vehicles.
- **The Hood River Bridge** opened with tolling in December 1924. Tolling continues today at $0.75 for cars, $0.75 per axle for trucks and $0.50 for motorcycles.

Other bridges were tolled in the past:

- **Longview Bridge** (privately built in 1930, purchased by Washington in 1947), now the Lewis and Clark Bridge, had a toll collected 1930-1965.
  - $1 toll would be almost $13 today.
- **Sam Hill Memorial Bridge** (Biggs Rapids Bridge) had tolls collected 1962-1975.
  - $2 toll would be $4.25 in today's dollars.
- **Pasco-Kennewick Bridge**, or Green Bridge (demolished in 1995) had tolls collected 1922-1931.
  - $0.75 for cars; $0.20 for bicycles; $2 for trucks less than a ton ($9.60 for cars in today's dollars, $2.55 for bicycles and $25.60 for trucks).
- **Umatilla Bridge** had tolls collected 1955- 1974.
  - $1 for cars; $1.25 for auto with horse trailer; $0.25 for motorcycles ($8 for cars in today's dollars, $10 with trailers and $2 for motorcycles).

Committee Charge and Legislative Direction

The Washington State Department of Transportation, in coordination with the Oregon Department of Transportation, was charged with conducting a tolling study for the CRC project by the Washington State Legislature in 2009 (ESSB 5352). The departments of transportation convened a Tolling Study Committee composed of:

- Paula Hammond, Secretary, Washington State Department of Transportation
- Carol Moser, Chair, Washington State Transportation Commission
- Matthew Garrett, Director, Oregon Director of Transportation
- Gail Achterman, Chair, Oregon Transportation Commission

The Committee was responsible for evaluating funding and traffic diversion effects of a variety of tolling scenarios, engaging citizens and project sponsors in the conversation, educating the public about tolling technology and reporting to the Washington State Legislature in January 2010.

Requirements of the tolling study, as outlined in the legislation, include:

- Evaluate potential diversion of traffic from I-5 to other parts of the transportation system in the vicinity of the Columbia River
- Evaluate the most advanced tolling technology
- Evaluate other technologies that can help manage traffic
- Confer with the Project Sponsors Council and report regularly to the transportation commission
- Research options for a potential toll-setting framework between the Oregon and Washington transportation commissions
- Provide a report to the governor and legislature by January 2010

The act requires conversations and public work sessions with users of the bridge, business and freight groups, and local governments about the following topics:

- Tolling as a way to fund the project and reduce congestion with the use of variable tolling
- Implementation of tolls and tolling impacts on the I-5 and I-205 corridors, including diversion of traffic to local streets and potential mitigation
- Tolling I-205 separately as a management tool for the broader transportation system

Committee Work Approach

Although the I-5 and I-205 bridges were tolled in the past, it has been 40 years since a toll has existed on either of these roadways. Many Portland and Vancouver area residents are no longer familiar with tolling. Those that have experienced tolling may not understand recent technological advances that make electronic and variable tolling possible. The Tolling Study Committee knew that providing information was important as conversations about tolling scenarios were beginning. A variety of outreach techniques engaged the public in discussions about tolling as a way to fund the project and help manage congestion on I-5. Information was provided to thousands of residents and bridge users in the form of fact sheets, presentations to business associations and community groups, web content, and an online survey.

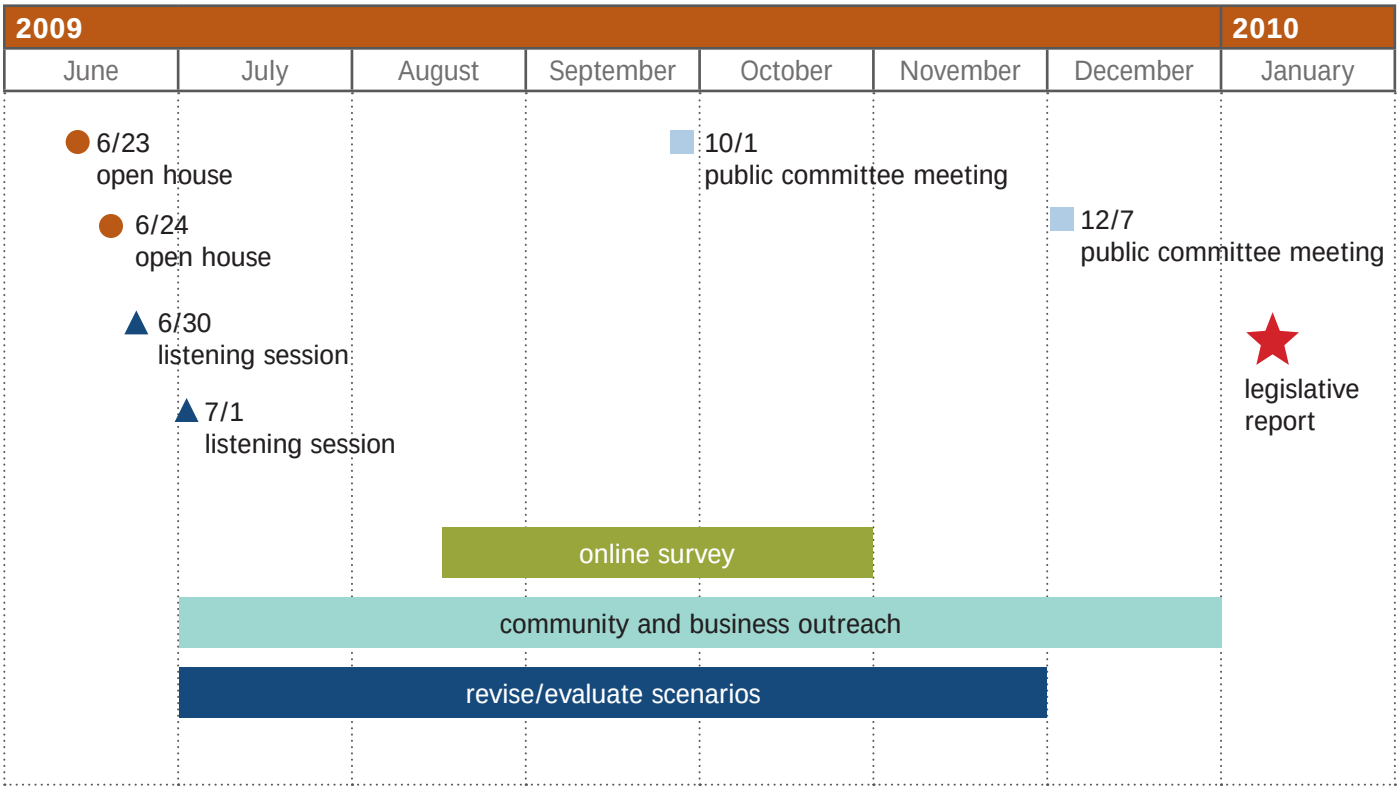
Tolling terms

Electronic toll collection: Collecting tolls without the use of toll booths, generally using transponders or license plate recognition technology. Drivers do not need to slow down or stop to have their toll collected.

Fixed rate toll: Toll rates remain the same, regardless of time of day or level of congestion.

Variable toll: Toll rates that vary by time of day based on a set schedule.

Tolling Study Timeline



Public Engagement

As requested by the Washington State Legislature, the Committee and its staff led a public outreach and input-gathering effort in conjunction with the tolling analysis and evaluation process. The Committee's goal was to evaluate various tolling scenarios and engage the public in an open discussion of how various toll rates could affect funding for the project and traffic patterns for the I-5 and I-205 corridors.

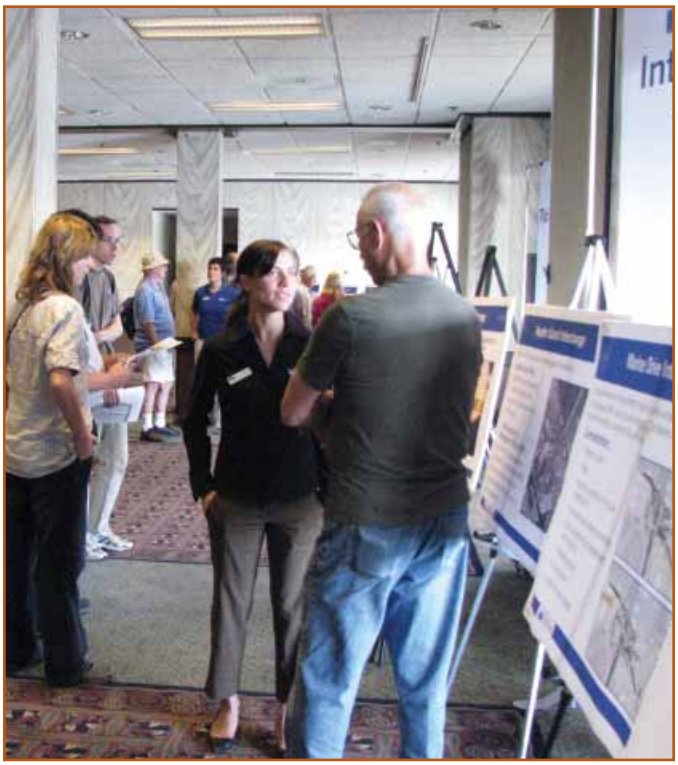
There were two rounds of engagement and evaluation. Six tolling scenarios were presented at the beginning of the Tolling Study in late June. Based upon the input received, six new scenarios were developed and analyzed. The analysis for the first set of scenarios was also updated during this time. Results of the revisions and new scenarios were introduced to the public in early December at a Tolling Study Committee meeting.

The Tolling Study Committee was specifically charged with discussing the following items with residents and users of the I-5 and I-205 bridges:

- Funding a portion of the Columbia River Crossing project with tolls
- Implementing variable tolling as a way to reduce congestion on the facility
- Tolling Interstate 205 separately as a management tool for the broader state and regional transportation system

The Committee's meetings and open houses were publicized by committee staff, the CRC project and local partner agencies. Paid advertisements appeared in major print publications, including *The Oregonian* and *The Columbian*, at the start of the Tolling Study. Email notices were sent by the CRC project to more than 4,000 people each month.

Committee members and staff met with jurisdictions, technical staff and other stakeholder groups to understand their concerns, questions and ideas related to tolling. Public outreach events and activities are outlined in this report. Summaries of all Committee meetings and a complete list of outreach events are included in Appendix B.



Between June and December 2009, more than 2,300 people participated in-person in the discussion about tolling using a variety of outreach methods. The Committee estimates that more than 8,500 additional people were informed of the Tolling Study and Web survey via electronic notifications.

Outreach Activities and Events

Discussions with Local, Regional and State Elected Officials

Local, regional and state leaders were updated regularly about tolling scenarios and public input. Updates were provided at Project Sponsors Council meetings in June, September and December. Presentations were made as requested to boards and councils of partner organizations. Other local, regional, state and federal elected officials received updates in person or via email. Members of the Project Sponsors Council were invited to participate in all Tolling Study Committee meetings to hear public input firsthand.

State Transportation Commissions

Throughout the study, briefings and updates were provided to the Washington and Oregon commissions. At the beginning of the Tolling Study, staff briefed the Washington, Oregon and California transportation commissions during a special three-state commission meeting on July 22, 2009. The Oregon Transportation Commission received a presentation in August 2009. As members of the Tolling Study Committee, the chairs of the transportation commissions provided an ongoing link between the study and the commissions in each state.

Local agencies provided input and received regular Tolling Study updates at Project Sponsors Council meetings, a group convened by the governors of both states to advise the departments of transportation on project development. The group is chaired by citizens of Oregon and Washington and has representatives from the following agencies:

- City of Vancouver
- City of Portland
- C-TRAN
- TriMet
- Metro
- SW Washington Regional Transportation Council
- ODOT
- WSDOT

Outreach to Freight, Business Groups and Large Employers

I-5 is the primary north-south freight corridor on the west coast, connecting Mexico to Canada. International, national and local businesses often plan their travel to avoid congestion at the Interstate Bridge between Portland and Vancouver. The ports in both cities also depend on access to I-5 to move

Freight and business groups engaged in the Tolling Study

Battle Ground Chamber of Commerce
Bergstrom Nutrition
Columbia Corridor Association
CRC Freight Working Group
CRC Marine Drive Stakeholder Group
Economic Roundtable
Frito Lay
Green Transfer
Hill International
Independent Dispatch, Inc
Local IBEW
Metro Freight and Goods Movement Task Force
National Association of Women in Construction
North Clackamas Chamber of Commerce
Northwest Pipe
Oregon Association of Minority Entrepreneurs
Oregon Business Association, Transportation Committee
Oregon Highway Users Alliance
Oregon Trucking Association
Pacific Continental Bank
Pacific Freightways
Parkrose Business Association
Peninsula Truck Lines
Port of Portland
Port of Vancouver
Portland Business Alliance, Transportation Committee
Shaver Transportation
Subaru of America, Inc.
Swan Island Business Association
Uptown Village Association
Urban Entrepreneurs
Vancouver's Downtown Association
Washington Highway Users Federation
Washington State University Small Business Development Department
Washington State Good Roads and Transportation Annual Conference
West Coast Corridor Coalition

goods to and from their facilities. As important stakeholder interest groups, freight companies and business groups were specifically engaged in conversations about the Tolling Study.

Two freight and business forums, hosted by the CRC project and the ports of Portland and Vancouver, were held August 18, 2009. About 80 people attended the events, representing national freight fleet managers, local freight companies, small and minority business owners, and business associations. Support for the project was high and there was widespread recognition that tolling was needed to build the replacement bridge. The majority of the questions focused on logistical issues that will be determined closer to implementation of the tolls.

In addition to the freight forums, 17 business associations, chambers of commerce, and CRC advisory groups were engaged in the Tolling Study. These groups each have dozens of member businesses and organizations. Many members of these groups indicated support of tolling as a way to provide funding for the project and reduce time spent in congestion. Some employers, such as Legacy Hospital, distributed information to employees about the online tolling survey.

Owner-Operator Independent Drivers Association (OOIDA) published a mid-November article about the CRC Tolling Study in *Land Line*, a trade publication for professional truckers. A week later, OOIDA posted information on its Web site for Oregon and Washington members, urging them to voice their opinion about assumptions that medium and large trucks would pay higher tolls. In the days following, CRC received about 30 emails from industry members expressing their opinions on tolling. The majority of them did not support tolling.

Community groups engaged in the Tolling Study

Arnada Neighborhood Association

Bike Me! Vancouver

Bridgeton Neighborhood Association

Clark County Bicycle Advisory Committee

Community Choices

CRC Pedestrian and Bicycle Advisory Committee

East Columbia Neighborhood Association

Ellsworth Springs Neighborhood Association

Esther Short Neighborhood Association

Fruit Valley Neighborhood Association

Hayden Island Manufactured Home Owners and Renters Association

Hayden Island Neighborhood Network (HiNooN)

Hough Neighborhood Association

Kenton Neighborhood Association

Kevanna Park Neighborhood Association

King Neighborhood Association

League of United Latin American Citizens

Neighborhood Associations Council of Clark County

Neighborhood Traffic Safety Alliance

Northeast Coalition of Neighborhoods

Northfield Neighborhood Association

Northwest Association of Environmental Professionals

Northwest Neighborhood Association

Rose Village Neighborhood Association

Shumway Neighborhood Association

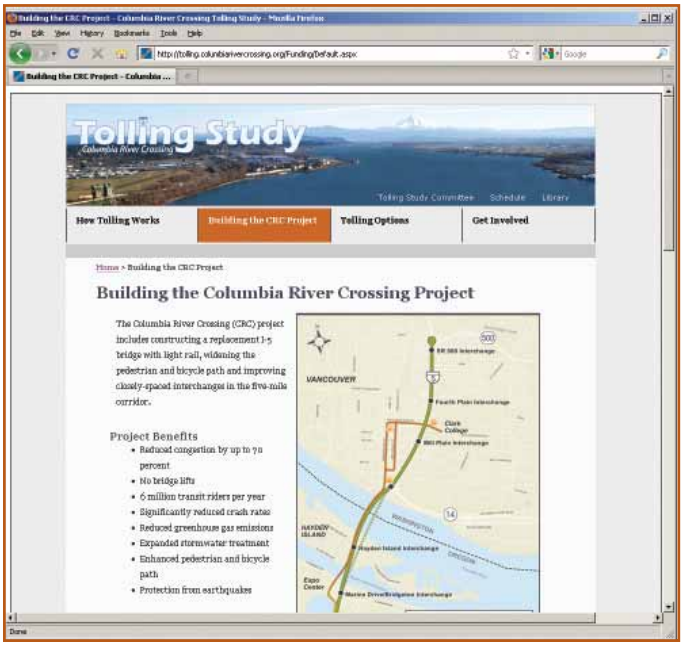
Sunnyside United Neighbors Community Planning Organization

Vancouver-Clark Parks and Recreation Advisory Commission

Vancouver Housing Authority, Resident Advisory Board

Information about the Tolling Study and online survey was provided to area residents at summer fairs and festivals.

Project Sponsors Council and Tolling Study Committee members heard directly from residents and businesses at summer listening sessions.



Screenshot of the Tolling Study Web site.

Community Organizations and Neighborhood Outreach

Neighborhood associations, service agencies and community groups adjacent to the I-5 and I-205 corridors were contacted about the Tolling Study. Presentations were held with 30 community groups between July and December, 2009. Over 500 residents living near I-5 and I-205 were informed and engaged at these meetings. Appendix B includes the dates of the community presentations.

Other members of the public were informed about the study and engaged in conversation at fairs and festivals throughout the summer. CRC staffed informational booths about the project and the tolling study, answering questions and taking comments directly from neighborhood residents. Project staff attended 20 festivals, reaching nearly 1,300 people, during the tolling study period.

Specific efforts were made to involve low-income, minority and limited English speaking populations. The Vancouver Housing Authority included an article about the tolling study in its August newsletter to over 3,000 residents. The tolling fact sheet was translated into Spanish, Vietnamese and Russian and distributed to social service organizations, churches and local businesses.

Open Houses, Listening Sessions and Public Committee Meetings

Information about the Tolling Study, Committee members and timeline was first presented at two project open houses at the end of June 2009. The Tolling Study Committee hosted two listening sessions on June 30 and July 1, 2009 to discuss the preliminary scenarios and findings with the public and receive input. Public input was also heard at the October 1, and December 7, 2009 Tolling Study Committee meetings. Meeting summaries can be found in Appendix B.

Web site

A Web site, http://tolling.columbiarivercrossing.org, was created to communicate with the public. The site was updated regularly and all Tolling Study Committee

meeting materials were posted online. A clear link to this new site was visible on the homepage of the main CRC Web site. The site received 15,238 page views during the course of the study.

Online Survey

An online survey was developed to increase awareness and provide information about tolling terms and concepts to residents and business owners in the greater Vancouver-Portland metropolitan area. The survey was advertised with Web banner ads, monthly emails sent by the CRC project to over 4,000 people, partner agency Web sites, neighborhood groups and large employers. CRC and project sponsors also posted links to the survey on their Web sites. At least 48 different sites posted a link to the CRC tolling survey or the project's tolling Web site.

The survey was online from August 18 to October 31, 2009 and over 4,200 people participated.

Input Requested by the Legislation

The legislation specified that discussions should occur with bridge users and local residents about the topics below. Information about these topics was provided during outreach events, at presentations and as part of the online survey. Comments and questions were received throughout the Tolling Study in writing, via email and in person. Key findings are summarized below and additional information can be found in the following section. All written comments received can be found online and attached to this report on CD Volume 2.

Funding a portion of the Columbia River Crossing project with tolls

Opinions are mixed about using tolls as a way to fund the CRC project. People that did not support tolling as a funding source or did not understand why tolling would be needed to fund the CRC project often expressed a belief that their taxes should be sufficient to fund transportation projects. Some meeting attendees expressed frustration that such an important, national interstate corridor would not be predominantly funded by federal sources. Others thought project costs should be reduced to the point that tolling would not be needed.

Most online survey respondents live in the Portland – Vancouver area. This map shows zip codes provided that are closest to the project area.

When doing outreach presentations to groups familiar with the project, many attendees seemed to understand that tolls would be needed to supplement state and federal sources in order to provide sufficient funding to pay for the project. Support for tolling as a project funding source was expressed by some, including the freight and business community. Many expressed understanding that tolls would be needed to build the project and urged quick action so project benefits could be realized as soon as possible.

Implementing variable tolling as a way to reduce congestion on the facility

Variable tolling is a new concept to many in the region. In response, the Committee and staff provided information in the form of fact sheets, a Web site, PowerPoint presentations, and the online survey. For survey respondents, learning more about how variable tolling could work did not change attitudes about variable tolling.

Respondents that supported variable tolling on the corridor typically did so because of its ability to help manage congestion, in addition to providing funding for the project.

Those that did not support variable tolling indicated that it would be unfair because many bridge users do not have flexible schedules. Some felt that variable tolls would not be effective at managing congestion because most people would not change their time of travel. Several people thought variable tolls would be confusing to drivers and could make it difficult to budget monthly toll expenses for the household.

Tolling I-205 separately as a management tool for the broader state and regional transportation system

After learning about expected traffic and funding benefits associations with tolling both bridges, a high number (45.2 percent) of survey respondents indicated they would strongly oppose tolling I-205.

Other comments received during outreach events and in writing did not have a clear preference for tolling or not tolling I-205 as a management tool. People that expressed support for tolling both bridges indicated that diversion to I-205 would be too high unless both bridges were tolled. Those that did not support tolling I-205 often cited the importance of having a no-toll option for their trip across the Columbia River.

In addition, questions were received at most outreach events from residents about the policy setting process and how toll revenue collected on I-205 might be used.

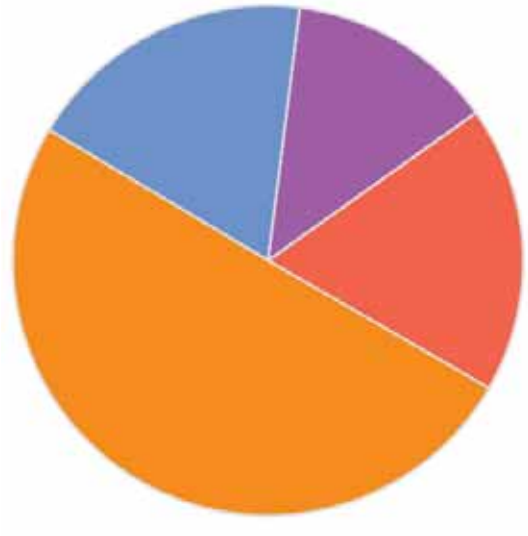
Online Survey Highlights

The survey was posted online from August 18 to October 31, 2009. During that time, 4,248 people completed all or some of the CRC tolling survey questions. About half indicated they traveled across the I-5 bridge multiple times a week and tended to use the I-205 bridge a couple of times a month or less. More than half of these trips made across the I-5 bridge were by single occupants in a personal vehicle; about 28 percent were carpool trips with household members. Traveling to or from work was the most frequent reason given for using the I-5 bridge (29 percent). Recreational activities (18.4 percent), errands/shopping (16.7 percent) and visiting family or friends (16.8 percent) were the three next most selected reasons.

In addition to demographic questions and questions about current travel patterns, eight questions in the survey asked specifically about electronic tolling, variable tolling, funding, anticipated travel choices, and tolling I-205.

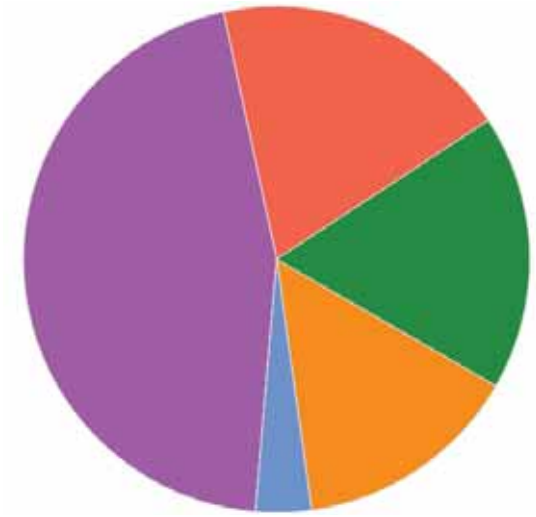
Responses to these questions are described in the previous section and the following pie charts. Responses to all survey questions can be found online and attached to this report on CD Volume 2.

Tolls on I-5 Columbia River bridge along with state and federal funding, will be used to help replace existing bridge, improve highway, and operate and maintain it into the future. Which of the following do you think tolls on the I-5 Columbia River bridge should be used for? (choose all that apply)



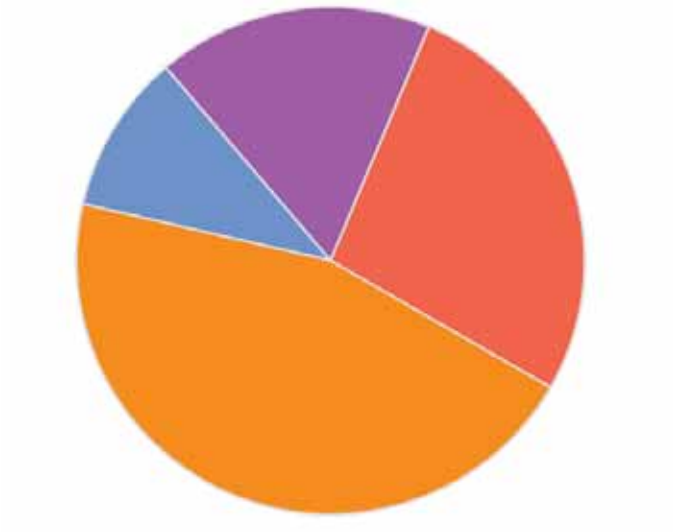
- Replacing the bridge and improving the highway
- Increasing transit use
- Providing incentives to carpool or vanpool
- Other (please specify)

Current technology allows tolls to be collected electronically as vehicles travel across the bridge at regular highway speeds. There will not be toll booths. Knowing this, does this make you more or less likely to support tolling of the I-5 Columbia River bridge? (choose one)



- Much less likely
- Somewhat less likely
- No difference
- Somewhat more likely
- Much more likely

Tolling the I-5 and I-205 bridges over the Columbia River, instead of tolling just the I-5 Columbia River bridge, could result in lower toll rates, more traffic improvements, and less traffic congestion on both the I-5 and I-205 highways. Knowing this, how supportive of tolling both I-5 and I-205 bridges are you? (choose one)



- Not at all supportive
- Not very supportive
- Somewhat supportive
- Very supportive

Written Comments and Questions

The last question included in the online survey asked for any additional input for the Tolling Study Committee. Answers to this question, in addition to other written comments received are summarized below. Including the general comments provided via the survey, more than 4,500 comments were received via email, phone or postal mail during the Tolling Study.

Common comment topics were:

- **Attitudes about tolling and financing**
  Comments expressed an opinion about tolling as a funding source for the project or included ideas for other funding sources.

  "If tolls are necessary to get a new, better bridge, then do so."

  "Tolls are a good idea because they reduce traffic and raise funds for road improvements."

  "Tolls should not be put on Interstate freeways."

  "Federal taxes and federal stimulus money should pay for the bridge, not the local residents."

- **Tolling Study and process**
  Comments responded to the scenario assumptions about rates for personal vehicles, trucks and other users, provided opinions about variable tolling, or commented on the Tolling Study process, outreach efforts, the Web survey, or future policy decisions to be made.

  "Please determine the flat toll needed instead. Thank you for the process of public input."

  "I am concerned the 205 bridge use will become heavy instead of the I-5 bridge."

  "Congestion pricing is a penalty for having a real 8-5 job. It would take me 2.5 hours to ride the MAX from Delta Park to my job at Orenco Station. This is not a viable option."

  "To gain public acceptance I would propose that tolls be reasonable and more for large semi-trucks, less for pickup trucks or cars with trailer…and lowest for cars by themselves. No charge for motorcycles. I feel the max toll for (a) car at peak would (be) 2 bucks, trucks 3 bucks max and for semi-trucks, 7 dollars. Suggest a lower toll be accessed on I-205 roughly half. I would also suggest taxpayers be told…when a certain amount of money is in the bridge fund….maybe in 10 years… then toll would drop but keep some tolls to pay for the future bridge needs. Also, would add the toll should be the same going north or south. "

- **Discounts and equity**
  Comments and questions about equity, rebates, discounts and fairness were heard throughout the Tolling Study. Some felt that tolling would be most equitable if all users were asked to pay.

  "Service and delivery for small companies should be exempt from toll."

  "I do not think that people in WA should have to pay (a) toll if they are required to commute to OR for work purposes. And vice versa…If it is required for work I think that monthly/or yearly passes should be available for a discount."

  "I think tolls should be less for those that are carpooling, and more for the 80% of trips that are made with one person in the car."

  "People that live in WA and work in OR shouldn't have to pay tolls at all. Let OR take the money out of the income tax it collects from WA residents."

  "If tolling the I-5 bridge is enacted, all persons using the bridge should pay a toll including transit, cyclists, pedestrians, motorcyclists since all are equal users of the bridge. That is the only way I would support tolling."

- **Operations**
  Some wanted to know how transponders would work for auto and freight fleets. Others had comments about technology, logistics, and implementation for local and out-of-state bridge users. A few mentioned concerns about privacy, in connection to electronic toll collection.

  "We ought to be able to purchase a one-time fare at a facility near the bridge."

"If out of state visitors get a bill in the mail, what is the mechanism for getting them to pay? Are we discouraging them from visiting our states? Also, tolls will affect visitor experience. Tourism is a huge economic driver for our region."

"I have used those electronic tolling devices and they are painless. Great way to drive and avoid the lines."

"Are your transponders going to tie in with existing transponders?"

- **The CRC project**
  Comments about project elements and the size, scope, schedule, purpose, and cost of the overall project were captured in this category.

  "A new bridge is long overdue. The bridge should be built to last 100 years and should have at least 12 vehicle lanes."

  "I think the addition of light rail is an excellent choice and will be a great addition to travel into Vancouver."

  "Upgrade existing I-5 bridge for transit, biking and walking and don't build new bridge."

Evaluating Toll Scenarios

The Legislature directed the Committee to study scenarios that included variable rate tolling on I-5 and I-205 in order to better understand potential effects to the toll funding contribution and traffic patterns on I-5 and other transportation corridors in the area.

The Committee and staff evaluated six scenarios that included tolling only I-5 and tolling I-5 and I-205 in the early summer of 2009. These scenarios were presented to the public and project sponsors. Additional scenarios were developed in the fall. For each scenario, tolling could start in mid-2018 after the project was built, or during construction in mid-2013. Detailed information about each scenario can be found in Appendix C.

A three-step approach was used to evaluate the toll scenarios:

- **Travel demand modeling:** Forecasts the number of vehicles and people crossing the Columbia River, the routes they take and their method of travel (auto or transit) for a typical weekday.
- **Revenue projections:** Forecasts annual toll revenue, toll collection and facility operations and other maintenance costs, and reductions to yield the net revenues available for project financing.
- **Financial capacity analysis:** Assesses how much project funding can be supported with future tolls by issuing state-backed bonds, and in the case of early tolling of the existing bridge, additional "pay-as-you-go" construction spending. Financial capacity analysis provides the bottom line for the toll funding contribution possible under each scenario, given assumptions about when and how much funding is needed.

More information about the three steps above can be found in Appendix C.

Assumptions in Toll Scenarios

The May 2008 Draft EIS includes a tolling scenario with a variable toll rate. Five additional scenarios were developed at the start of the Tolling Study. Three of these included different rates on I-5 and two included tolls on both the I-5 and I-205 bridges. As a result of discussions with the public and project partners, two scenarios were removed and six new scenarios were developed and analyzed in the fall of 2009. All scenarios assumed that bicyclists, pedestrians and transit vehicles would not pay the toll.

A "No Toll" project scenario was included in the study for comparison purposes. Under this scenario, the project would be built but no toll would be implemented. The scenario is not considered viable as tolls will be needed to supplement state and federal funds.

When would tolling start?

The new bridge over the Columbia River is expected to open by mid-2018. Tolling could start at that time, or earlier, depending upon legislative direction.

The option of starting tolling on the existing I-5 bridge during construction could be added to any of the scenarios below. A mid-2013 tolling start date could raise up to $330 million in additional direct construction funding and provide needed funds earlier in the construction process. Traffic on the existing bridge would also be less congested if variable tolls were in place during construction.

Variables Examined in Toll Scenarios

Toll scenarios differed in their use of a couple key variables, including:

- **Variable or fixed-rate tolls –** All but one of the scenarios assume a variable toll that would be highest during peak hours and lower at all other times. The variable toll schedule would be set according to a specific schedule. For the fixed-rate scenario, the toll would remain the same 24 hours a day.
- **Toll rate ranges –** All but one scenario assumed the time frames shown in Exhibit 1 for the variable toll schedule. Scenario 1D assumed that the toll rates would change more frequently throughout the day. See Appendix C for this information.

Range of Toll Rates Evaluated

Toll rates for each of the specific scenarios can be found in Appendix C. For the purposes of this analysis and report, all toll rates are reported in year end 2006 dollars, for consistency with the Draft EIS analysis. Tolls are assumed to increase yearly to keep pace with expected inflation. The analysis assumes a future inflation rate of 2.5 percent per year.

The toll amounts shown are for a one-way trip. For the I-5 only toll scenarios, the total round-trip amount would depend on the time of day that a person traveled north and south across the bridge. For the scenarios with both I-5 and I-205 tolled, the total cost would depend on the time of travel southbound, since double the one-way toll was assumed to be collected southbound only for a round-trip.

For the purpose of this analysis, trucks were broken down into two categories: medium trucks and large tractor trailers. Medium trucks would pay two times the rate of a passenger car, and large tractor trailers would pay four times the passenger car rate.

	Range of Tolls Analyzed by Time Period (toll amounts are for a one-way trip)	
Time of day	**2006 dollars**	**2018 dollars (year of opening)**
Midnight to 5 a.m.	$1.00 - $3.00	$1.34 - $4.04
5 a.m. to 6 a.m.	$1.25 - $4.50	$1.68 - $6.05
6 a.m. to 10 a.m.	$1.50 - $6.00	$2.69 - $8.07
10 a.m. to 3 p.m.	$1.25 - $4.50	$1.68 - $6.05
3 p.m. to 7 p.m.	$1.50 - $6.00	$2.69 - $8.07
7 p.m. to 8 p.m.	$1.25 - $4.50	$1.68 - $6.05
8 p.m. to Midnight	$1.00 - $3.00	$1.34 - $4.04

Exhibit 1. Toll rates vary within in each range, depending on scenario being considered. Toll rates will not be set as part of this analysis. Rates will be determined in the future by the state transportation commissions.

Toll Scenarios Studied

I-5 only Toll Scenarios

For the I-5 only scenarios, tolls would be collected in both directions of travel over the I-5 Columbia River bridge.

1A. Toll I-5 according to the variable rate assumed in the project's Draft EIS – This tolling scenario was studied in the Draft EIS. Rates would be highest during peak traffic hours and lower during other times of day.

1B. Toll I-5 at a variable rate lower than assumed in the Draft EIS – This scenario was added after the initial outreach to better understand effects of a lower toll on funding and traffic patterns.

1C. Toll I-5 with a fixed rate toll – This scenario was added after the initial outreach to provide a comparison to variable tolls. It is the only fixed rate scenario studied. A weighted average of the Draft EIS variable toll rates was used.

1D. Toll I-5 with additional price points – Other variable toll scenarios were modeled using three different toll levels that would change based on time of day. This scenario studied a toll rate that would change more frequently by smaller increments, and is more representative of how a variable toll would likely be implemented. It was developed based on questions received during initial outreach efforts. The variable toll schedule for 1D includes five different toll levels.

1E. Toll I-5 at 1.5X the variable rate studied in the Draft EIS – This scenario was added after the initial outreach. Some wondered how incremental changes to the toll rate might affect traffic patterns and funding.

1F. Toll I-5 at 2X the variable rate studied in the Draft EIS – One of the initial scenarios, this provided additional funding and traffic data.

1G. Toll I-5 at 3X the variable rate studied in the Draft EIS – Toll rates studied are the highest of the scenarios. This scenario shows that increasing the toll past a certain point does not result in more funding. At these rates, less funding is raised than scenario 1F due to increased diversion. This scenario illustrates that tolls as high as 3x the Draft EIS rate would not work for the corridor, from both a funding and traffic perspective.

I-5 and I-205 Toll Scenarios

For the scenarios that modeled tolls on I-5 and I-205, roundtrip tolls would be collected southbound only.

2A. Toll both bridges according to the variable rate schedule assumed in the Draft EIS – This was one of the preliminary scenarios. Variable rate schedule assumptions matched those included in the project's Draft EIS.

2B. Toll both bridges at a lower variable rate than assumed in the Draft EIS – Tolling both bridges would raise more funding than tolling only I-5. This scenario was developed to see how a lower rate on both bridges would affect traffic patterns and the funding contribution from tolls.

2C. Toll both bridges with variable rate; I-205 would have a lower toll than I-5 during peak hours – This option was developed as part of the second set of scenarios as a way to evaluate what effects a lower toll on I-205 would have on the transportation system. The toll on I-5 would be the same as the variable rate in the Draft EIS.

Toll Scenarios at a Glance

	Scenarios Analyzed	Tolls Collected	Toll Schedule Type	Tolling Start Date
Tolling I-5 Only	**Scenario 1A** *DEIS Toll Rate*	Each Way	Variable Toll Schedule	Mid 2018 (FY 2019)
	Scenario 1B *Lower than DEIS Toll Rate*			
	Scenario 1C *Flat Toll Rate*		Fixed Toll Schedule	
	Scenario 1D *Additional Price Points*		Variable Toll Schedule	
	Scenario 1E *1.5x DEIS Toll Rate*			
	Scenario 1F *2x DEIS Toll Rate*			
	Scenario 1G *3x DEIS Toll Rate*			
	Pre-Completion Tolling[1] *DEIS Toll Rate*	Each Way	Variable Toll Schedule	Mid 2013 (FY 2014)
Tolling I-5 and I-205	**Scenario 2A** *DEIS Toll Rate*	Southbound Only[2]	Variable Toll Schedule	Mid 2018 (FY 2019)
	Scenario 2B *Lower than DEIS Toll Rate*			
	Scenario 2C *Lower I-205 Toll*			

[1] Pre-Completion Tolling to be added to any scenario

[2] A round-trip toll is collected southbound only

Funding Opportunity and Financial Capacity Analysis

A variety of funding sources will likely be needed to build the project, including federal and state funding sources, combined with funding from tolls.

Funding projections from tolls associated with each of the Tolling Study scenarios are shown in Exhibit 2 below.

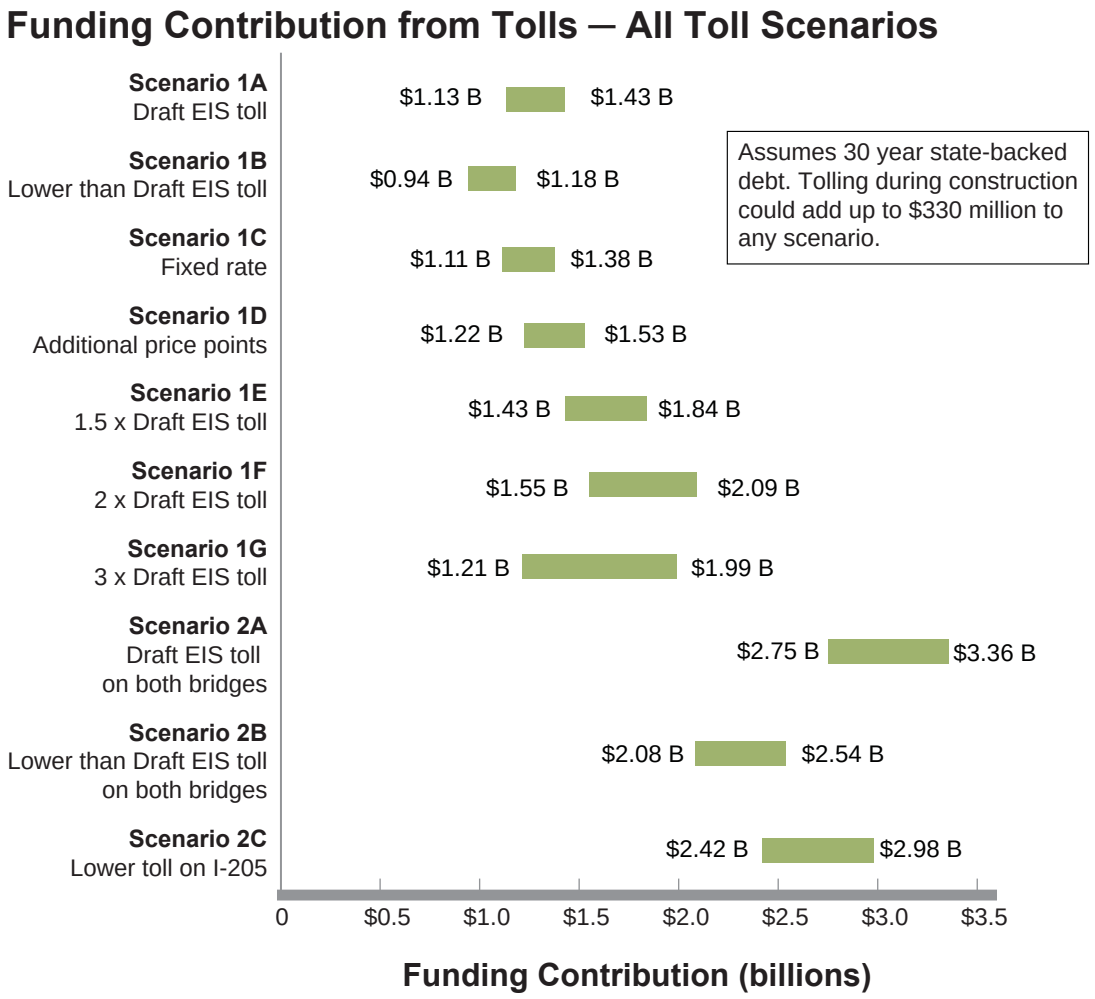


Exhibit 2. The funding contribution from tolls is affected by the rate schedule and traffic diversion. Scenario 1G's higher toll raises less funds from tolls than Scenario 1F because of increased diversion. Scenarios that include tolls on both bridges have a higher potential for funding from tolls.

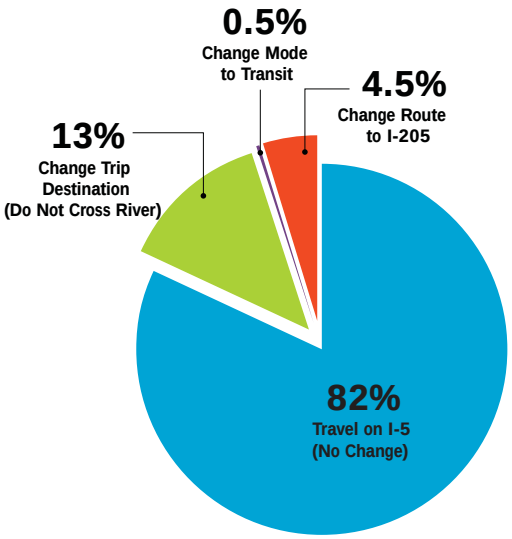
For the purposes of this analysis, the new I-5 bridge is assumed to be substantially completed by mid-2018, with revenue operations beginning on July 1, 2018 (fiscal year 2019). Toll bond proceeds are assumed to be received in the middle and latter years of construction to maximize their funding contribution, and other funding sources are assumed to cover construction costs in the initial years. Other project improvements to the highway and interchanges would continue into 2019, and the last bonds needed to fund these completion activities are assumed to be issued after tolling has commenced. The use of toll bonds will increase the total costs paid during and after construction due to the added interest and issuance costs. However, these financing costs are treated separately from the project capital cost during construction. Increased use of toll bonds will increase the total costs paid due to added interest and issuance costs. The construction cost does not increase as a result; rather it adds a financing cost both during and after construction.

How Bridge Tolling Affects Diversion

The collective changes in travel patterns in response to a toll are referred to as toll diversion. Person-trip toll diversion can be defined in four ways:

- Trips that take another route
- Trips that shift mode, including switching to transit or consolidating into carpools
- Trips that change destination
- Trips that travel at a different time of day

Toll diversion rates are affected by many factors, including how the toll affects the overall monetary and time cost of travel, trip purpose and frequency, availability and quality of alternate travel routes or modes, and the socio-economic characteristics of the travelers. If no reasonable alternate route is available, many people will continue to make the same trip, at the same time of day rather than divert to a lower toll period, change mode, or alter their destination/eliminate the trip to avoid crossing the river at all. Exhibit 3 shows how travel patterns would be affected by tolls on I-5, as studied in Scenario 1A.



Travel patterns for tolls on I-5 (Scenario 1A)

Exhibit 3. With a toll on I-5, most drivers would not change their travel patterns. Some would choose a new destination or a non-tolled route. Diversion to transit is minimal due to the already increased ridership associated with project improvements.

It is important to note that while a toll on the new bridge will yield different travel patterns compared with the same new bridge without a toll, this basis of comparison may not be meaningful if the project cannot be funded without the benefit of tolls.

Highway Diversion

For the I-5 only toll scenarios, the level of route diversion to I-205 would vary with the toll charged on I-5 as well as by the time of day. Higher tolls would cause more route diversion; however, the percentage rate of diversion tends to be lower during peak periods when travelers' willingness to pay tolls may be higher and/or alternative routes are congested, and thus, time consuming. In all of the toll scenarios, I-5 bridge traffic demand would be lower and I-205 demand higher with I-5 tolls than without them.

For scenarios that include a toll only on the I-5 bridge, varying amounts of trips would divert to I-205. In all cases, year 2030 traffic levels on the I-5 bridge would be less than under the No Toll project scenario, while I-205 bridge levels would be higher.

- Scenario 1A would divert about 5 percent of the I-5 bridge's daily trips to the I-205 bridge compared to the No Toll project scenario.
- The lowest amount of diversion to I-205 would result under Scenario 1B, with 3 percent of I-5's trips diverting to the I-205 bridge.
- The highest amount of diversion to I-205 would result under Scenario 1G, with about 14 percent of I-5's trips diverting to the I-205 bridge.

For scenarios that toll both the I-5 and I-205 bridges, traffic levels would be higher on I-5 and lower on I-205 than if only the I-5 bridge was tolled. However, compared to the No Toll project scenario, total cross-river traffic demand would be less on both the I-5 and I-205 bridges as many trips would divert to transit or not be made across the Columbia River.

- Compared to Scenario 1A, Scenario 2C would increase I-5 bridge daily trips the least – by about 6 percent, while Scenario 2B would increase I-5 bridge daily trips the most – by about 11 percent.
- Compared to Scenario 1A, tolling both bridges would reduce total daily cross-river (I-5 and I-205) trips by about 6 percent to 8 percent. Compared to the No Toll project scenario, tolling both bridges would reduce daily cross-river trips by about 12 to 14 percent.

All scenarios that include a toll only on the I-5 bridge would result in a higher number of trips on the I-205 bridge than would result under a the No Toll scenario (from about a 4 percent increase under Scenario 1B to about a 15 percent increase under Scenario 1G). Most of the scenarios – with the exception of Scenarios 1E, 1F and 1G – would result in minor levels of traffic diversion to I-205 via east-west highways in Vancouver and in Portland. This is due to the existing and predicted congestion along the key routes connecting to I-205, including I-84.

Diversion to Transit

The CRC project extends Portland's existing light rail system to Vancouver, significantly increasing transit access and use by residents. The new light rail system will be optimized with feeder buses and park-and-ride lots. Prior to adding a toll, I-5 transit person-trips are expected to increase by 74 percent compared to the No Build scenario, from 11,600 daily person-trips to 20,200 daily person-trips. Analysis shows the incremental, additional shift to transit after a toll is added:

- Scenario 1A would divert an additional 0.5 percent of I-5's daily person trips to transit compared to the No Toll scenario.
- For scenarios that toll I-5 only, the lowest amount of toll diversion to transit would result under Scenario 1B (0.5 percent) and the highest amount under Scenario 1G (1.0 percent).
- For scenarios that toll both I-5 and I-205, the lowest amount of toll diversion to transit would result under Scenario 2B (0.5 percent) and the highest amount under Scenario 2A (1 percent).

Other Types of Trip Diversion

With tolls, some people would choose to change their destination (i.e., not cross the Columbia River) or to not make a trip at all. Since the diversion statistics apply to daily traffic, reduced frequency trips may also be included with those not making a trip at all.

- Under Scenario 1A, the introduction of the toll would result in 13 percent of I-5 trips not crossing the river or not being made at all compared to the No Toll project scenario.
- For scenarios that toll I-5 only, the lowest amount of destination diversion and/or trip elimination due to tolls would result under Scenario 1B (about 11 percent) and the highest amount under Scenario 1G (about 46 percent). Note that Scenario 1G is a reference point that assumes the highest tolls tested. Scenario 1F includes lower toll rates (two thirds less) than those in Scenario 1G, but would achieve more funding with less diversion.
- For scenarios that toll both the I-5 and I-205 bridges, the lowest level of destination diversion and/or trip elimination would result under Scenario 2B (23 percent) and the highest amount under Scenario 2A (about 27 percent).

Bridge Performance

Average Daily Traffic Volumes

Daily and hourly traffic levels in 2030 would vary for the I-5 bridge and the I-205 bridge with different tolling levels. Exhibit 4 shows expected average daily traffic volumes for I-5 and I-205 for each scenario. When there is a toll only on I-5, some trips will divert to I-205, the non-tolled route. When there is a toll on both bridges, some trips currently using I-205 would shift to I-5.

- In the No Toll project scenario, the I-5 bridge is projected to carry 220,000 vehicles each weekday and the I-205 bridge is estimated to carry 203,000 vehicles per day.
- Under Scenario 1A, I-5 bridge volumes would be less by about 18 percent (39,000 vehicles), while I-205 bridge volumes would be about 6 percent (13,000 vehicles) greater.
- Of scenarios that would toll the I-5 bridge only, Scenario 1G would reduce I-5 traffic the most (by 59.5 percent or 131,000 vehicles) and increase I-205 traffic the greatest (by about 18 percent or 37,000 vehicles) compared to the No Toll project scenario. Scenario 1G would reduce total cross-river trips the most (by about 22 percent or 94,000 vehicles).
- Of scenarios that would toll both bridges, Scenario 2A would reduce cross-river trips the most (by about 11 percent or 48,000 vehicles).

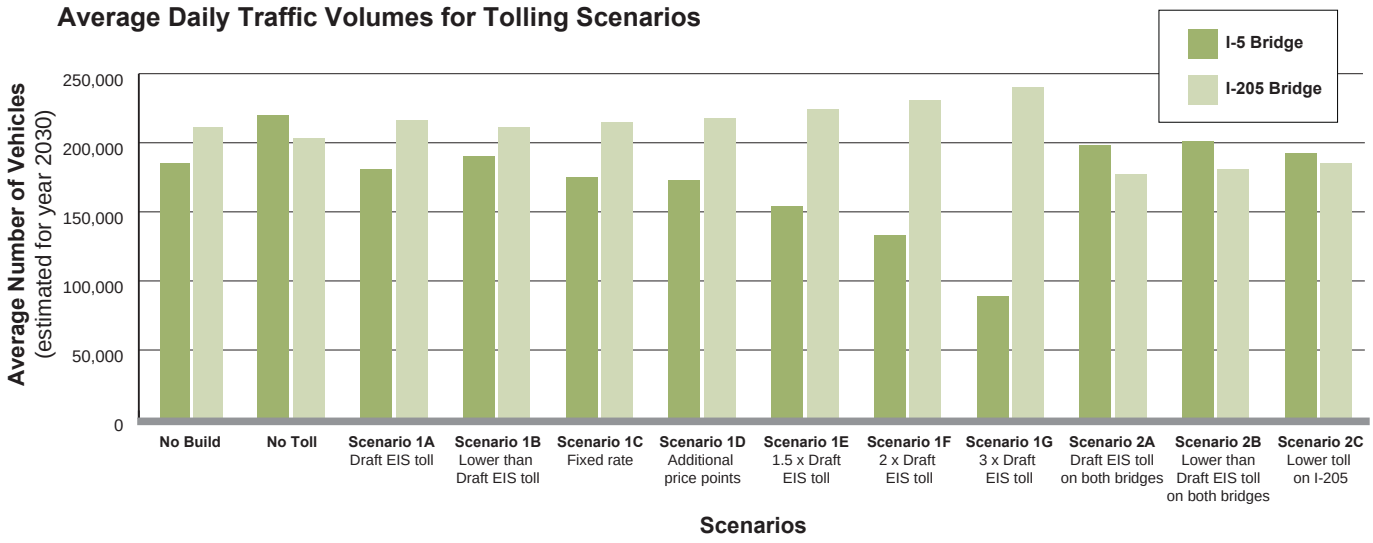


Exhibit 4. The average number of daily vehicles crossing I-5 and I-205 would vary with different toll rates.

Hours of Congestion

The duration of congestion at the I-5 bridge is related to the level of cross-river traffic demand. Exhibits 5 and 6 show the duration of congestion expected for each of the toll scenarios studied. Demand now and in the future will be greatest southbound in the morning peak and northbound in the evening peak. For the No Build scenario, by the year 2030, about 15 hours of congestion is expected to occur each weekday over the course of the day (about 7 hours in the southbound direction and 8 hours in the northbound direction). The duration and magnitude of traffic congestion would be reduced as tolls decrease the level of cross-river traffic demand and shift some trips to uncongested, off-peak times (when the toll is lower).

- Under Scenario 1A, I-5 bridge congestion would occur for a total of about 5 hours on a typical weekday in 2030, or 70 percent less hours than the No Build scenario.
- Of the scenarios that would toll the I-5 bridge only, the least amount of I-5 bridge congestion would occur under Scenario 1G, with 1 hour of congested conditions. The longest duration of congestion would result with Scenario 1B's relatively lower tolls, with about 5 hours of weekday traffic congestion.
- For those scenarios that would toll both the I-5 and the I-205 bridges, the lowest level of I-5 bridge congestion would result under Scenario 2C,with 5 hours of congested conditions. The longest duration would result with Scenario 2B, with about 6 hours of congestion.

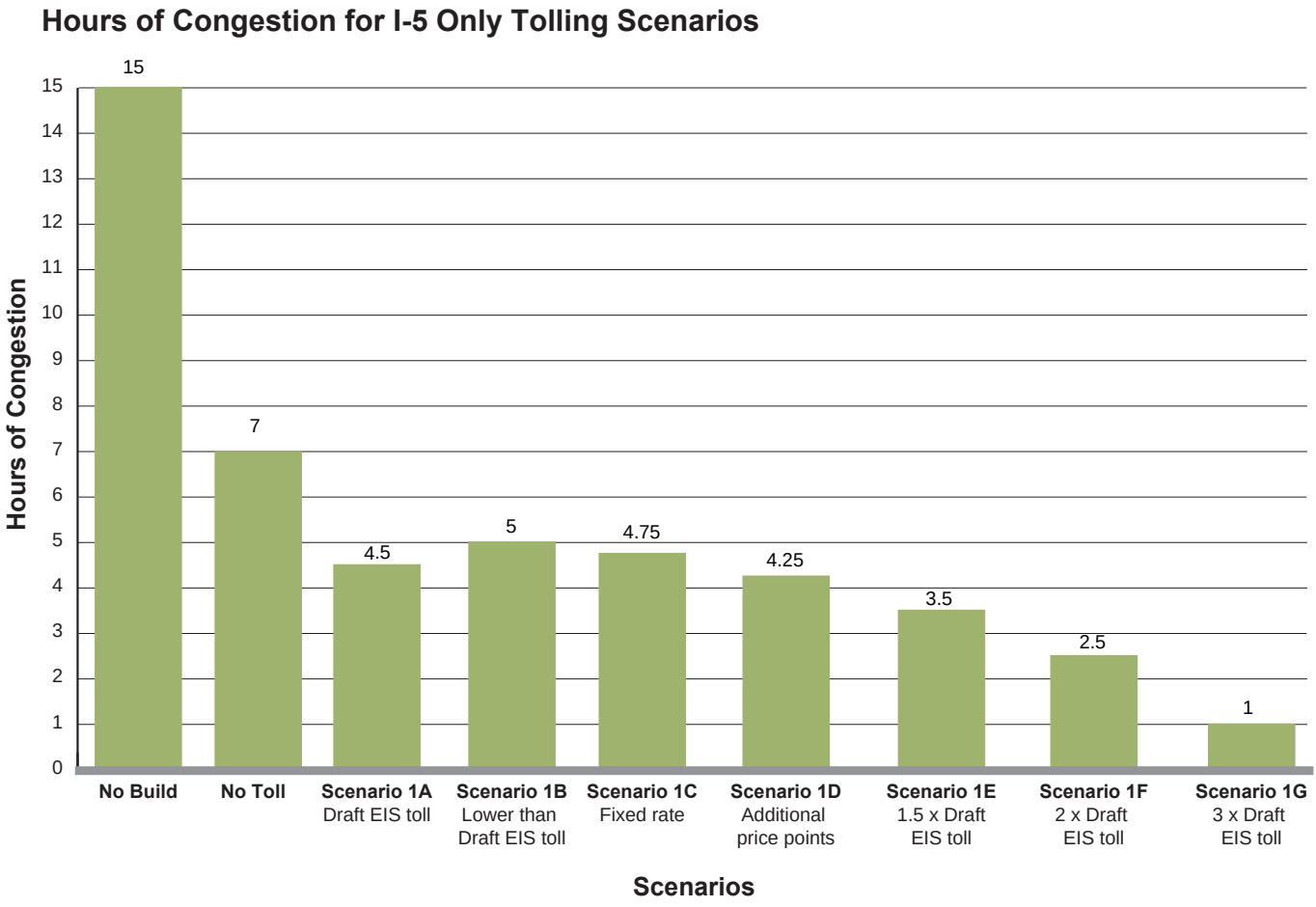


Exhibit 5. Without the project, there would be 15 hours of congestion a day in 2030. With tolls on I-5 and project improvements, congestion would be reduced.

Today, 135,000 transit, freight and auto trips are delayed by congestion about 6 hours a day.

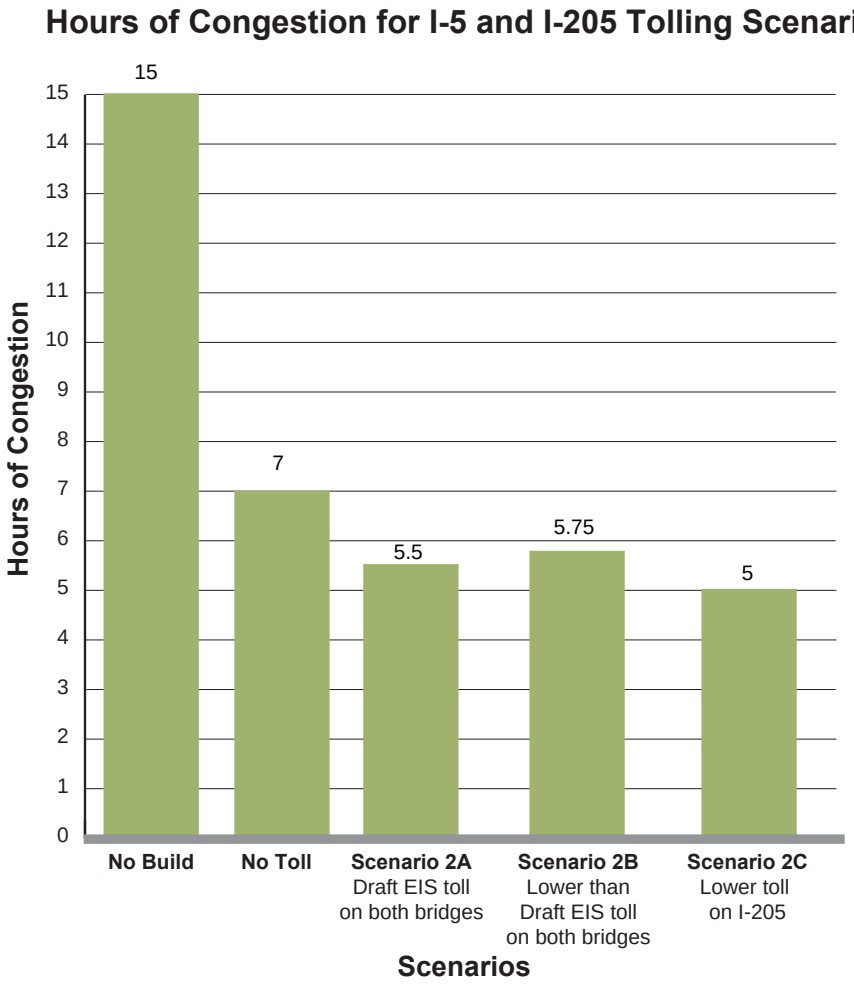


Exhibit 6. With tolls on both I-5 and I-205, the hours of congestion in 2030 on I-5 would be reduced, compared to the No Build and No Toll project scenarios.

Tolling and Traffic Management Technology

Electronic Toll Collection Technology

The Columbia River Crossing will use 100 percent electronic tolling – no toll booths at all. Washington State launched its *Good to Go!* electronic tolling system in 2007 with the opening of the new Tacoma Narrows Bridge. Using *Good to Go!*, most electronic tolls are collected with a transponder, about the size of a credit card. Drivers affix the transponder on the inside of their cars' windshields. When driving on a tolled facility, an overhead antenna reads the transponder, identifies the vehicle as being linked to an account, and deducts the correct toll from a prepaid account. Automatic replenishment allows drivers to easily manage accounts by authorizing payments from a credit card or bank account.

According to the regional traffic model, the majority of the trips in this corridor are made by frequent users. As a result, the analysis assumes that many of these trips will rely on the transponder technology. Options will exist for drivers that do not have transponder accounts because they are infrequent users or may be visiting from out of town. These vehicles would have their license plate photographed and drivers could pre- or post-pay (online or by phone), or be invoiced for the toll by mail. An additional administrative fee would apply for processing "pay-by-plate" payments. Signage in the corridor will direct drivers on how to pay if they do not have an account.

Transponder technology and license-plate recognizing cameras are a key component of nearly all modern tolling facilities around the world. Despite the option of a toll booth, more than 70 percent of traffic using the new Tacoma Narrows Bridge travels non-stop at highway speeds without stopping at toll booths. During peak times, the number reaches 85 percent. Likewise, solo drivers on SR 167 south of Seattle use this same *Good To Go!* electronic tolling system to pay for a quicker trip in the high occupancy toll (HOT) lanes.

Transponders are the size of a credit card and can be affixed to the inside of a vehicle's windshield.

WSDOT's intent is to create one system that allows drivers to have one account, one customer service contact, and one statement for all toll transactions at any facility using *Good To Go!*. Oregon is also committed to developing an integrated system and has guidelines similar to Washington about implementing electronic tolling systems. A coordinated dual-state effort will ensure all operations work together and all tolling policies are consistent.

Approximately 70-85 percent of CRC transactions are expected to be made by *Good To Go!* account holders or with pre-paid license plate accounts, with the remaining bridge users being invoiced for their tolls. By eliminating toll booths at the facility, several issues are being addressed, including:

- Congestion caused by toll booths. There will be no need for vehicles to stop or exit the roadway, tolls are collected at normal highway speeds, for smooth-flowing traffic.
- Toll booth related accidents. Electronic tolling greatly decreases safety issues related to stop and go traffic.
- Capital costs for right of way and toll plaza construction. It's estimated to cost at least $100 to $200 million to install a toll plaza in this developed corridor.

- Operating costs. Cash collection is twice as costly as electronic toll collection

As technology continues to develop, additional technologies will become available and could make toll collection even easier and more cost efficient. Technologies that may be available for local toll collection in the future include:

- Global positioning system (GPS)-based tolling technology
- Stored-value card for transit, ferries and tolled facilities
- Rental car companies outfitting rental cars with transponders or using license plate images to pay tolls for their rental fleets

Technology continues to evolve in today's fast-paced world and WSDOT and ODOT are committed to bringing the most time-saving and cost-effective tolling technology options to their drivers now and in the future.

Building Smarter Highways

Active traffic management is the use of high-tech traffic tools to make roadways safer and less congested. These tools provide more accurate real-time information about what is on the road ahead and help improve traffic flow. WSDOT and ODOT plan to use these types of technologies in the CRC corridor to further enhance traffic flow and introduce low-cost projects that have high benefits for drivers. The Committee reiterated strong support at its December 7, 2009 meeting for the use of these tools and technologies.
Today's traffic management tools and technologies include:

- Real-time information for drivers, such as electronic driver information signs, traffic cameras, traffic centers and online traffic maps. Hundreds of traffic cameras and sensors throughout the two states provide real-time information about congestion, alerts and travel times, which reaches drivers through the media, 511 Travel Info, electronic devices, and agency Web sites.
- Travel time signs that display estimated travel times and other traffic conditions so drivers can take more control over their commutes and make on-the-road route decisions.
- Ramp meters that automatically space vehicles entering the flow of traffic on the highway. There now are about 150 ramp meters in the Vancouver-Portland metro area.
- Incident response teams that clear roads and help drivers. Four to ten minutes of traffic congestion can result from every minute a lane remains blocked. Rapid detection of incidents and clearing minimize the impact on congestion, especially during peak periods.

Smarter Roadways Tomorrow

In addition to expanding the tools already being deployed, new techniques are available that allow WSDOT and ODOT to adapt to constantly changing highway conditions and respond in the most efficient manner. Some of the new active traffic management tools include:

- Installing overhead signs, which convey variable speed limits.
- Installing lane closures and warning signs, to alert drivers to slow down or change lanes because of collisions and backups.
- Building additional emergency pull off areas for vehicle breakdowns or collisions, where possible.

Tolling gantries, located over the highway, read transponders and license plates, without causing drivers to slow down.

Overhead signs alert drivers about collisions and speed limits.

Using integrated systems and a coordinated response, both everyday and incident-related congestion can be managed to improve roadway safety and traffic flows.

Preliminary Ideas about Diversion Mitigation

The Committee was tasked by the Legislature with evaluating the implementation of tolls and tolling impacts on the I-5 and I-205 corridors, including diversion of traffic to local streets and potential mitigation. As part of this Tolling Study, the Committee received little input from the public or jurisdictions regarding potential mitigation for diversion effects to local streets. This can likely be attributed to the fact that conversations are just beginning with the public about variable tolling and effects to funding and traffic.

At this point in the process, the Committee has identified a few approaches that could reduce traffic diversion from tolling. As additional information is developed, mitigation options, including those below, should be discussed in more detail.

- System-wide traffic monitoring
- Active traffic management technology for the I-5 and I-205 corridors (described in more detail in the previous section)
- Mitigation funding
- Transit-related improvements or incentives

Toll-Setting Framework

The Washington State Legislature directed WSDOT and the CRC project, in coordination with ODOT, to research and evaluate options for a potential toll-setting framework between the Oregon and Washington transportation commissions. The Tolling Study Committee conducted a review of current law related to tolling, as well as an analysis of the steps necessary prior to establishing toll rates.

Toll-setting is an iterative process requiring multiple decisions, as shown in Exhibit 7 below. The ultimate determination regarding appropriate toll rates requires sufficient information on project specifications, costs of toll operations, sufficient traffic modeling data and

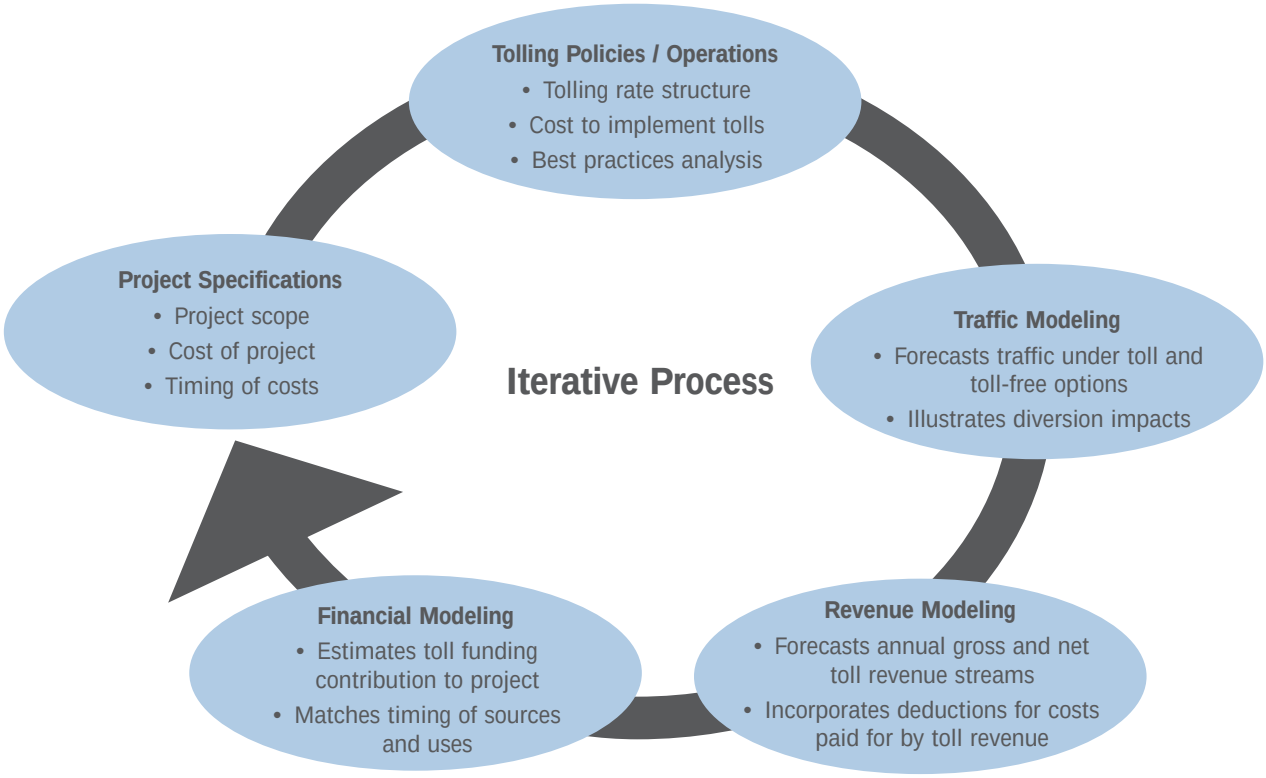


Exhibit 7. Toll setting is an iterative process involving project decisions, traffic, revenue, and financial modeling and multiple decisions.

a revenue and financial analysis based upon the traffic information. The Columbia River Crossing project is in the initial stages of this process.

After completion of the traffic, revenue and financial analysis, federal and state governments will have a role regarding the decision to toll the I-5 bridge and potential policy guidance regarding toll rates.

Federal

Historically, federal law prohibited toll collection on Interstate highways. Exceptions have been provided for facilities that had tolls before they were added to the Interstate system. Additionally, tolling is permitted on reconstruction and replacement projects for existing, non-tolled bridges.

The Federal Highway Administration must approve a tolling agreement on federally-funded state highways and more recent federal transportation authorization has established six programs which provide for tolls on Interstate routes under specific circumstances. Congress is currently renewing and rewriting federal transportation law, which could change federal tolling provisions in the future.

State of Oregon

The Oregon State Legislature granted authority to the Oregon Transportation Commission to set tolling policies. The Oregon Transportation Commission has the following responsibilities:

- Establish tolls for state tollways after taking into account certain statutory considerations, including cost of construction, reconstruction, maintaining, repairing and operating the tollway and debt service requirements.
- Adopt rules specifying a process for reviewing toll proposals.
- Adopt rules setting standards for electronic toll collections systems and photo enforcement systems to ensure compatibility with the state of Washington to the extent technology permits.
- Set variable tolls depending on time of day and use of the facility.

The Oregon Department of Transportation has the following responsibilities related to tolling:

- Plan, design, construct, reconstruct, operate and maintain all tollway projects.
- Operate and collect tolls on any tollway project through electronic or manual toll collection.
- Use the same transponders as those planned for use in Washington.

State of Washington

In 2008, the Washington State Legislature adopted a statutory framework to guide decisions regarding tolling. The legislation established the following policy guidelines regarding tolling decisions:

- Washington should use tolling to encourage effective use of the transportation system and provide a source of transportation funding.
- Tolling should be used when it can be demonstrated to contribute a significant portion of the cost of a project that cannot be funded solely with existing sources or optimize the performance of the transportation system.
- Tolling should be fairly and equitably applied and not have significant adverse diversion impacts that cannot be mitigated.
- Tolling should consider relevant social equity, environmental and economic issues, and should be directed at making progress toward the state's greenhouse gas reduction goals.
- Toll rates must be set to meet anticipated funding obligations. To the extent possible, the toll rates should be set to optimize system performance, recognizing necessary trade-offs to generate revenue.
- Tolls on future toll facilities may remain in place to fund additional capacity, capital rehabilitation, maintenance, management, and operations and to optimize performance of the system.

Additionally, the Legislature adopted specific provisions regarding the responsibilities of the Legislature, the Transportation Commission and WSDOT related to tolling. In Washington, only the Legislature may authorize the imposition of tolls on eligible state toll facilities.

The Washington State Transportation Commission has the following responsibilities:

- Sets toll rates and considers state policy guidelines in determining toll rates.
- Establishes appropriate exemptions.
- Reviews toll collection policies, toll operations policies, and toll revenue expenditures on the eligible toll facilities.
- Ensures that toll rates will generate revenues sufficient to meet operating costs of the eligible toll facilities and meet obligations for the timely payment of debt service on the bonds.

The Washington State Department of Transportation must undertake the following activities:

- Plan, analyze and construct toll bridges and other toll facilities.
- Utilize and administer toll collection systems that are simplified, unified and interoperable.
- To the extent practicable, avoid the use of toll booths.
- Set statewide standards and protocols for all toll facilities within the state.

Next Steps

Project Development

Traffic and revenue work must continue to establish a financial plan to support the project. The Final EIS is expected in the summer of 2010. This document will contain more details on financial scenarios and ranges of funding contributions. The finance plan will be further developed over the next two years as the project's scope, budget and funding sources are refined. The federal Record of Decision is expected in late 2010, following the Final EIS. The earliest construction could start is 2012 and the new bridge is expected to open by 2018.

Bi-State Toll-Setting Framework

In Washington, clear statutory authorization of tolling is required. Additionally, the two states must determine the appropriate structure for the issuance of debt and which state will provide the authorization to purchase bonds that will be supported by toll revenue.

The two transportation commissions must determine the appropriate method for setting toll rates on a bi-state facility. That analysis must not only involve a discussion of the appropriate rate-setting structure, but also whether exemptions would be appropriate. Additional collaboration between the departments of transportation and transportation commissions will be necessary to establish the appropriate framework.

Public Engagement

CRC will continue its extensive outreach and public involvement program as project development, financial planning and the toll setting process move forward. A statistically valid survey is expected after project designs and costs are further refined. Information about project activities will be provided online, in print and at public meetings and open houses. Community advisory groups will continue to meet to advance specific aspects of the project. Public comments will continue to be encouraged and accepted, about tolling and all other aspects of the project, at anytime.

Appendices (attached on CD)

Volume 1

A: Legislation – ESSB 5352

B: Outreach Events and Materials

C: Travel Demand Modeling, Revenue Forecasting and Financial Analysis

Volume 2

D: Tolling Comments

- Public comments (email, letter, phone)
- Survey responses

Columbia River CROSSING

Columbia River Crossing Tolling Study Committee Report to the Legislatures

Appendix C – CRC Tolling Study Committee Report
Travel Demand Forecasting, Revenue Projections, Determination of Net Revenues, and Financial Capacity Analysis

Travel Demand Forecasting

Regional travel demand models are used to forecast how people may choose to travel in the future given projected growth patterns for population and employment as well as future transportation facilities. The Portland-Vancouver area regional travel demand model used for the Columbia River Crossing (CRC) project was developed jointly by the Portland-area Metro Regional Government (Metro) and the Southwest Washington Regional Transportation Council (RTC). The model, run by Metro and peer-reviewed by a national panel of experts in October 2008, applies a four-step process in estimating future travel demands:

Step 1: Person-trips are estimated from adopted regional growth projections and adopted regional transportation plans. Growth projections include population and employment forecasts throughout the metropolitan region. Transportation plans include future transportation facilities, including roadways, transitways, and bicycle and pedestrian facilities.

Step 2: Predicted person-trips are then distributed to zones across the metropolitan region. Over 25,000 network routes, or "links," are used in the model, as well as over 2,000 transportation analysis "zones." The model predicts how many people will want to travel from one zone to another via different links.

Step 3: Person-trips between each of the zones are broken down by mode of travel (drive alone, carpool, transit, bicycle, walking) based on each option's attractiveness when considering travel time and cost, as well as each traveler's socioeconomic characteristics. Travel costs include parking fees, transit fares, tolls, and automobile operating costs.

Step 4: The model assigns each trip to a specific routing in the model's network. For the CRC's tolling analysis work, the model predicts how many people are projected to cross the Columbia River on I-5 and I-205 via automobile and transit. The model is used to predict weekday peak period vehicle volumes across each bridge, which are later used to develop daily traffic demands.

The regional travel demand model is appropriate for comparing the relative weekday effects of travel across the Columbia River for different tolling scenarios. The model used for tolling analysis purposes allows relative generalizations to be made about I-5 and I-205, including vehicle and transit trips, and the duration of vehicular congestion experienced along each river crossing.

Daily and hourly traffic volumes in 2030 would vary for the I-5 bridge and the I-205 bridge with different tolling levels. Based on information included in the model regarding how much people value their time for different types of trips, lowering or raising toll rates affects how many people choose to pay the specific toll, divert to the alternative bridge, travel during another time of the day, take transit, or travel to a different destination altogether. The scenario analysis found:

- For most of the I-5 only toll scenarios, the majority of drivers would not change their travel patterns. Some would choose a new destination or a non-tolled route. Diversion to transit is minimal due to the already increased ridership associated with project improvements.

- Route diversion tends to increase as toll rates increase; however, the percentage of diversion tends to be lower during peak periods when travelers' willingness to pay tolls may be higher and/or alternative routes are congested, and thus, time consuming.

- For scenarios that toll both the I-5 and I-205 bridges, traffic levels would be higher on I-5 and lower on I-205 compared to tolling only the I-5 bridge. However, compared to the No Toll project scenario, total cross-river traffic demand would be less on both the I-5 and I-205 bridges as many trips would divert to transit or not be made across the Columbia River.

See the attached spreadsheet titled *Traffic Effects for Tolling Scenarios* for more detailed information about traffic diversion, average daily traffic volumes and hours of congestion predicted for each of the tolling scenarios.

Additional work refining one or two likely scenarios will be undertaken to inform financial planning and final rate setting prior to issuing toll revenue bonds. That analysis would independently review and refine many key assumptions, including land use projections, and also examine parts of the network beyond the I-5 and I-205 river crossings, such as key interchanges with these highways, and critical roadways and intersections. An updated and detailed toll traffic and revenue report is warranted before issuing debt, and would be required by the credit rating agencies if any of the bonds were to be backed solely by toll revenues.

Revenue Projections

The annual traffic and revenue projections produced for the CRC project are derived from outputs of the Metro regional travel demand model. The Metro model employs inputs for users' values of time as a surrogate for the relationship of time and cost reflecting the potential toll on the I-5 bridge crossing. The regional model was further supplemented by the development of a corridor level traffic model (VISSIM) which provided traffic operation capabilities to estimate the effect of future congestion in the corridor. This became the basis for "post-processing" the model results to refine traffic demand projections. The traffic and revenue projections show both the annualization of the direct Metro model results and the refined post-processed results, the latter of which bracket the mid-range of anticipated traffic and revenue impacts.

Ten toll scenarios that vary toll rates and toll locations (I-5 only or both I-5 and I-205 bridges) were developed by the CRC team for analysis, in conjunction with the Oregon and Washington departments of transportation. Toll rates were assumed to vary by time of day according to a fixed schedule that applies higher toll rates in peak periods and lower rates during off-peak times when demand is less. Toll rates were originally specified in constant year 2006 dollars in the project's Draft Environmental Impact Statement (EIS); however the actual tolls paid are assumed to increase with expected inflation, projected at 2.5 percent per year. See Exhibit 1 for information about each scenario.

It is expected that the toll collection will be all-electronic, which allows tolls to be collected without toll booths causing drivers to slow down to pay tolls. Thus, drivers would either have a transponder, paying the rates noted in Exhibit 1, or the vehicle would be identified via the license plate, in which case a $1.00 “pay-by-plate” processing fee would be added to each transaction. For example, a vehicle traveling during the peak period (6 am to 10 am) without a transponder would be charged $2.00 plus the $1.00 processing fee, or $3.00 for their trip in one direction.

Exhibit 1. Tolling Scenarios Evaluated

	Scenarios Analyzed	Min/Max Toll Rate (2006$)	Min/Max Toll Rate (2018$)	Tolls Collected	Toll Schedule Type	Tolling Start Date
Tolling I-5 Only	**Scenario 1A** *DEIS Toll Rate*	$1.00 / $2.00	$1.34 / $2.69	Each Way	Symmetric Variable Toll Schedule	July 1, 2018 (FY 2019)
	Scenario 1B *Lower than DEIS Toll Rate*	$1.00 / $1.50	$1.34 / $2.02			
	Scenario 1C *Flat Toll Rate*	$1.65	$2.22		Symmetric Fixed Toll Schedule	
	Scenario 1D *Additional Price Points*	$1.00 / $2.50	$1.34 / $3.36		Symmetric Variable Toll Schedule	
	Scenario 1E *1.5x DEIS Toll Rate*	$1.50 / $3.00	$2.02 / $4.03			
	Scenario 1F *2x DEIS Toll Rate*	$2.00 / $4.00	$2.69 / $5.38			
	Scenario 1G *3x DEIS Toll Rate*	$3.00 / $6.00	$4.03 / $8.07			
	Pre-Completion Tolling[1] *DEIS Toll Rate*	$1.00 / $2.00	$1.34 / $2.69	Each Way	Symmetric Variable Toll Schedule	July 1, 2013 (FY 2014)
Tolling I-5 and I-205	**Scenario 2A** *DEIS Toll Rate*	$2.00 / $4.00	$2.69 / $5.38	Southbound Only[2]	Symmetric Variable Toll Schedule	July 1, 2018 (FY 2019)
	Scenario 2B *Lower than DEIS Toll Rate*	$2.00 / $3.00	$2.69 / $4.03			
	Scenario 2C *Lower I-205 Toll*	I-5: $2.00 / $4.00 I-205: $2.00 / $3.00	I-5: $2.69 / $5.38 I-205: $2.69 / $4.03			

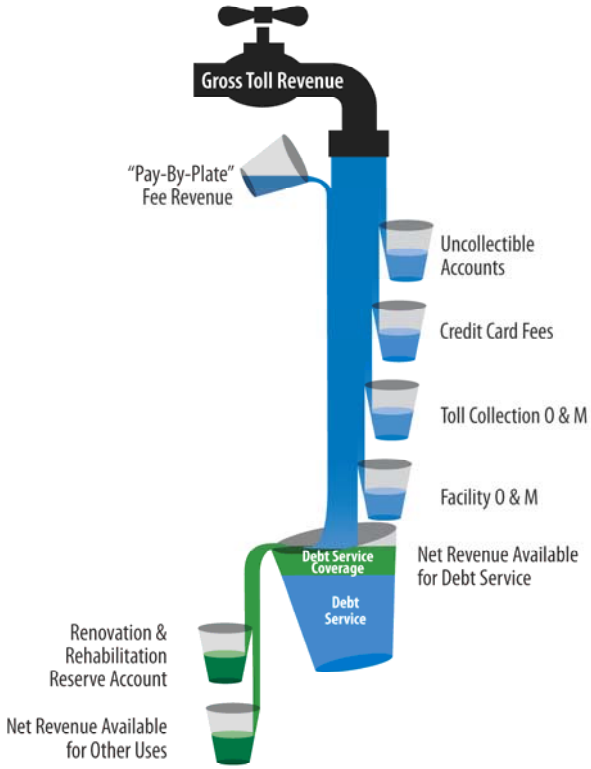
[1] Pre-Completion Tolling to be added to any other scenario

[2] A round-trip toll is collected on scenarios tolling Southbound only

The rates for commercial vehicles are assumed to be proportionately greater than passenger cars, roughly as a function of the number of axles for a commercial vehicle. For the purposes of this analysis, it is assumed that commercial vehicles will pay on an N minus one basis based upon axles, that is, a five-axle truck would pay four times the passenger car rate (five minus one times the passenger rate). Model volumes were provided for medium (three-axle) and large (five-axle) trucks. The exact commercial toll schedule will be a function of the future development of the electronic toll collection system. Toll schedules assumed for each scenario are shown on the attached spreadsheets, *Toll Rate Schedules for I-5 Scenarios* and *Toll Rate Schedules for I-5 and I-205 Scenarios*.

Determination of Net Revenues

To arrive at the portion of revenues available to support financing via the repayment of debt, several deductions must be made from gross toll revenues and fees. Key among these deductions is the obligation to pay for toll collection and facility operation and maintenance (O&M) costs for the bridge and roadway. The deductions from gross revenues include the following:



- Potential toll revenue lost due to uncollectable accounts
- Credit card and banking fees associated with toll payment and accounts
- Toll collection operations and maintenance costs, including maintenance, periodic replacement of equipment, back office costs and bridge insurance
- Routine operations and maintenance of the bridge and roadway facilities

Facility O&M costs include routine maintenance of the bridge and all roadways within the project area as well as incident response for the project area. After gross revenues have paid all of the above deductions, including toll collection and facility O&M costs, the remaining net revenue is available for debt repayment.

The net revenue stream represents the cash flow that can be used directly for financing to repay bonds, or to directly pay for construction if pre-completion tolling is implemented. In addition to bond repayment, there will be a periodic need for renovation and rehabilitation activities for the project. These costs are assumed to be funded out of excess net revenues after annual debt repayments that result from the debt service coverage requirement placed on net revenues. A reserve account may be created that would be funded from these excess net toll revenues.

Financial Capacity Analysis

Tolling the I-5 bridge does not have the financial capacity to yield a funding contribution equal to the $2.38 billion cost in year of expenditure dollars for the highway portion of the project. Rather, a number of funding sources will likely be needed to build the project, including federal and state (Oregon and Washington) funding sources combined with funding from tolls.

For the purposes of this analysis, the bridge is assumed to be substantially completed by the end of fiscal year 2018, with revenue operations beginning on July 1, 2018 (state fiscal year 2019). Toll bond proceeds are assumed to be received in the middle and latter years of construction to maximize their funding contribution, and other funding

sources are assumed to cover construction costs in the initial years. Other project improvements to the highway and interchanges would continue into 2019, and the last bonds needed to fund these completion activities are assumed to be issued after tolling has commenced.

The CRC toll bonds were assumed to be backed by other revenue sources, and the full faith and credit of one or both states to provide the bonds with a credit rating and interest costs equivalent to that of general obligation debt of either state.

The use of toll bonds will increase the total costs paid during and after construction due to the added interest and issuance costs. However, these financing costs are treated separately from the project capital cost during construction. Increased use of toll bonds will increase the total costs paid due to added interest and issuance. The construction cost does not increase as a result; rather it adds a financing cost both during and after construction.

State-backed bonds are limited by Washington State Constitution to a 30 year repayment period. Accordingly, debt with the maturity of up to 30 years was assumed to maximize the total proceeds that can be generated by the forecasted net toll revenue stream.

A minimum debt service coverage factor of 1.25 was assumed for state-backed debt whereby net toll revenues were maintained at 1.25 times the projected annual debt service. The intent of this is to provide some protection against draws on the revenue sources pledged to backup toll revenues, such as motor vehicle fuel tax revenues, in the event of lower-than-projected toll revenue performance.

Interest rates on state-backed bonds are assumed to be 6.00 percent for current interest bonds ("CIBs") and 6.50 percent for capital appreciation bonds ("CABs"), based on the current double-A credit ratings in both states. Issuance costs are assumed to be 0.2 percent of the total par amount of bonds issues for state-backed bonds. Additional costs would include 0.5 percent of the par amount for current interest bonds for underwriting (underwriter's discount) and 1.0 percent of the par amount for capital appreciation bonds.

Interest is assumed to be capitalized through the year before the project completion date, or up to two years after full toll collection commences. Earnings on invested funds (construction fund and capitalized interest fund) are assumed to be at an annual rate of 2.50 percent. While this might be higher than current yields on short-term investments, it is substantially less than the assumed future interest cost of borrowing, (between 6.0 and 6.5 percent for state-backed bonds), and thus represents approximately the same level of negative arbitrage currently being experienced by issuers of tax-exempt bonds.

Funding Range

Based on the analysis done for this report, several preliminary conclusions can be reached:

1. Tolling can contribute a significant amount of funding to the project.

2. Tolling cannot be the only funding source for the project. Several funding sources, including state (Oregon and Washington) and federal, will be needed to supplement tolling funds.

3. Toll rates on I-5 can only be raised so high before total revenue and funding decrease. The limit is approximately two times the toll rate studied in the project's Draft EIS.

4. State backing of the debt is necessary to maximize the toll funding contribution. By essentially making the debt equivalent to general obligation bonds, state-backing affords the debt a high credit rating and relatively low interest rates. Non-recourse debt that is backed solely by toll revenues is anticipated to carry a lower or minimum investment-grade credit rating, which would entail higher interest rates, increased capitalized interest costs, and higher debt service coverage requirements.

Further study is warranted as the project design and cost of the project are refined, or as more information is available about other funding sources.

Columbia River CROSSING

Traffic Effects for Tolling Scenarios

Scenarios	Average Daily Traffic Volumes			Diversion to I-205 Compared to No Toll Scenario	Average SB I-5 Duration of Congestion	Average NB I-5 Duration of Congestion	Total Average I-5 Duration of Congestion
	I-5 Bridge Total	I-205 Bridge Total	Total River Crossings				
Existing Conditions (2005)	**134,000**	**146,400**	**280,400**	**-**	**2.0 hrs**	**4.0 hrs**	**6.0 hrs**
No Build	**184,000**	**210,000**	**394,000**	**-**	**7.25 hrs**	**7.75 hrs**	**15.0 hrs**
No Toll Scenario	**220,000**	**203,000**	**423,000**	**-**	**5.5 hrs**	**1.5 hrs**	**7.0 hrs**
Scenario 1A	**181,000**	**216,000**	**397,000**	**13,000**	**3.5 hrs**	**1.0 hrs**	**4.5 hrs**
Scenario 1B	**190,000**	**211,000**	**401,000**	**8,000**	**4.0 hrs**	**1.0 hrs**	**5.0 hrs**
Scenario 1C	**175,000**	**215,000**	**390,000**	**12,000**	**3.75 hrs**	**1.0 hrs**	**4.75 hrs**
Scenario 1D	**173,000**	**218,000**	**391,000**	**15,000**	**3.25 hrs**	**1.0 hrs**	**4.25 hrs**
Scenario 1E	**154,000**	**224,000**	**378,000**	**21,000**	**2.75 hrs**	**0.75 hrs**	**3.5 hrs**
Scenario 1F	**133,000**	**231,000**	**364,000**	**28,000**	**2.0 hrs**	**0.5 hrs**	**2.5 hrs**
Scenario 1G	**89,000**	**240,000**	**329,000**	**37,000**	**1.0 hrs**	**0.0 hrs**	**1.0 hrs**
Scenario 2A	**198,000**	**177,000**	**375,000**	**-26,000**	**4.25 hrs**	**1.25 hrs**	**5.5 hrs**
Scenario 2B	**201,000**	**181,000**	**382,000**	**-22,000**	**4.5 hrs**	**1.25 hrs**	**5.75 hrs**
Scenario 2C	**192,000**	**185,000**	**377,000**	**-18,000**	**4.0 hrs**	**1.0 hrs**	**5.0 hrs**

SB = southbound | NB = northbound

Notes

1. Year 2030 results shown, except for Existing Conditions (2005).
2. Average duration of daily congestion levels shown.
3. All results are approximate.
4. The no toll scenario is included for comparison purposes. Tolling is needed to fund the project.

Columbia River CROSSING

Toll Rate Schedules for I-5 Toll Scenarios

		No Tolls	Tolling I-5						
			Scenario 1A Draft EIS Variable Toll: Toll structure from the Draft EIS **Raises ~$1.1 - $1.4 billion**	**Scenario 1B** Lower than Draft EIS Toll: Peak period tolls are lower than DEIS **Raises ~0$.9 - $1.2 billion**	**Scenario 1C** Fixed Rate Toll: Same toll all day; rate based on weighted average of Draft EIS variable toll **Raises ~$1.1 - $1.4 billion**	**Scenario 1D** Additional Price Points: Variable toll schedule; rates change more throughout day **Raises ~$1.2 - $1.5 billion**	**Scenario 1E** 1.5X Draft EIS Variable Toll: All tolls are 1.5 times the Draft EIS rates **Raises ~$1.4 - $1.8 billion**	**Scenario 1F** 2x Draft EIS Variable Toll: All tolls are twice the Draft EIS rates **Raises ~$1.6 - $2.1 billion**	**Scenario 1G** 3x Draft EIS Variable Toll: All tolls are triple the Draft EIS rates **Raises ~$1.2 - 2.0 billion**
		Studied for comparison purposes **Raises ~$0**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**	**One-Way Tolls**
	Time Period		**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**	**Collected Both Directions**
2006 Dollars	Midnight to 5 AM		$1.00	$1.00		$1.00	$1.50	$2.00	$3.00
	5 AM to 6 AM		$1.50	$1.25		$1.50	$2.25	$3.00	$4.50
	6 AM to 7 AM					$2.00			
	7 AM to 9 AM		$2.00	$1.50		$2.50	$3.00	$4.00	$6.00
	9 AM to 10 AM					$2.00			
	10 AM to 3 PM		$1.50	$1.25	$1.65	$1.75	$2.25	$3.00	$4.50
	3 PM to 4 PM					$2.00			
	4 PM to 6 PM		$2.00	$1.50		$2.50	$3.00	$4.00	$6.00
	6 PM to 7 PM					$2.00			
	7 PM to 8 PM		$1.50	$1.25		$1.50	$2.25	$3.00	$4.50
	8 PM to midnight		$1.00	$1.00		$1.00	$1.50	$2.00	$3.00
2018 Dollars	Midnight to 5 AM		$1.34	$1.34		$1.34	$2.02	$2.69	$4.04
	5 AM to 6 AM		$2.02	$1.68		$2.02	$3.02	$4.04	$6.05
	6 AM to 7 AM					$2.69			
	7 AM to 9 AM		$2.69	$2.02		$3.36	$4.04	$5.38	$8.07
	9 AM to 10 AM					$2.69			
	10 AM to 3 PM		$2.02	$1.68	$2.21	$3.36	$3.07	$4.04	$6.05
	3 PM to 4 PM					$2.69			
	4 PM to 6 PM		$2.69	$2.02		$3.36	$4.04	$5.38	$8.07
	6 PM to 7 PM					$2.69			
	7 PM to 8 PM		$2.02	$1.68		$2.02	$3.02	$4.04	$6.05
	8 PM to midnight		$1.34	$1.34		$1.34	$2.02	$2.69	$4.04

Notes

1. These are toll rate schedules analyzed for planning and testing purposes. Actual toll rates will depend on a final finance plan and will be determined by the Oregon and Washington state transportation commissions to meet legislative funding direction.

2. Toll funding contribution ranges assume 30-year state-backed debt.

3. No Toll scenario included for comparison purposes. Tolling is needed to fund the project.

4. Assumes medium trucks pay 2x and large trucks pay 4x the auto toll rate using a transponder; administrative fee would be added to process payments not involving a transponder.

5. Tolls are assumed to escalate at 2.5% per year to match the expected rate of inflation.

6. Tolling during construction could be added to any scenario. Rates assumed to match Scenario 1A, except there would be no toll from midnight to 5am. Tolling early could provide about $330 million in additional funds for construction.

Columbia River CROSSING

Toll Rate Schedules for I-5 & I-205 Toll Scenarios

		No Tolls	Tolling I-5 and I-205						
		Studied for comparison purposes **Raises ~$0**	**Scenario 2A** Draft EIS Variable Toll on Both Bridges: Draft EIS tolls on both bridges **Raises ~$2.8 - $3.4 billion**		**Scenario 2B** Lower than Draft EIS Toll on Both Bridges: Peak period toll is lower than Draft EIS rate **Raises ~$2.1 - $2.5 billion**		**Scenario 2C** Lower Toll on I-205: Peak period toll is lower on I-205 than I-5; variable rate toll on both bridges **Raises ~$2.4 - $3.0 billion**		
			Roundtrip Tolls		**Roundtrip Tolls**		**Roundtrip Tolls**		
	Time Period		**Northbound**	**Southbound**	**Northbound**	**Southbound**	**Northbound**	**Southbound I-5**	**Southbound I-205**
2006 Dollars	Midnight to 5 AM		No Toll Collected	$2.00	No Toll Collected	$2.00	No Toll Collected	$2.00	$2.00
	5 AM to 6 AM			$3.00		$2.50		$3.00	$2.50
	6 AM to 10 AM			$4.00		$3.00		$4.00	$3.00
	10 AM to 3 PM			$3.00		$2.50		$3.00	$2.50
	3 PM to 7 PM			$4.00		$3.00		$4.00	$3.00
	7 PM to 8 PM			$3.00		$2.50		$3.00	$2.50
	8 PM to midnight			$2.00		$2.00		$2.00	$2.00
2018 Dollars	Midnight to 5 AM		No Toll Collected	$2.69	No Toll Collected	$2.69	No Toll Collected	$2.69	$2.69
	5 AM to 6 AM			$4.04		$3.36		$4.04	$3.36
	6 AM to 10 AM			$5.38		$4.04		$5.38	$4.04
	10 AM to 3 PM			$4.04		$3.36		$4.04	$3.36
	3 PM to 7 PM			$5.38		$4.04		$5.38	$4.04
	7 PM to 8 PM			$4.04		$3.36		$4.04	$3.36
	8 PM to midnight			$2.69		$2.69		$2.69	$2.69

Notes

1. These are toll rate schedules analyzed for planning and testing purposes. Actual toll rates will depend on a final finance plan and will be determined by the Oregon and Washington state transportation commissions to meet legislative funding direction.

2. Toll funding contribution ranges assume 30-year state-backed debt.

3. No Toll scenario included for comparison purposes. Tolling is needed to fund the project.

4. Assumes medium trucks pay 2x and large trucks pay 4x the auto toll rate using a transponder; administrative fee would be added to process payments not involving a transponder.

5. Tolls are assumed to escalate at 2.5% per year to match the expected rate of inflation.

6. Tolling during construction could be added to any scenario. Rates assumed to match Scenario 1A, except there would be no toll from midnight to 5am. Tolling early could provide about $330 million in additional funds for construction.