

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



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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.

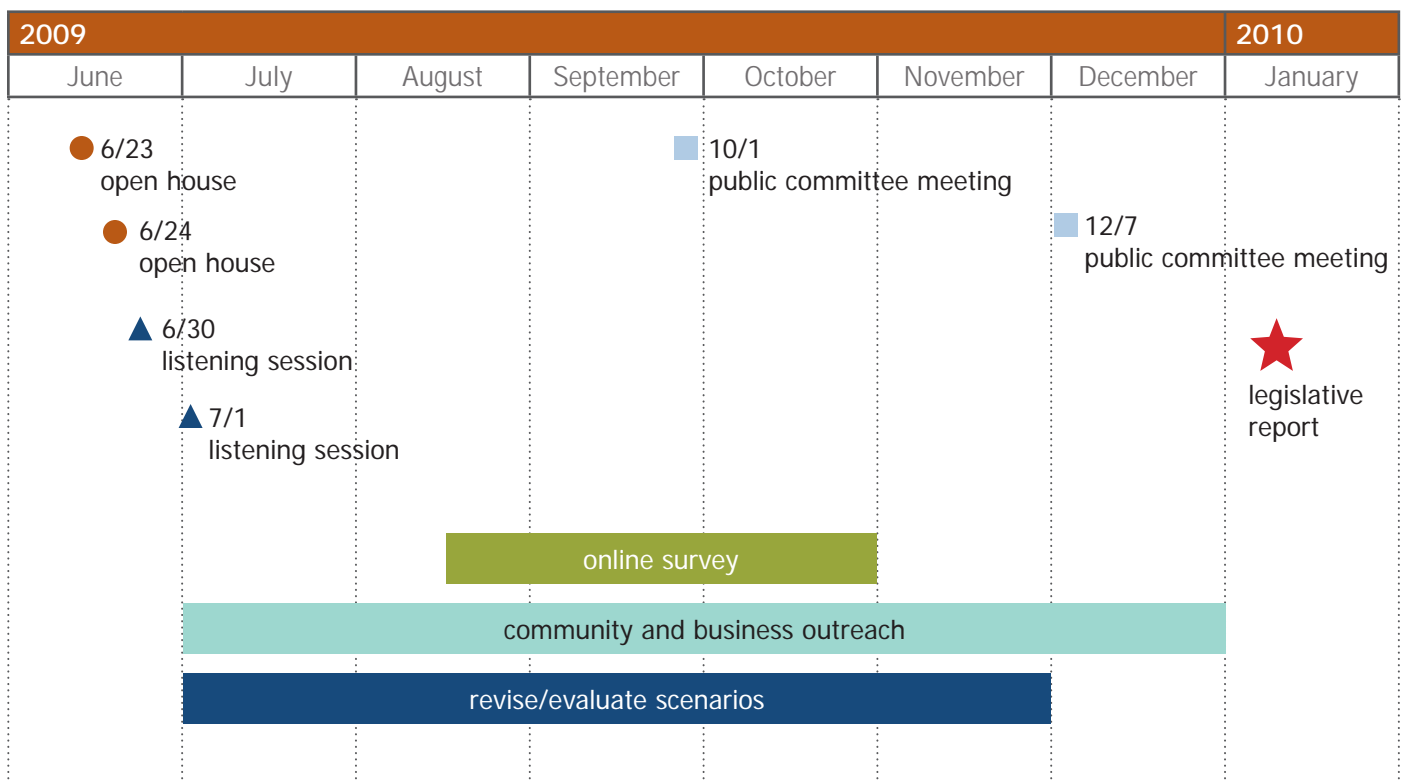
Tolling terms

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.

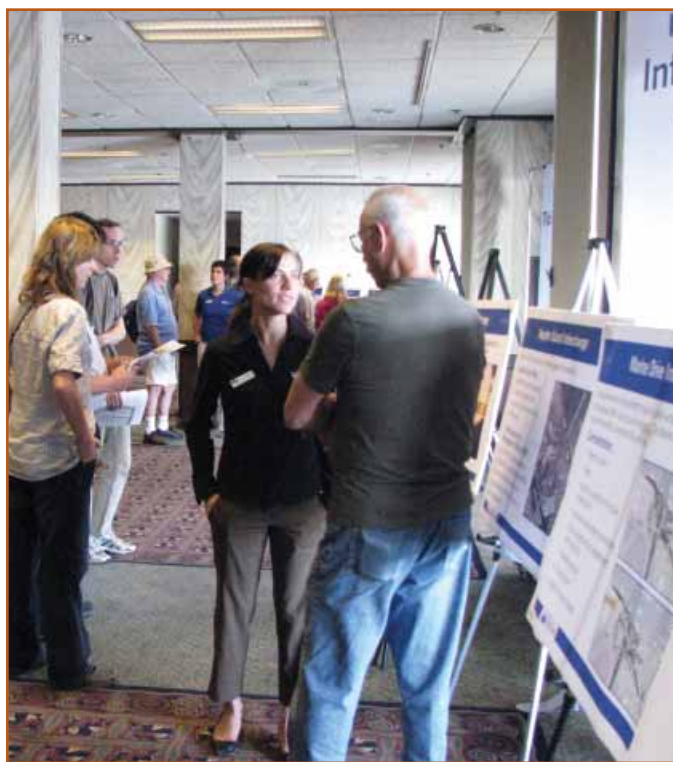
There were two rounds of engagement and evaluation. Six tolling scenarios were presented at the beginning of the Tolling Study in late June. Based upon the input received, six new scenarios were developed and analyzed. The analysis for the first set of scenarios was also updated during this time. Results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



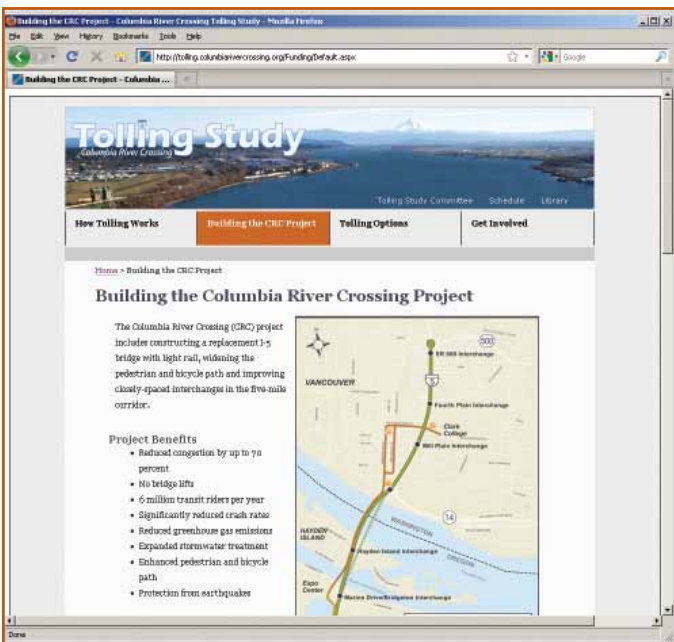
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- ### Community groups engaged in the Tolling Study
- Arnada Neighborhood Association
 - Bike Me! Vancouver
 - Bridgeton Neighborhood Association
 - Clark County Bicycle Advisory Committee
 - Community Choices
 - CRC Pedestrian and Bicycle Advisory 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
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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



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

thought project costs should be reduced to the point that tolling would not be needed.

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.

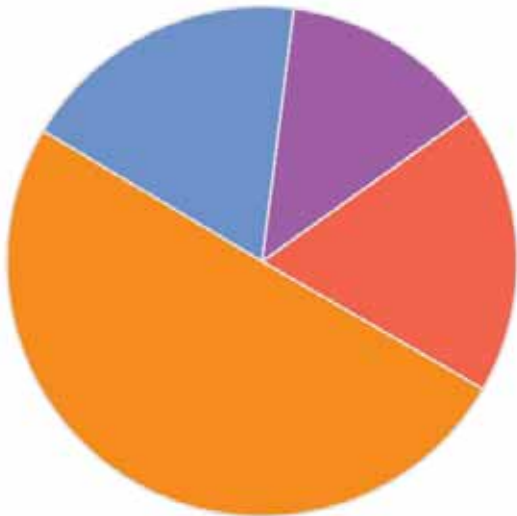
Online Survey Highlights

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.

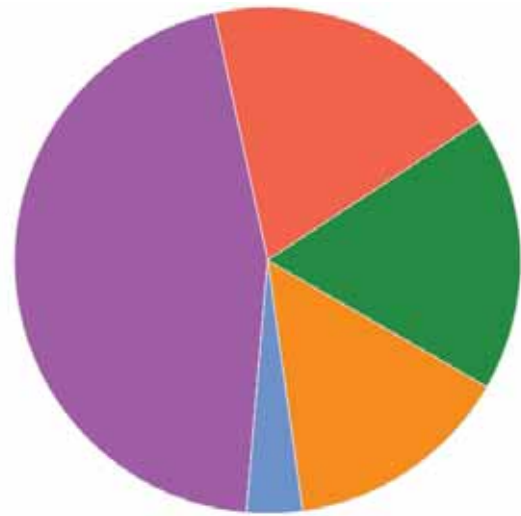
Responses to these questions are described in the previous section and the following pie charts. Responses to all survey questions can be found online and attached to this report on CD Volume 2.

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)



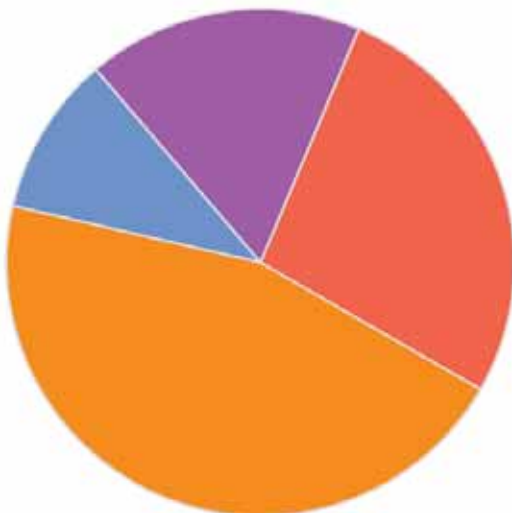
- Replacing the bridge and improving the highway
- Increasing transit use
- Providing incentives to carpool or vanpool
- Other (please specify)

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.

Time of day	Range of Tolls Analyzed by Time Period (toll amounts are for a one-way trip)	
	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 <i>DEIS Toll Rate</i>	Each Way	Variable Toll Schedule	Mid 2018 (FY 2019)
	Scenario 1B <i>Lower than DEIS Toll Rate</i>			
	Scenario 1C <i>Flat Toll Rate</i>		Fixed Toll Schedule	
	Scenario 1D <i>Additional Price Points</i>		Variable Toll Schedule	
	Scenario 1E <i>1.5x DEIS Toll Rate</i>			
	Scenario 1F <i>2x DEIS Toll Rate</i>			
	Scenario 1G <i>3x DEIS Toll Rate</i>			
	Pre-Completion Tolling¹ <i>DEIS Toll Rate</i>	Each Way	Variable Toll Schedule	
Tolling I-5 and I-205	Scenario 2A <i>DEIS Toll Rate</i>	Southbound Only ²	Variable Toll Schedule	Mid 2018 (FY 2019)
	Scenario 2B <i>Lower than DEIS Toll Rate</i>			
	Scenario 2C <i>Lower I-205 Toll</i>			

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.

Funding Contribution from Tolls – All Toll Scenarios

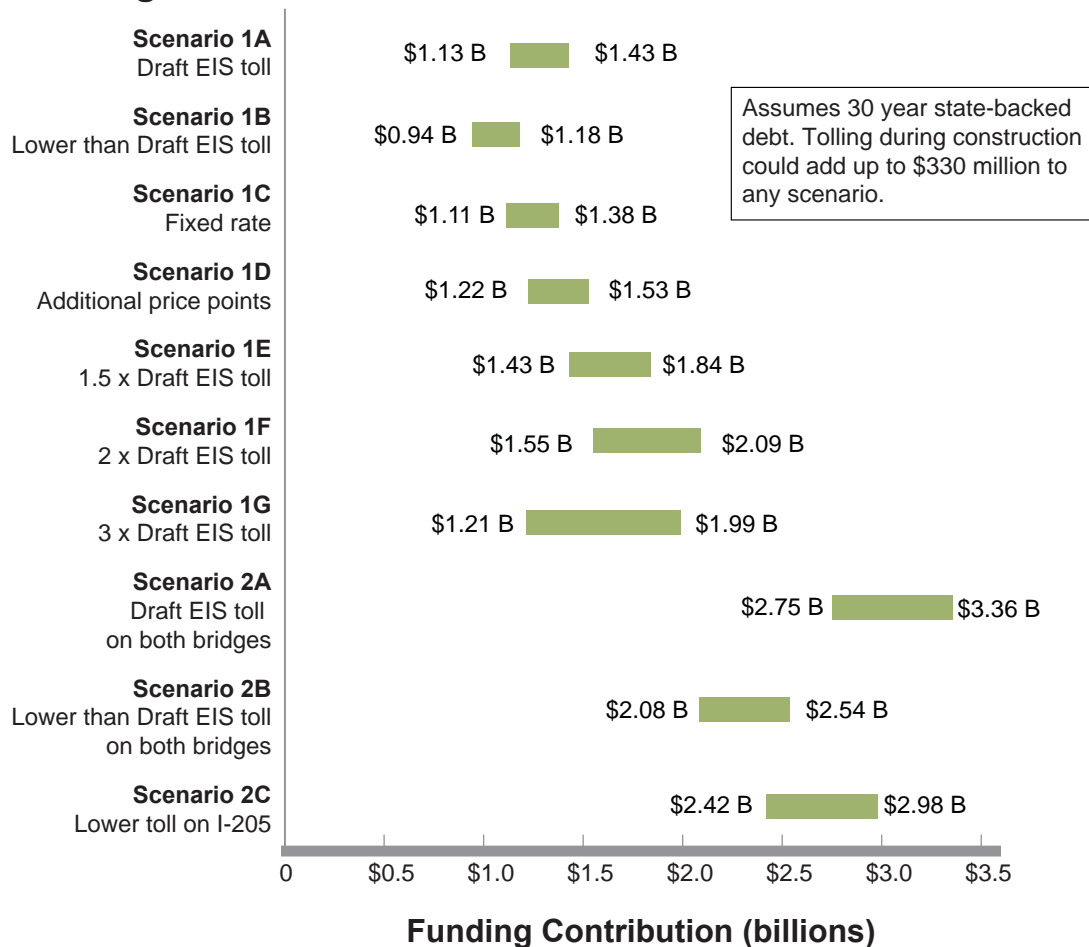


Exhibit 2. The funding contribution from tolls is affected by the rate schedule and traffic diversion. Scenario 1G's higher toll raises less funds from tolls than Scenario 1F because of increased diversion. Scenarios that include tolls on both bridges have a higher potential for funding from tolls.

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

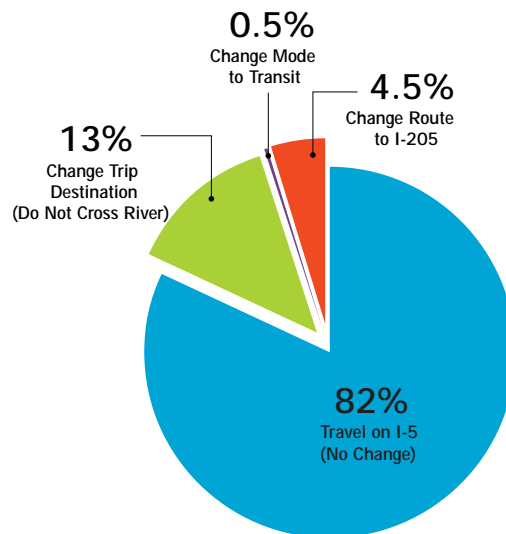
Toll diversion rates are affected by many factors, including how the toll affects the overall monetary and time cost of travel, trip purpose and frequency, availability and quality of alternate travel routes or modes, and the socio-economic characteristics of the travelers. If no reasonable alternate 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.

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



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.

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).

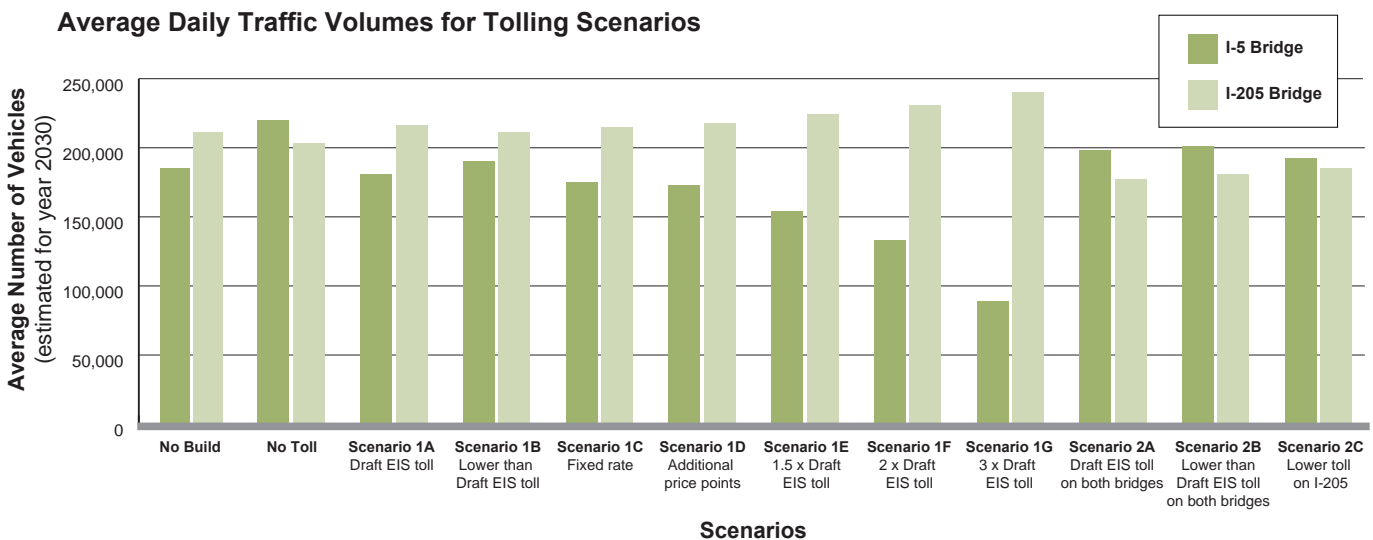


Exhibit 4. The average number of daily vehicles crossing I-5 and I-205 would vary with different toll rates.

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.

Hours of Congestion for I-5 Only Tolling Scenarios

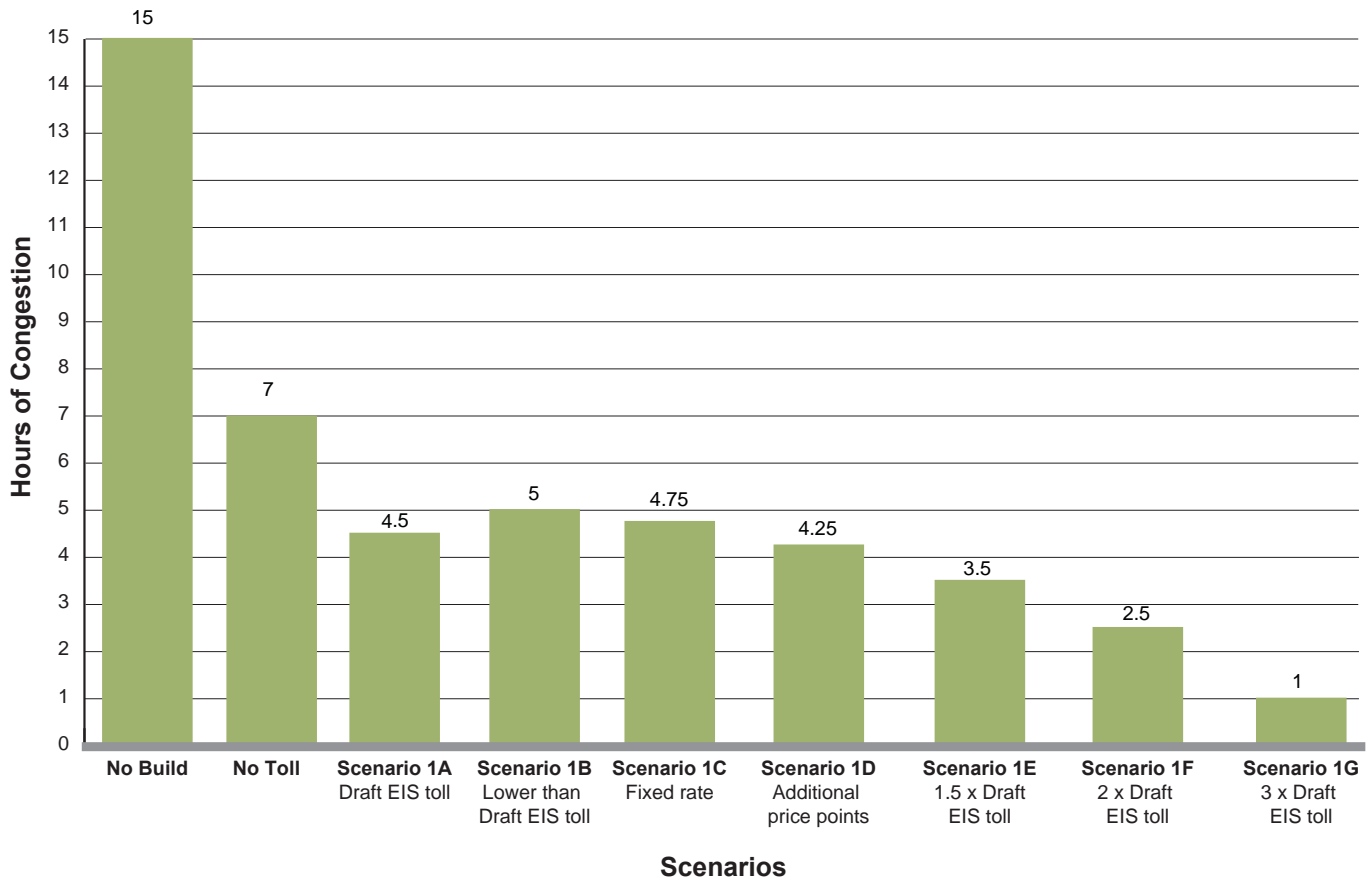


Exhibit 5. Without the project, there would be 15 hours of congestion a day in 2030. With tolls on I-5 and project improvements, congestion would be reduced.



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

Hours of Congestion for I-5 and I-205 Tolling Scenarios

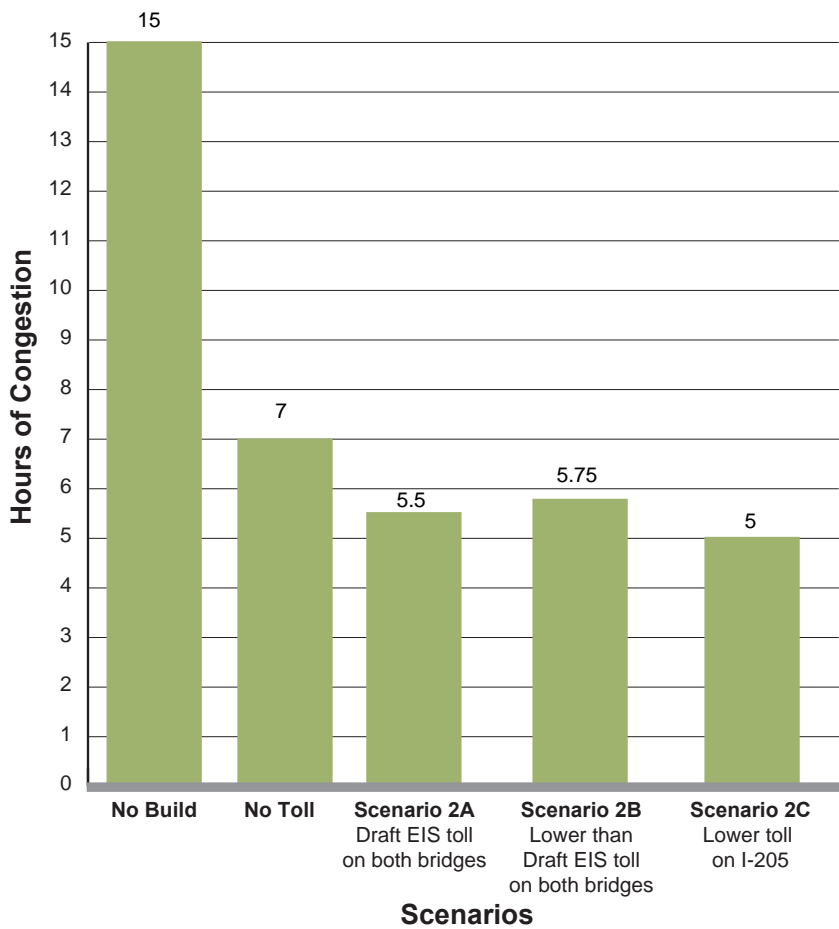


Exhibit 6. With tolls on both I-5 and I-205, the hours of congestion in 2030 on I-5 would be reduced, compared to the No Build and No Toll project scenarios.

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

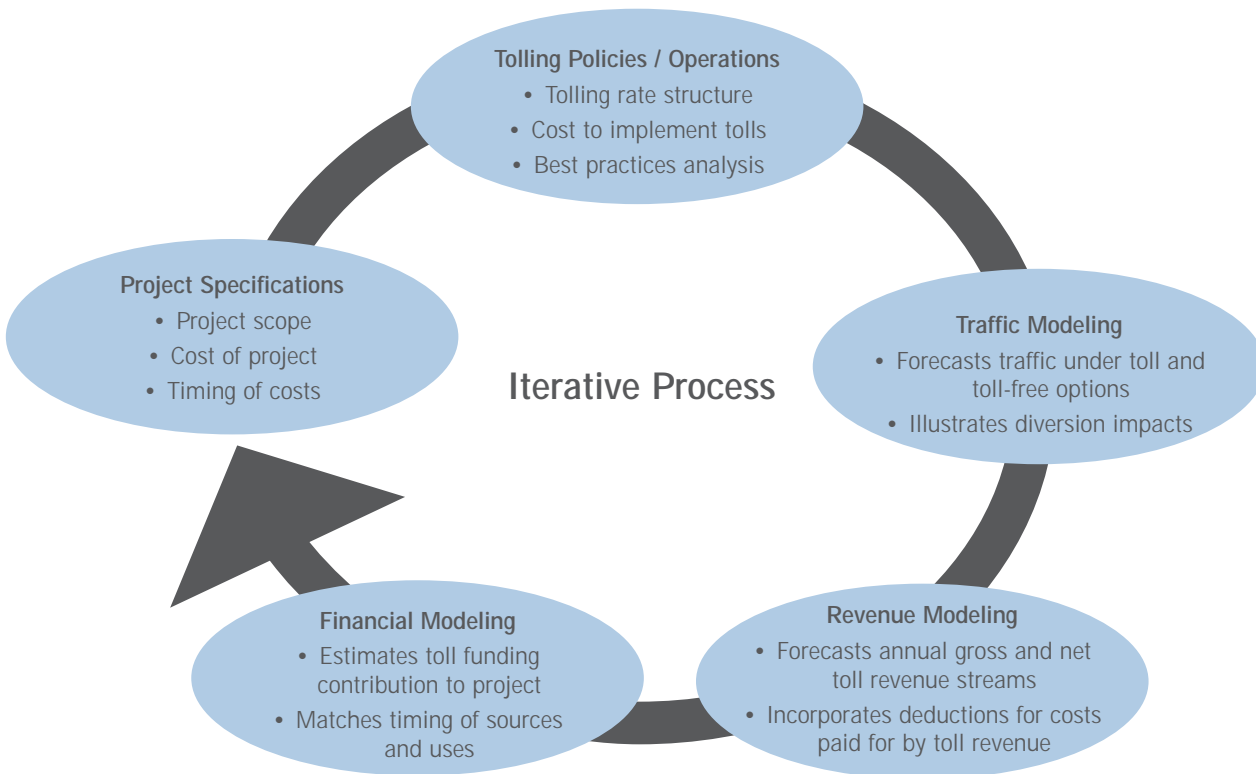


Exhibit 7. Toll setting is an iterative process involving project decisions, traffic, revenue, and financial modeling and multiple decisions.

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 in 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 Tolling Study Committee Report to the Legislatures

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