

## CHAPTER 4

# Financial Analysis

*This chapter describes the capital and operating costs, revenue options, and financial plan scenarios to implement and operate the highway and transit elements of the CRC alternatives.*

## 4.1 Introduction

This DEIS provides a preliminary assessment of project costs, institutional issues, potential revenue options, and financial plan scenarios for each of the CRC alternatives examined in this DEIS. Both capital and operating costs and revenues are addressed.

## 4.2 CRC Capital Costs

### 4.2.1 Background

The capital cost estimates shown in this chapter cover all capital costs anticipated after the selection of the locally preferred alternative, and include engineering, project administration, right-of-way acquisition, system procurement and installation, vehicle procurement, construction, and start-up costs. The capital costs are based on a Cost Risk Assessment<sup>1</sup> that accounts for a wide range of risks and uncertainties that may cause project costs to increase.<sup>2</sup> The Cost Risk Assessment adds contingency to the capital cost estimates to account for these uncertainties and produces a range of costs reflecting the probability, or confidence, that the actual cost of the project will be less than the estimated cost. This DEIS provides a range of capital costs for each project alternative. It uses the 60 percent confidence cost estimate (i.e., 60 percent certain that the actual cost will be less than cost estimate

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<sup>1</sup> CRC, Cost Risk Assessment, 2007.

<sup>2</sup> Note that the Cost Risk Assessment included the cost of preparing this DEIS and selecting the locally preferred alternative; the financial analysis shown in this DEIS excludes these costs.

shown) as the Low estimate and the 90 percent confidence cost estimate as the High estimate.

For projects seeking New Starts funding, FTA requires the use of a capital cost estimating methodology based on Standard Cost Categories (SCC). Accordingly, the transit-related capital cost estimates resulting from the Cost Risk Assessment were translated into the Standard Cost Categories (SCC). The SCC cost estimate for the transit component of each alternative is shown below. All transit capital cost estimates submitted to FTA as part of the on-going New Starts review will be prepared in the SCC framework.<sup>3</sup>

Capital costs are shown in “year-of-expenditure” dollars, which show the aggregate cost of the alternative through the year in which construction is completed, in inflated dollars. To develop the year-of-expenditure cost estimates, a range of cost escalation rates were developed for each project component and applied in the Cost Risk Assessment. Over the project development and construction period, the median rate of construction cost escalation ranged from 2.5 to 5.2 percent per year, with the greater escalation expected in the early years of the project.<sup>4</sup> The median escalation rate for engineering cost was 2.8 percent per year and for right-of-way cost was 6.8 percent per year; both of which remained constant throughout the construction period.

While the CRC Project is an integrated multi-modal project, some funding sources for meeting these capital costs have legal restrictions as to their use (for example, fuel tax revenues in Oregon and Washington may only be used for highway-related improvements). Thus, it is informative to divide the capital costs of the CRC alternatives into their highway and transit components.

Many capital costs are directly attributable to a transit or highway component; for example the costs of highway interchange improvements where there is no transit alignment or the cost of transit alignments in downtown Vancouver where there is no highway improvement. However some costs overlap the highway and transit components and must be allocated between these components. These cost allocation issues will ultimately be addressed in funding agreements between the federal, state, and local agencies. For now these issues are addressed by preliminary cost allocation assumptions used in this DEIS. The major areas of cost overlap and the preliminary cost allocation assumptions used in this DEIS are summarized below:

- *Columbia River Crossing:* For all of the river crossing options, whether the replacement bridge, supplemental bridge, or the Stacked Transit/Highway Bridge, the bridge used by the transit alternative shares a foundation with the bridges used for highways and, in some cases, the superstructure used for the highway bridge. To divide the bridge cost into highway and transit components, the foundation cost was allocated to transit based on transit’s proportionate share of the

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<sup>3</sup> A risk assessment, following FTA’s Risk Assessment process, will be performed as part of the New Starts analysis after the selection of an LPA.

<sup>4</sup> This is based on the cost risk assessment conducted in 2007 (CRC Cost Risk Assessment, 2007). Inflation rates could change in later cost risk assessments.

“live load” on the foundation, and the superstructure cost of the bridge was allocated to transit based on transit’s proportionate share of the deck area on the bridge. This preliminary cost allocation methodology will be examined in more detail during the FEIS stage; FTA and FHWA must concur with the final methodology.

- *Bicycle/Pedestrian Improvements*: Each of the river crossing options incorporates bicycle and pedestrian improvements that could be allocable to either the highway or transit components, or some combination of the two. The cost estimates shown in this DEIS assume that the capital cost of these improvements are fully allocated to the highway component.<sup>5</sup>
- *Right-of-Way*: Because the right-of-way costs occur on either side of the river crossing where the transit and highway improvements are separated, there is no material overlap in these right-of-way costs. Thus, the highway costs include the cost of acquiring the right-of-way used for the highway improvements, and the transit costs include right-of-way used for the transit improvements.
- *Engineering and Project Management/Administration*: These costs were allocated between highway and transit components according to the engineering and administration costs of their distinct facilities and their proportionate share of the engineering and administration costs of shared facilities.

Based on these assumptions the:

- *Highway capital costs* shown in this DEIS include the costs of designing, acquiring right-of-way for, and constructing the highway sections of the river crossing, mainline I-5 improvements, highway interchange improvements, and the bicycle and pedestrian improvements incorporated in the CRC alternatives.
- *Transit capital costs* shown in this DEIS include the costs of designing, acquiring right-of-way for, and constructing the transit guideway, stations and park-and-ride facilities described in Section 2.3.3, maintenance facilities described in Section 2.3.4; procuring and installing systems and equipment; acquiring the vehicles described in Exhibit 2.3-23 ; and start-up costs.

Value engineering is proceeding on these alternatives. Preliminary options have been identified, most notably the stacked transit/highway bridge design described in Chapter 2, which could result in lowering the estimated capital costs of the alternatives in future project development stages. The feasibility of the stacked transit/highway bridge will be analyzed during the FEIS stage. A finance plan will be developed during the FEIS stage and will incorporate both the FHWA and FTA methodologies.

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<sup>5</sup> The current estimates allocate these costs to the highway component. This could be revised during the FEIS if it is determined that all or a portion of the bicycle and pedestrian improvements should be funded as part of the transit component.

### 4.2.2 Capital Costs of CRC Alternatives with Kiggins Bowl or Lincoln Terminus

Exhibit 4.2-1 shows the capital cost estimates in year-of-expenditure dollars for the CRC alternatives with full-length transit terminus options.

Exhibit 4.2-1  
Project Capital Costs by Alternative and Full-Length Transit Terminus

Terminus	Alternative 2 <sup>c</sup>		Alternative 3 <sup>c</sup>		Alternative 4		Alternative 5	
	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln
<b>Low Cost Estimate<sup>a</sup></b>								
Highway	\$2,846	\$2,866	\$2,857	\$2,869	\$2,658	\$2,670	\$2,665	\$2,675
Transit	\$863	\$669	\$1,045	\$850	\$939	\$744	\$1,102	\$906
<b>Total</b>	<b>\$3,709</b>	<b>\$3,535</b>	<b>\$3,902</b>	<b>\$3,719</b>	<b>\$3,597</b>	<b>\$3,414</b>	<b>\$3,767</b>	<b>\$3,581</b>
<b>High Cost Estimate<sup>b</sup></b>								
Highway	\$2,997	\$3,011	\$2,983	\$3,042	\$2,799	\$2,809	\$2,802	\$2,813
Transit	\$918	\$725	\$1,108	\$881	\$981	\$778	\$1,148	\$946
<b>Total</b>	<b>\$3,915</b>	<b>\$3,736</b>	<b>\$4,091</b>	<b>\$3,923</b>	<b>\$3,780</b>	<b>\$3,587</b>	<b>\$3,950</b>	<b>\$3,758</b>

Source: CRC, Cost Risk Assessment, 2007.

<sup>a</sup> Low cost assumes the 60 % confidence estimate; which is traditionally regarded as the most likely estimate.

<sup>b</sup> High cost assumes the 90% confidence estimate.

<sup>c</sup> These capital costs do not reflect the stacked transit/highway bridge, which will be analyzed during the FEIS. Cost estimates may be lower than those shown above if this option is feasible.

Note: Costs are in millions of year-of-expenditure dollars.

The total capital cost of the CRC alternatives with a full-length transit terminus ranges between \$3.414 billion and \$4.091 billion in year-of-expenditure dollars. The High and Low Cost Estimates for the CRC alternatives with a replacement crossing (Alternatives 2 and 3) cost \$112 to \$165 million in year-of-expenditure dollars more than alternatives with a supplemental crossing (Alternatives 4 and 5).

As required by FTA, Exhibit 4.2-2 shows the capital cost estimates for the transit component of the full length terminus options in FTA’s Standard Cost Categories (SCC).

Exhibit 4.2-2

**Transit Capital Costs by FTA Standard Cost Category: Full Length Transit Terminus<sup>a</sup>**

Terminus	Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln
<b>FTA Standard Cost Category<sup>b</sup></b>								
Guideway and Track Elements	\$299	\$242	\$355	\$295	\$214	\$171	\$268	\$222
Stations, Stops, Terminals and Intermodal	\$124	\$100	\$117	\$97	\$42	\$34	\$33	\$27
Support Facilities, Yards, Shops, Admin Buildings	\$25	\$20	\$31	\$26	\$46	\$37	\$63	\$52
Sitework and Special Conditions	\$174	\$141	\$188	\$156	\$176	\$140	\$172	\$142
Systems	\$34	\$27	\$67	\$55	\$39	\$31	\$66	\$54
Right-of-Way and Land Improvements	\$45	\$36	\$45	\$37	\$109	\$87	\$107	\$89
Vehicles	\$51	\$41	\$105	\$88	\$188	\$150	\$243	\$201
Professional Services	\$167	\$127	\$200	\$127	\$169	\$129	\$197	\$159
<b>Total Transit Cost</b>	<b>\$918</b>	<b>\$725</b>	<b>\$1,108</b>	<b>\$881</b>	<b>\$981</b>	<b>\$778</b>	<b>\$1,148</b>	<b>\$946</b>

<sup>a</sup> Table shows "High" cost estimates, which assumes the 90% confidence estimate from Cost Risk Assessment; an FTA risk assessment will be performed for the LPA.

<sup>b</sup> Standard Cost Categories are established by FTA.

Note: Costs are in millions of year-of-expenditure dollars.

### 4.2.3 Capital Costs of CRC Alternatives with Clark College or Mill Plain Minimum Operable Segments (MOS)

Exhibit 4.2-3 below shows the capital cost of the alternatives paired with the Mill Plain District MOS and the Clark College MOS options.

Exhibit 4.2-3

#### Project Capital Costs by Alternative and Minimum Operable Segment

Terminus	Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	Mill Plain	Clark College	Mill Plain	Clark College	Mill Plain	Clark College	Mill Plain	Clark College
<b>Low Cost Estimate<sup>a</sup></b>								
Highway	\$2,741	\$2,763	\$2,772	\$2,773	\$2,560	\$2,575	\$2,586	\$2,586
Transit	\$519	\$555	\$596	\$654	\$565	\$617	\$629	\$697
<b>Total</b>	<b>\$3,260</b>	<b>\$3,318</b>	<b>\$3,368</b>	<b>\$3,427</b>	<b>\$3,125</b>	<b>\$3,192</b>	<b>\$3,214</b>	<b>\$3,283</b>
<b>High Cost Estimate<sup>b</sup></b>								
Highway	\$2,911	\$2,905	\$2,920	\$2,920	\$2,719	\$2,711	\$2,743	\$2,699
Transit	\$559	\$594	\$628	\$689	\$597	\$637	\$704	\$787
<b>Total</b>	<b>\$3,470</b>	<b>\$3,499</b>	<b>\$3,548</b>	<b>\$3,609</b>	<b>\$3,316</b>	<b>\$3,348</b>	<b>\$3,447</b>	<b>\$3,486</b>

Source: CRC, Cost Risk Assessment, 2007.

<sup>a</sup> Low cost assumes the 60% confidence estimate; which is traditionally regarded as the most likely estimate.

<sup>b</sup> High costs assume the 90% confidence estimate.

Note: Cost in millions of year-of-expenditure dollars.

The High and Low Cost Estimates for Alternative 2 is estimated to cost between \$217 and \$449 million less (in year-of-expenditure dollars) with the MOS options than with the full-length transit terminus options. The MOS options exhibit a reduced schedule risk due to their shorter length, therefore the risk-adjusted cost of the highway component of Alternative 2 would cost \$86 to \$106 million less with a MOS terminus option than with a full-length transit terminus option.

The High and Low Cost Estimates for Alternative 3 range between \$292 and \$543 million less with an MOS option than with a full-length alignment option. The lower cost of the highway component comprises \$85 to \$122 million of the overall cost reduction.

The High and Low Cost Estimates for Alternative 4 range between \$222 and \$472 million less (in year-of-expenditure dollars) with the MOS options than with the full-length transit terminus options. The highway component of Alternative 4 would cost \$80 to \$98 million less than with the full-length transit terminus options due to the lower risk associated with a MOS terminus option.

The High and Low Cost Estimates for Alternative 5 may cost between \$272 and \$553 million less with a MOS option than with a full-length terminus. The lower cost of the highway component comprises \$79 to \$159 million of this overall cost reduction.

Exhibit 4.2-4 shows the capital cost estimates for the transit component of the MOS options in FTA’s Standard Cost Categories (SCC).

Exhibit 4.2-4

**Transit Capital Costs by FTA Standard Cost Category: Minimum Operable Segment Terminus Options<sup>a</sup>**

Terminus	Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	Mill Plain	Clark College	Mill Plain	Clark College	Mill Plain	Clark College	Mill Plain	Clark College
<b>FTA Standard Cost Category<sup>b</sup></b>								
Guideway and Track Elements	\$187	\$194	\$220	\$232	\$156	\$163	\$180	\$195
Stations, Stops, Terminals and Intermodal	\$53	\$61	\$47	\$51	\$54	\$61	\$47	\$52
Support Facilities, Yards, Shops, Admin Buildings	\$24	\$24	\$30	\$29	\$24	\$27	\$30	\$30
Sitework and Special Conditions	\$113	\$112	\$119	\$124	\$114	\$113	\$109	\$107
Systems	\$18	\$24	\$37	\$44	\$30	\$35	\$37	\$45
Right-of-Way and Land Improvements	\$24	\$38	\$21	\$35	\$69	\$83	\$64	\$78
Vehicles	\$35	\$35	\$48	\$59	\$43	\$44	\$124	\$163
Professional Services	\$104	\$107	\$107	\$115	\$108	\$111	\$114	\$117
<b>Total Transit Cost</b>	<b>\$559</b>	<b>\$594</b>	<b>\$628</b>	<b>\$689</b>	<b>\$597</b>	<b>\$637</b>	<b>\$704</b>	<b>\$787</b>

<sup>a</sup> Table only shows "High" cost estimates, which assumes the 90% confidence estimate.

<sup>b</sup> Standard Cost Categories are established by FTA.

Note: Costs are in millions of year-of-expenditure dollars.

As shown in Exhibit 4.2-4, the light rail (LRT) alternatives (Alternatives 3 and 5) cost \$69 to \$150 million more than the equivalent bus rapid transit (BRT) alternatives (Alternative 2 and 4), primarily due to the track, electrification, and system costs associated with light rail. The Mill Plain MOS would cost \$35 to \$83 million less than the equivalent Clark College MOS, primarily due to its shorter length. The equivalent transit mode and terminus would cost \$38 to \$108 million less with the replacement crossing (Alternatives 2 and 3) than with the supplemental crossing (Alternatives 4 and 5), largely because the replacement crossing has more direct access into Vancouver.

#### 4.2.4 Capital Costs of River Crossing Options

Exhibit 4.2-5 shows the capital costs, in year-of-expenditure dollars, for the river crossing options. As shown, the Replacement Bridge options are estimated to cost \$1.323 to \$1.57 billion. The Supplement Bridge options are estimated to cost \$1.241 to \$1.436 billion in year-of-expenditure dollars, \$88 to \$166 million less than the Replacement Bridge options.

Preliminary estimates indicate that the Stacked transit/Highway Bridge may lower the costs of the Replacement Bridge by \$35 to \$40 million; the feasibility and cost of the Stacked Transit/Highway Bridge will be examined further in the FEIS.

Exhibit 4.2-5  
**Capital Costs of River Crossing Options**

Terminus	Alternative 2 <sup>a</sup>		Alternative 3 <sup>a</sup>		Alternative 4		Alternative 5	
	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln
<b>Low Cost Estimate</b>								
Highway	\$1,212	\$1,216	\$1,299	\$1,306	\$1,032	\$1,038	\$1,175	\$1,182
Transit	\$173	\$174	\$186	\$187	\$135	\$136	\$154	\$155
<b>Total</b>	<b>\$1,385</b>	<b>\$1,390</b>	<b>\$1,485</b>	<b>\$1,493</b>	<b>\$1,167</b>	<b>\$1,173</b>	<b>\$1,328</b>	<b>\$1,336</b>
<b>High Cost Estimate</b>								
Highway	\$1,308	\$1,302	\$1,397	\$1,392	\$1,126	\$1,122	\$1,269	\$1,270
Transit	\$187	\$186	\$200	\$199	\$147	\$147	\$166	\$166
<b>Total</b>	<b>\$1,495</b>	<b>\$1,488</b>	<b>\$1,597</b>	<b>\$1,591</b>	<b>\$1,273</b>	<b>\$1,269</b>	<b>\$1,435</b>	<b>\$1,436</b>

  

Terminus	Alternative 2 <sup>a</sup>		Alternative 3 <sup>a</sup>		Alternative 4		Alternative 5	
	Mill Plain	Clark College	Mill Plain	Clark College	Mill Plain	Clark College	Mill Plain	Clark College
<b>Low Cost Estimate</b>								
Highway	\$1,157	\$1,158	\$1,210	\$1,230	\$1,010	\$1,016	\$1,153	\$1,160
Transit	\$166	\$166	\$173	\$176	\$129	\$130	\$148	\$149
<b>Total</b>	<b>\$1,323</b>	<b>\$1,323</b>	<b>\$1,383</b>	<b>\$1,406</b>	<b>\$1,139</b>	<b>\$1,145</b>	<b>\$1,300</b>	<b>\$1,308</b>
<b>High Cost Estimate</b>								
Highway	\$1,240	\$1,247	\$1,288	\$1,311	\$1,104	\$1,100	\$1,247	\$1,248
Transit	\$177	\$179	\$184	\$188	\$141	\$141	\$160	\$160
<b>Total</b>	<b>\$1,417</b>	<b>\$1,426</b>	<b>\$1,472</b>	<b>\$1,499</b>	<b>\$1,245</b>	<b>\$1,241</b>	<b>\$1,407</b>	<b>\$1,408</b>

Source: CRC, Cost Risk Assessment, 2007.

<sup>a</sup> Based on preliminary cost estimates, the Stacked Transit/Highway Bridge may result in a \$35 to \$40 million savings compared to the numbers shown.

Note: Costs in millions of year-of-expenditure dollars.

### 4.3 Capital Revenue Options

This section describes the potential federal, state, and local revenues that may be used to fund CRC capital costs. Many of these revenue sources can be used for the highway, transit, and bicycle/pedestrian components of the CRC alternatives. However, several have legal requirements or restrictions that may limit their application to only the highway or transit component. Exhibit 4.3-1 outlines the federal, state, and local revenue options potentially applicable to the CRC alternatives, including any key restrictions on their use. The paragraphs below provide further detail on each of these revenue options.



Exhibit 4.3-1 (page 1 of 2)

**Summary of Revenue and Financing Options**

<b>Funding Source</b>	<b>Highway Eligible</b>	<b>Transit Eligible</b>	<b>Comments</b>
<b>Federal Formula Funds</b>			
National Highway System Funds (NHS)	X	X	Certain conditions required for transit uses.
Surface Transportation Program Funds (STP)	X	X	
National Highway Traffic Safety Administration (NHTSA) grants	X		
Congestion Mitigation Air Quality Funds (CMAQ)	X	X	Limited to projects with air quality benefits.
Interstate Maintenance Funds (IM)	X		
Urbanized Area Formula Grants Section 5307		X	
Fixed Guideway Modernization Funds Section 5309		X	
Jobs Access and Reverse Commute Funds Section 5316		X	Targeted for particular transit uses.
New Freedom Funds Section 5317		X	Targeted for particular transit uses.
<b>Federal Discretionary Funds</b>			
Reauthorization Bill Programs: High Priority Project/Projects of National Significance, etc.	X	X	Can be any type of improvement specified in reauthorization bill.
Interstate Maintenance Discretionary Funds IMD	X		
Transportation Community and System Preservation Program Funds TSCP	X	X	
Innovative Bridge Research and Deployment Program (IBRD)	X		
Highways for Life Program (HfL)	X		
Value Pricing Program	X		
Transportation Infrastructure Finance and Innovation Act (TIFIA) Program	X	X	Loan and credit enhancement program.
Grant Anticipation Revenue Vehicles (GARVEE Bonds)	X	X	Allows future federal grants to be bonded.
National Research Program Funds Section 5314		X	
Alternative Analysis Funds Section 5339		X	
Alternative Transportation in Parks and Public Lands Funds (Section 5320)		X	Other Federal Agencies, such as NPS, can administer funds.
Capital Investment Program Section 5309		X	
Discretionary Bus and Bus Facilities Bus and New Starts Funds			
<b>State Funds</b>			
Fuel Tax Revenue Oregon and Washington	X		Oregon and Washington state constitutions restrict use of these revenues.
Oregon Motor Carrier Taxes and Fees and DMV Fees	X		Restricted by Oregon Constitution.
Oregon Lottery Funds	X	X	
Washington Licensing Fees on Trucks, Buses and For-Hire Vehicles and for Passenger Vehicles	X		Uses described in statute.
Washington Sales and Use Tax	X	X	
Private Sector Funds	X	X	
Tolling	X		Oregon toll revenues limited to highway uses by Oregon Constitution. Use in Washington must be authorized by legislature, currently limited to highway purposes.
Toll Credits	X	X	Administrative method to address local match.

Exhibit 4.3-1 (page 2 of 2)

**Summary of Revenue and Financing Options**

Funding Source	Highway Eligible	Transit Eligible	Comments
<b>Regional Funds</b>			
Existing TriMet Revenues and Additional Revenues Available to TriMet		<b>X</b>	Can be used for certain road purposes, but not applicable to CRC alternatives.
Existing C-TRAN Revenues and Additional Revenues Available to C-TRAN		<b>X</b>	Existing sales and use tax can be increased with voter approval. Additional funding sources are provided by High Capacity Transit.
Transportation Benefit District (TBD) Revenues	<b>X</b>	<b>X</b>	There are several funding sources available to TBDs, most require voter approval.

### **4.3.1 Federal Revenue and Financing Options**

#### **Federal Formula Funds Administered by States, Transit Agencies, and MPOs**

ODOT, WSDOT, C-TRAN, TriMet, Metro and RTC receive transportation funding from a variety of federal formula grant programs. The eligible uses of these formula grants are established by federal statutes and rules. In an urban area, the MPOs have the authority to program these funds to specific eligible uses. This is accomplished through Metro's and RTC's Metropolitan Transportation Improvement Program (MTIP) processes and then incorporated into ODOT's and WSDOT's State Transportation Improvement Program (STIP). The CRC project, through the co-leads, is eligible to compete for federal formula funds. Grant Anticipation Revenue Vehicle (GARVEE) bonds, a debt financing instrument using federal formula funds, can also be employed in the finance plan.

While federal formula grant programs potentially could be used to fund the CRC alternatives, or certain components of the alternatives, many of these funds are currently programmed other uses. Additional analyses will be undertaken during preparation of the FEIS to determine the future availability of these funds for the CRC alternatives. Formula grant program funds that will be considered for incorporation in the FEIS funding plan include the following.

#### **National Highway System (NHS) funds**

NHS funds are apportioned to states by formula for such improvements as construction, reconstruction, resurfacing, restoration, and rehabilitation of segments of the national highway system; operational improvements; capital and operating costs for traffic monitoring and control facilities; corridor parking facilities; carpool and vanpool projects; and bicycle and pedestrian facilities. NHS funds may be used for transit improvements provided these improvements are in the same corridor as a NHS highway, the transit improvements will improve the level-of-service on the NHS highway, and the transit improvement is more cost-effective than an improvement to the NHS highway. The FY 2008 apportionment of NHS funds to Oregon was about \$93 million and to Washington about \$111 million.

#### **Surface Transportation Program (STP) funds**

STP funds are apportioned to states by formula, a portion of which must be used for safety (10 percent), enhancement (10 percent), and allocated by formula to urbanized and rural areas in the state. STP funds may be used for planning, construction, reconstruction, rehabilitation, and operational highway improvements and any eligible activity under FTA's Section 5307 formula program including planning, equipment, right-of-way acquisition, design and construction. The FY 2008 apportionment of STP funds to Oregon was about \$90 million and to Washington about \$124 million.

**Interstate Maintenance (IM) funds**

IM funds are apportioned to states by formula for resurfacing, restoration, rehabilitation, and reconstruction of interstate highways; reconstruction or new construction of bridges, interchanges, and over crossings along existing Interstate routes; and capital costs for operational, safety, traffic management, or intelligent transportation systems (ITS) improvements. Construction of new travel lanes other than high-occupancy vehicle (HOV) or auxiliary lanes are not eligible for IM funding. The FY 2008 apportionment of IM funds to Oregon was about \$65 million and to Washington about \$98 million.

**Urbanized Area Formula (Section 5307) Funds**

Section 5307 funds are formula grants to eligible recipients in urbanized areas for transit-related purposes. In the Portland/Vancouver urban area TriMet, C-TRAN, Metro and the City of Wilsonville currently receive funds. For FY2008 TriMet received approximately about \$31.4 million per year and C-TRAN about \$4.3 million per year in Section 5307 funds. Section 5307 funds may be used for many purposes including planning, environmental, engineering, design, right-of-way, construction and equipment.

**Fixed Guideway Modernization (Section 5309) Funds**

Fixed Guideway Modernization Funds are allocated by statutory formula to urbanized areas with fixed guideway systems that have been in operation for at least seven years. The formula considers the amount of route miles and route miles and revenue vehicle miles operated on fixed guideway segments. The term “fixed guideway” refers to any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part, and includes among others, commuter rail, light rail, electric trolley bus, streetcar, trams and public transportation routes traveling in high-occupancy-vehicle (HOV) lanes. Fixed guideway modernization funds may be used for capital projects to modernize or improve existing fixed guideway systems such as purchase and rehabilitation of rolling stock, track, line equipment, structures, signals, communications, power equipment and substations, stations, maintenance facilities and equipment, system extensions, and preventive maintenance.

TriMet currently receives about \$9.4 million per year in Fixed Guideway Modernization funds for its MAX system, and that total will grow over time as its newer lines reach the seven-year threshold. It is estimated that after seven years of operations, TriMet and C-TRAN would cumulatively begin to receive \$260,000 to \$460,000 per year (depending on the alternative) in Fixed Guideway Modernization funds for the light rail transit or bus rapid transit component of the CRC project. These funds would not be available for the initial construction of the CRC alternatives.

### **Jobs Access and Reverse Commute (JARC) Funds and New Freedom Funds**

JARC and New Freedom funds are formula grants for certain specific transit purposes. JARC funds are targeted to meet the transportation needs of low-income individuals and, regardless of income, of reverse commuters. New Freedom Program funds are available for capital and operating expenses that support new public transportation services beyond those required by the Americans with Disabilities Act of 1990 (ADA) and transportation alternatives to assist individuals with disabilities with accessing transportation services. Currently TriMet receives in the aggregate about \$1 million per year in JARC and New Freedom Funds; C-TRAN receives about \$120,000 per year.

### **Federal Discretionary Funds and Financing Programs**

While the federal transportation funds discussed above are granted to states or urban areas by formula, other federal funds are allocated to projects on a case-by-case basis through Congressional “earmarks” or U.S. DOT agency discretionary allocations. Collectively these sources are referred to as discretionary funds.

The CRC project intends to seek federal discretionary funds (highway and transit) through earmarks in the transportation reauthorization bill and through U.S. DOT programs. The preliminary financial scenarios target a cumulative total of \$400-\$600 million from congressionally and administratively approved federal highway discretionary grants throughout project development and construction. In addition, the financial scenarios target \$750 million in federal transit discretionary grants.

A project’s ability to obtain federal discretionary funds in the upcoming reauthorization bill or through administrative approvals depends on many factors, including the importance of the project, amount of funding in the bill, competition for funds, administrative criteria and practices, and Congressional procedures and politics. While it is difficult to secure a large amount of federal discretionary funds, the CRC project may be uniquely able to secure such funds given its national significance, as exemplified by its status as a Corridor of the Future, and its ability as a bi-state project to garner active support from two Congressional delegations. Potential sources of discretionary funds are discussed below.

### **Discretionary Programs in the Transportation Reauthorization Bill**

The transportation reauthorization bill typically incorporates funding earmarks for transportation projects, including highway, transit and other modes. The current transportation authorization act, SAFETEA-LU<sup>6</sup>, has several discretionary funding programs that were fully earmarked by Congress. SAFETEA-LU authorizes highway discretionary funds as well as FTA-administered funds, such as New Start grants for fixed-guideway transit systems. Some of these discretionary programs represented new dollars brought into a state (above-the-line earmarks); while others factored into the overall formula funding that is guaranteed to each state

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<sup>6</sup> Safe, Accountable, Flexible, and Efficient Transportation Equity Act-A Legacy for Users, signed into law in August 2005.

(below the line earmarks). Oregon and Washington each received above-the-line discretionary grants in SAFETEA-LU.

### **Interstate Maintenance Discretionary (IMD) Funds**

IMD funds may be used for resurfacing, restoring, rehabilitating, and reconstructing most existing routes on the Interstate System, including providing additional Interstate capacity. Currently about \$100 million per year is allocated nationwide under this program. Over the five-year period between FY2003 and FY 2007, Oregon and Washington combined averaged \$10.5 million per year in IMD discretionary grants. In FY 2007 CRC Project received a \$15 million grant from this discretionary program.

### **Transportation, Community, and System Preservation Program Funds (TCSP)**

TCSP funds are allocated to plan and implement strategies that improve the efficiency or reduce environmental impacts of transportation, reduce the need for costly future public infrastructure investments, ensure efficient access to jobs, and encourage private sector development patterns. In FY 2007 the allocations of TCSP funds to projects were generally in the in the \$500,000 to \$1,000,000 range. Over the five-year period between FY2003 and FY 2007, Oregon and Washington combined have averaged \$6.3 million per year in TCSP discretionary grants.

### **The Innovative Bridge Research and Deployment (IBRD) Funds**

The IBRD Program was established to (i) demonstrate the application of innovative designs, materials, and construction methods in constructing, repairing, and rehabilitating bridges and other highway structures, (ii) increase safety, (iii) reduce construction time, and (iv) reduce traffic congestion. IBRD funds may be used for costs of preliminary engineering, repair, rehabilitation, or construction of bridges or other highway structures, and costs of project performance evaluation and performance monitoring of the structure following construction. Congress authorized \$13.1 million per year nationwide through fiscal year 2009 for the IBRD program, \$4.125 million of which is designated for high performance concrete technology research and deployment. WSDOT received a \$5.1 million grant under this program in FY 2007 as part of its Urban Partnerships Agreement for the Seattle area.

### **Highways for Life (HfL)**

HfL provides incentive funding for the construction of highway projects that incorporate innovations that improve safety, reduce construction congestion, and improve quality. A highway project is eligible to apply for HfL funding if it constructs, reconstructs or rehabilitates a route on a Federal-aid highway and uses innovative technologies, manufacturing processes, financing, or contracting methods that meet performance goals for safety, congestion, and quality. Individual project funding levels are generally in the \$500,000 to \$1,000,000 range. Oregon has received one \$1 million award under this program, Washington has not received any.

### **Value Pricing Pilot Program**

Value Pricing Pilot Program funds may be used to establish, maintain, and monitor value pricing programs. Funds may support pre-implementation study costs, including for public participation and planning, and implementation costs, including development and start-up costs for up to three years. Funds to carry out the Value Pricing Pilot Program are authorized at \$12 million annually, one-quarter of which is available only for projects not involving highway tolls. WSDOT received a \$10 million grant under this program as part of its Urban Partnership Agreement for the Seattle area.

### **Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA)**

TIFIA is a Federal credit program for transportation projects of national or regional significance under which the USDOT may provide secured (direct) loans, loan guarantees, and standby lines of credit. Eligible facilities include interstates, state highways, bridges, toll roads, transit ways and any other type of highway or transit facility eligible for federal grant assistance. TIFIA may also be used for the design and construction of stations, track, and other transit-related infrastructure, purchase of transit vehicles, and any other type of transit project eligible for federal grant assistance. TIFIA assistance is awarded through a formal application process based on established criteria.

### **New Starts (Section 5309)**

New Start grants are discretionary federal funds for new fixed-guideway transit systems and extensions to existing fixed-guideway systems. Congress establishes the year-by-year amounts of New Starts funds available nationally in each federal transportation authorization act. A fixed-guideway project customarily obtains New Starts funds through a Full Funding Grant Agreement (FFGA) with FTA. The FFGA establishes the maximum amount of New Starts funds available to the project and the terms and conditions of receiving the New Starts funds.

Federal law establishes a process administered by FTA to determine if a project is eligible for New Starts funding. While the process addresses many factors, it is chiefly affected by its cost-effectiveness and financial plan ratings. For the CRC project, these ratings will occur in future stages of project development. Obtaining a New Starts FFGA will not be settled until the New Starts process is complete and certain threshold criteria are met.

The finance plan for the high-capacity transit guideway assumes that New Starts funding will be sought. The amount of New Starts funds that may be available to the CRC project depends on many factors beyond the project itself, including the amount of New Starts monies authorized and appropriated by Congress, and the national competition for those funds. Based on FTA's historic practices, this DEIS assumes that up to \$750 million in New Starts funds could be available to the CRC project, assuming the project receives a sufficiently high New Starts rating.

### **Discretionary Bus and Bus Facilities Program (Section 5309-Bus)**

Section 5309-Bus grants provide capital assistance for new and replacement buses and related equipment and facilities. This is a discretionary funding program, although most funds are earmarked to specific projects by Congress. Eligible capital projects include the purchasing of buses for service expansion, bus maintenance and administrative facilities, transfer facilities, bus malls, transportation centers, intermodal terminals, park-and-ride stations, acquisition of replacement vehicles, bus rebuilds, bus preventive maintenance, passenger amenities, and miscellaneous equipment. Discretionary bus funding can be used for specific elements of the CRC alternatives such as park-and-rides, bus procurement, maintenance facilities, security, intelligent transportation systems, design, right of way acquisition, transit stations, pedestrian and bike improvements, and other elements.

### **Congestion Mitigation and Air Quality (CMAQ)**

The CMAQ program provides funds to State DOTs, MPOs, and transit agencies to invest in projects that reduce air pollutants. Eligible projects/programs under the CMAQ program include such expenditures as transportation activities in an approved State Implementation Plan, transportation control measures, pedestrian/bicycle facilities, traffic management/congestion relief strategies, transit (new system/service expansion or operations), alternative fuel projects, inspection and maintenance programs, intermodal freight, telecommunications, ride share programs, and travel demand management. Construction of projects which add new capacity for single-occupancy vehicles is not allowed under the program. In FY 2007 Oregon was apportioned about \$16 million in CMAQ funds, Washington was apportioned about \$32 million.

### **National Highway Traffic Safety Administration (NHTSA) Funds**

To assist states in carrying out the highway safety program, the National Highway Traffic Assistance (NHTA) provides formula and incentive annual grants for highway safety programs designed to reduce traffic crashes and resulting deaths, injuries, and property damage. A state may use these grant funds only for highway safety purposes. The grants support planning to identify and quantify highway safety problems, provide start up "seed" money for new programs, and give new direction to existing safety programs. The funds are intended to catalyze innovative programs at the state and local level, and leverage commitments of state, local, and private resources

### **Alternative Analysis Funds**

The objective of the Alternatives Analysis program is to assist in financing the evaluation of modal and multimodal alternatives and general alignment options for identified transportation needs in a particular, broadly defined travel corridor. Funds may be used to assist state and local governmental authorities in conducting alternatives analyses when at least one of the alternatives is a new fixed guideway system or an extension to an existing fixed guideway system.



### **Alternative Transportation in Parks and Public Lands Funds**

The Alternative Transportation in Parks and Public Lands program funds capital and planning expenses for alternative transportation systems such as shuttle buses in national parks and other federal lands. Federal land management agencies and state, local, and tribal governments are eligible recipients. The goals of the program are to conserve natural, historical, and cultural resources; reduce congestion and pollution; improve visitor mobility and accessibility; enhance visitor experience; and ensure access to all, including persons with disabilities.

### **Grant Anticipation Revenue Vehicles (“GARVEE” bonds)**

Grant Anticipation Revenue Vehicle (GARVEE) bonds provide an increasingly popular method to finance highway and transit projects. GARVEE is a debt-financing instrument that pledges future federal funds to repay investors, although the project sponsor may elect to pledge other sources of revenue in the event that future federal-aid funds are not available.<sup>7</sup> In technical terms, GARVEE refers to any debt financing instrument backed by future federal funds, including bonds, notes, certificates, mortgages, leases, or others. GARVEE bonds have been used by TriMet to fund portions of the South Corridor Light Rail Project and the Wilsonville-Beaverton Commuter Rail Project.

### **4.3.2 State Revenue and Financing Options**

In addition to administering federal formula funds, ODOT and WSDOT also administer state funding programs, primarily from fuel taxes, fees on motor carriers, and licensing, and registration fees. The only existing funds currently committed to the project by WSDOT are the \$20 million of Transportation Partnership Account funds programmed for project development activities in FY 2009; the FEIS will consider the potential for other existing funds to be committed to the CRC Project.

New revenues may be created by increasing one or more of the statewide fees or taxes. While the actual package of taxes, fees, and other revenue sources that may be used to fund each state’s share of CRC capital costs must be developed through their legislative processes, potential sources of new revenues include the following.

#### **Fuel Tax**

Oregon currently levies a 24¢ per gallon tax on all fuels used for vehicle transportation, primarily gasoline and diesel fuel. In fiscal year (FY) 2008 the fuel tax is projected to gross about \$17.6 million per penny of tax.<sup>8</sup> State law requires certain transfers and expenses be paid from gross fuel tax revenues; as a result, a 1¢ fuel tax in FY 2008 produces about \$16.1 million net revenues for transportation projects.<sup>9</sup> The net fuel tax revenues are generally allocated between the state, cities, and counties

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<sup>7</sup> 23 USC 122(a) and (b).

<sup>8</sup> Revenue estimates for fuel tax and weight-mile tax from ODOT, Summary of Transportation Economic and Revenue Forecasts, December 2007 (released February 2008).

<sup>9</sup> The fuel tax is customarily paired with an equivalent amount of motor carrier fees and taxes; the net proceeds in FY 2008 from a 1¢ fuel tax with these equivalent taxes and fees is about \$24.5 million.

throughout the state. The Oregon Constitution restricts the use of fuel tax revenues to highway purposes only.

The Oregon legislature may increase the fuel tax rate by vote of the legislature, with or without referral to the voters. From 1976 through 1982, Oregon voters rejected a proposed fuel tax increase four times. Notwithstanding these voter rejections, the Oregon legislature enacted a fuel tax increase in every legislative session from 1981 through 1991. The last fuel tax increase went into effect in 1993. The voters rejected a proposed increase in 1996, and the legislature has not enacted an increase since. The use or allocation of any future increases to the fuel tax could be set in the legislation enacting the increase, provided that constitutional limitations are not exceeded. Any funding package passed by the legislature can be referred to a statewide vote if petition requirements are met.

As of July 2007, Washington levies a 36¢ per gallon fuels tax on gasoline and other “special” fuels used by transportation vehicles. Effective July 2008, the fuels tax will increase to a 37.5¢ per gallon tax under the Transportation Partnership Account Act. In FY 2008 the combined gas tax and special fuels tax is projected to gross about \$34.4 million per 1¢ of tax.<sup>10</sup> State law requires a variety of transfers and expenses be paid from gross revenues; as a result, a 1¢ combined gas and special fuels tax produces about \$33.0 million in net revenues in FY 2008. The Washington state constitution limits the use of state fuels tax to highway purposes.

The allocation of the fuels tax proceeds in Washington depends on the provision in the legislation enacting each increase. A share of existing fuels tax revenues is generally allocated among the state, cities, and counties; the allocation formula among these recipients has varied in different fuels tax legislation. On occasion the Washington legislature has dedicated 100 percent of the proceeds from a fuel tax increment to a special program without any direct allocation to cities and counties. The use or allocation of any future increases to the fuel tax would be set forth in the legislation enacting the increase. If, for example, the entire proceeds of a 1¢ fuels tax increase (no allocation to cities and counties) in Washington were dedicated to the CRC proposal in FY 2008, the revenue increase would produce about \$450 million in net bond proceeds for highway projects.<sup>11</sup>

### **Motor Carrier Taxes and Fees**

Oregon levies several fees and taxes on heavy trucks, including weight-mile taxes (which include the flat-fee paid by qualifying carriers), heavy vehicle registration fee, trip permits, and other fees paid by motor carriers. In the aggregate these are referred to as “motor carrier fees and taxes.” Motor carrier fees and taxes are estimated to generate about \$272.7 million in gross revenues and \$200.5 million in net revenues in

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<sup>10</sup> WSDOT, Transportation Revenue Forecast Council, November 2007 Forecast, adjusted per WSDOT, Transportation Revenue Summary for the February 2008 Forecast.

<sup>11</sup> Assumes uniform-payment highway revenue bonds with a 30-year term, 6 percent annual interest, 2 percent issuance costs, and coverage supplied by other revenues.

FY 2008. The Oregon Constitution restricts the use of these revenues to highway purposes only.

The Oregon legislature may increase motor carrier fees and taxes by vote of the legislature, with or without referral to the voters. The use or allocation of any future increases could be set forth in the legislation enacting the increase; provided that constitutional limitations are not exceeded.

The Oregon Constitution also requires that the proportion of highway revenues paid among the major vehicle classes, primarily passenger vehicles and heavy trucks, match the relative financial burden each places on the transportation system. This concept is commonly referred to as cost responsibility. To maintain cost responsibility, any increase in fuels tax would be paired with a proportionate increase in taxes on heavy trucks. An increase in motor carrier fees and taxes proportionate to a 1¢ increase in fuel tax generates about \$8.4 million in FY 2008. Thus, 1¢ increase in fuels tax plus an equivalent increase in motor carrier taxes and fees would produce \$24.5 million in net revenues in FY 2008.

If, for example, the entire proceeds (no allocation to cities and counties) of a 1¢ fuels tax increase plus an equivalent increase in motor carrier taxes and fees in Oregon were dedicated in FY 2008 to highway improvements, the revenue increase would produce about \$310 million in net bond proceeds for the improvements.<sup>12</sup>

### **Registration and Licensing Fees**

Oregon collects a variety of Department of Motor Vehicle (DMV) fees including vehicle registration fees, title fees, driver license fees, and other fees. One or more of these fees can be increased to fund a transportation improvement program. For example, the Oregon Transportation Investment Act (OTIA) program was funded through a vehicle registration fee increase. In FY 2008, DMV fees, in the aggregate, produced about \$220 million in gross revenues and only about \$40 million in net revenues, primarily due to the DMV administrative costs and the transfers to the OTIA program. An increase to one or more of these fees could be part of a transportation funding package to pay for the CRC project.

In Washington, licensing fees for trucks, buses, and for-hire vehicles consist of combination of a fee based on the gross weight of the vehicle (gross weight fee) and an additional fee of one dollar. The gross weight fee schedule for trucks was increased by 15 percent as part of the Nickel Package. The Transportation Partnership Account legislation increased the licensing fee for light trucks, except for farm vehicles, by \$10–\$30, depending on weight. Each \$1 increase on licensing fees for trucks less than 10,000 pounds in Washington would produce about \$1.3 million. Each 10 percent increase in gross weight fees on trucks over 10,000 pounds in Washington would produce about \$12.2 million in 2008.<sup>13</sup>

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<sup>12</sup> Assumes uniform-payment, subordinated highway revenue bonds with a 25-year term, 6 % annual interest, 2% issuance costs, and coverage supplied by other revenues.

<sup>13</sup> WSDOT, Transportation Revenue Forecast, November 2007.

In Washington, registration fees for passenger cars consist of a combination of a \$30 license fee plus a fee that depends on the gross weight of the vehicle (vehicle weight fee). The vehicle weight fee was introduced as part of the Transportation Partnership Account legislation.

### **Sales and Use Tax**

The sales and use tax is currently used in Washington to fund the multi-modal account for transit projects included in the 2003 “Nickel Funding Package.” The current rate is 0.3 percent (3/10th of 1 percent) on new and used motor vehicles. A 1/10th of 1 percent increase in the sales and use tax would produce about \$12 million in 2008.

### **State Lottery Funds**

In Oregon, state lottery funds have been used to fund capital bonds for major transit projects including TriMet’s Westside Light Rail Project (\$125 million), the Wilsonville-Beaverton Commuter Rail Project (\$35 million), and most recently for the proposed Milwaukie Light Rail Project (\$250 million). These lottery funds have been obtained by securing state legislation authorizing a specified amount of lottery bonds for each project. To date the legislature has not allocated lottery funding for a highway project, but there is no prohibition for such an allocation.

### **In-Kind Contributions**

Both ODOT and WSDOT may make in-kind contributions for the CRC alternatives by providing staffing for project management and administration that is not paid with project revenues, by making right-of-way owned by the DOT (such as the WSDOT parcels at Kiggins Bowl and Lincoln Street that are proposed for park-and-rides) available for the CRC alternatives at no cost to the project, or by other similar actions.

### **Toll Credits**

Under Federal law, a project is permitted to use certain toll revenue expenditures as a credit toward the local matching share of federally-eligible highway and transit projects. This concept is frequently referred to as toll credits.

Toll credits are earned when a state or toll authority funds an eligible capital investment with toll revenues from an existing facility. Project sponsors may use toll credits as local match on a Federal project. By using a sufficient amount of toll credits, the federal funding for a project can be increased to 100 percent.

Fares paid by ferry riders, in places where ferry routes are considered part of the highway systems (such as the Washington State Ferry System), can earn toll credits in the same manner as a tolled highway. WSDOT has earned toll credits through this mechanism, and may provide an allocation of toll credits to the CRC project.

In this assessment, up to \$750 million in New Starts funds are assumed to be available to the high-capacity transit project. With toll credits, alternatives costing \$750 million or less can be funded with New Starts funds, provided a sufficient amount of toll credits are applied to meet the local match requirement. Project alternatives costing more than \$750 million must incorporate sufficient local cash match to cover the

difference between the project cost and the assumed \$750 million New Starts grant. There can be alternatives in which a portion of the local match requirement is met by toll credits and a portion met with local funds or in-kind match.

Some issues arise with the use of toll credits. First, the project staff must work with FTA to ensure that the use of toll credits does not negatively affect FTA's New Starts rating of the project. Second, as part of any Full Funding Grant Agreement, FTA will establish a maximum amount of New Starts funds available to the project, and will obligate the project sponsors to cover any cost overruns with non-New Starts funds. During the rating of the financial plan, FTA will complete a financial capacity review to determine the ability of the project sponsors to meet this obligation. Thus, even when they can be used, toll credits do not entirely eliminate the need for local capital funding capacity. Lastly, in order to use toll credits, WSDOT must provide a letter committing the necessary amount of toll credits to the CRC project.

### **Private Sector Contribution**

Both FHWA and FTA seek to foster the use of public-private partnerships (PPP) in the design and construction of transportation improvements. Over the past few years both agencies have revised their rules and policies to facilitate such arrangements. ODOT and WSDOT have the authority to employ a public-private partnership (PPP) method of project delivery.

PPP is used for any scenario under which the private sector assumes a greater role in the planning, financing, design, construction, operation, and maintenance of a transportation facility compared to traditional procurement methods. Typical PPP procurement packages include: (i) private sector operations and maintenance on a performance basis; (ii) private sector program management for a fee and/or with program costs and schedule maintenance incentives; (iii) design-build for fixed fee on fixed time frame; (iv) project build-operate-transfer, (v) design-build finance-operate-transfer, and (vi) build-own-operate. Private sector financial participation may be possible under some of these approaches. The method of project delivery, including PPP, will be considered during preparation of the FEIS.

### **4.3.3 Toll Bond Proceeds**

#### **Background**

The CRC alternatives include toll and non-toll scenarios. The toll scenarios assume that toll collection will be Open Road (all-electronic) toll collection. Open Road toll collection allows tolls to be collected without stopping traffic at toll booths to pay tolls. Instead customers either have (i) a transponder that electronically transmits charges to a computer system that invoices or debits a vehicle-owners account, or (ii) the vehicle is identified by a license plate recognition (pay-by-plate) system that identifies and invoices the vehicle owner.

The toll rate policies assumed in this DEIS, which are described in Chapter 2, differ for the replacement crossing alternatives (Alternatives 2 and 3) and the supplemental crossing alternatives (Alternatives 4 and 5).

While these assumed toll rate policies provide a practical basis for analyzing the impacts of the toll/no-toll decision, they will be refined throughout the project development process, if tolling is incorporated in the locally preferred alternative.

This DEIS shows the toll bond funding capacity resulting from three representative financing structures:<sup>14</sup>

- 40-year non-recourse debt<sup>15</sup>, where the bonds are backed by toll revenues but without any other governmental guarantee
- 40-year non-recourse debt with a federal loan under USDOT’s TIFIA Program<sup>16</sup>
- 30-year state-backed bonds

**Capital Funding Capacity of Toll Revenues**

Exhibit 4.3-2 shows the financial capacity of tolling the I-5 Bridge for a Base estimate that uses the traffic volumes modeled for the year 2030 and a Low estimate that is more conservative. Because the toll capacity of the alternatives is primarily affected by the traffic capacity of the river crossing, Exhibit 4.3-2 focuses on the differences in toll bond capacity between the replacement crossing alternatives (Alternatives 2 and 3) and the supplemental crossing alternatives (Alternatives 4 and 5). The funding capacities shown in Exhibit 4.3-2 are net of the capitalized interest that must be paid from bond proceeds during the construction period; they represent the amount of funds available to pay project costs.

Exhibit 4.3-2  
**Financial Capacity of Toll Bonds by Alternative<sup>c</sup>**

Bond Structure	Alternatives 2 and 3 (Replacement Crossing) <sup>a</sup>		Alternatives 4 and 5 (Supplemental Crossing) <sup>b</sup>	
	Low	Base	Low	Base
40-year non-recourse bonds	\$750	\$950	\$ 640	\$820
40-year non-recourse bonds with TIFIA loan <sup>d</sup>	\$980	\$1,230	\$ 810	\$1,030
30-year state-backed bonds	\$1,070	\$1,350	\$ 910	\$1,160

Source: CRC, Toll Financial Capacity Analysis Results, November 2007.

<sup>a</sup> The toll rates for the replacement crossing alternatives (Alternatives 2 and 3) vary by time of day, with a \$2.00 (in 2006 dollars) toll during peak periods for passenger cars with transponders.

<sup>b</sup> The toll rates for the supplemental crossing alternatives (Alternatives 4 and 5) are similar to the replacement crossing alternatives (Alternatives 2 and 3), except that the peak-period toll for passenger cars with transponders is \$2.50 (in 2006 dollars).

<sup>c</sup> Financial capacities are net of capitalized interest.

<sup>d</sup> TIFIA is a USDOT loan and credit enhancement program, described in Section 4.3.1.

Note: Bond capacities are shown in millions of dollars, rounded to nearest ten million.

<sup>14</sup> The toll analysis is documented in CRC, Toll Financial Capacity Analysis Results, November 2007.

<sup>15</sup> Borrowings that rely on revenue from a project and are not guaranteed by other revenue sources are referred to as non-recourse debt.

<sup>16</sup> The TIFIA program is discussed in Section 4.3.1.

Even though, as described in Section 2.3.5, a 50¢ higher peak-period toll rate is assumed for the supplemental crossing alternatives (Alternatives 4 and 5), the replacement crossing alternatives (Alternatives 2 and 3) would generate \$110–\$200 million more bond capacity because the replacement crossing accommodates more peak-period and all-day traffic than the supplemental crossing.

The bond capacity of the tolling alternatives also differs by the bond structure employed. The more the bonds are backed by governmental sources, the higher their financial capacity. For example, a 30-year state-backed bond can create about \$270–\$400 million more capital funding than a non-recourse bond without any guarantee.

### Toll Revenue Sensitivity Analysis

The toll rate policy assumed in this DEIS may be revised as the financial plan is refined; this would affect the bond capacity of the toll revenues. As shown in Exhibit 4.3-3, a 50¢ decrease in the peak-period toll rate would reduce the bond capacity of the supplemental crossing alternatives (Alternatives 4 and 5) by \$60–\$100 million. The impact on bond capacity caused by a 50¢ decrease in peak-period tolls for the replacement crossing alternatives (Alternatives 2 and 3) would be greater because the replacement crossing has higher peak-period traffic volumes than the supplemental crossing.

Exhibit 4.3-3

#### Sensitivity Analysis: Financial Impact of Alternative Toll Rates<sup>c</sup>

Bond Structure	Alternatives 4 and 5 with \$2.00 Peak Toll <sup>a</sup>		Alternatives 4 and 5 with \$2.50 Peak Toll <sup>a</sup>	
	Low	Base	Low	Base
40-year non-recourse bonds	\$580	\$740	\$640	\$820
40-year non-recourse bonds with TIFIA loan <sup>b</sup>	\$730	\$940	\$810	\$1,030
30-year state-backed bonds	\$830	\$1,060	\$910	\$1,160

Source: CRC, Toll Financial Capacity Analysis Results, November 2007.

<sup>a</sup> Off-peak period tolls are the same.

<sup>b</sup> TIFIA is a USDOT loan and credit enhancement program, described in Section 2.3.1.

<sup>c</sup> Financial capacities are net of capitalized interest.

Note: Bond capacities are shown in millions of dollars, rounded to nearest ten million.

The alternatives considered in this DEIS propose tolling only the I-5 crossing. Under current federal law the I-205 crossing could only be tolled if the I-205 crossing was reconstructed or approved as an FHWA tolling demonstration program. A sensitivity analysis of the replacement crossing alternatives (Alternatives 2 and 3) was undertaken to illustrate the impacts of tolling both the I-5 and I-205 bridges. As shown in Exhibit 4.3-4, the financial capacity of tolling both the I-5 and I-205 bridges would be more than twice that of tolling only the I-5 crossing. A similar proportionate increase would be expected if both river crossings were tolled with the supplemental crossing alternatives (Alternatives 4 and 5).

Exhibit 4.3-4

**Sensitivity Analysis: Financial Impact of Tolling Both River Crossings<sup>b</sup>**

Bond Structure	Alternatives 2 and 3 Toll I-5 Only		Alternatives 2 and 3 Toll I-5 and I-205	
	Low	Base	Low	Base
40-year non-recourse bonds	\$750	\$950	\$1,570	\$1,980
40-year non-recourse bonds with TIFIA loan <sup>a</sup>	\$980	\$1,230	\$2,040	\$2,560
30-year state-backed bonds	\$1,070	\$1,350	\$2,220	\$2,800

Source: CRC, Toll Financial Capacity Analysis Results, November 2007.

<sup>a</sup> TIFIA is a USDOT loan and credit enhancement program, discussed in Section 2.3.1.

<sup>b</sup> Financial capacities are net of capitalized interest.

Note: Bond capacities are in millions of dollars rounded to nearest ten million. Toll rates on both bridges are those assumed for Alternatives 2 and 3 in Chapter 2.

**Use of Toll Revenues and Bond Proceeds**

In Oregon, toll revenues and bond proceeds are restricted by the state constitution to highway purposes. The Washington state constitution does not have a similar prohibition. However, under recent Washington law the use of toll revenues must be specifically authorized by the legislature, which to date has not authorized toll revenues to be used for transit purposes. Thus, the financial plan scenarios discussed in Section 4.4 assume that toll revenues would only be used for the capital and operations costs related to the highway component of the CRC alternatives.

**4.3.4 Regional Revenue and Financing Options**

**Currently Available C-TRAN Revenues**

The Clark County Public Transportation Benefit Area (C-TRAN) operates the transit system within the project area in the State of Washington. C-TRAN provides fixed-route bus service and demand-responsive paratransit service within the urban growth boundary of Vancouver, Camas-Washougal, and Battle Ground, Washington; and dial-a-ride and connector service using paratransit vehicles in Battle Ground, Camas, Ridgefield, and La Center, Washington. C-TRAN is governed by a nine-member Board of Directors comprised of all three Clark County Commissioners; three representatives from the Vancouver City Council; and one representative each from the Camas/Washougal, Battle Ground/Yacolt, and Ridgefield/La Center City Councils.

C-TRAN currently has about \$35 million in continuing annual revenues. Under its basic Public Transportation Benefit Area (PTBA) authority, C-TRAN may impose a sales and use tax of up to 9/10th of 1 percent for transit service and facilities in its district.<sup>17</sup> Currently C-TRAN is only authorized to levy a 5/10th of 1 percent sales and use tax; it could impose an additional 4/10th of 1 percent tax under its PTBA authority with voter approval. The sales and use tax is C-TRAN’s largest revenue source, accounting for slightly over \$26 million in 2006. Passenger fares are

<sup>17</sup> RCW 36.57A authorizes the creation of Public Transportation Benefit Areas (PTBA) and RCW 82.14.045 authorizes PBTAs, such as C-TRAN, to levy a sale and use tax, subject to voter approval.



C-TRAN's second largest revenue source, accounting for about \$4.8 million in 2006. Grants, interest income, and other operating revenues comprise the remainder of C-TRAN's existing revenue sources. The federal formula grants available to C-TRAN are described in Section 4.3.1.

C-TRAN's existing revenues are generally required for meeting C-TRAN's fixed-route and paratransit service costs and maintaining a prudent reserve; existing C-TRAN resources are generally not available for meeting the capital or operating costs of the CRC alternatives. Any material local match obligation owed by C-TRAN would require implementation of a new or increased revenue source.

#### **Additional Transit Revenue Options available to C-TRAN**

As stated above, C-TRAN could seek approval of up to an additional 4/10th of 1 percent sales and use tax under its basic PTBA authority. However, C-TRAN is considering a 20-year plan that would expand paratransit and fixed-route services unrelated to the CRC project. Thus unused PBTA sales and use tax authority may be used for C-TRAN's long-term plans and may not be available for the CRC alternatives. In this case, C-TRAN may use the additional funding authorities provided by the State of Washington's HCT Act<sup>18</sup> to pay its share of CRC costs. These taxing sources include:

- **Employer Tax:** an excise tax of up to two dollars per month per employee on all employers located within the agency's jurisdiction. The employer tax may only generate \$2.8 million year within the C-TRAN district,<sup>19</sup> which would be insufficient by itself to support most of the CRC alternatives.
- **Sales and Use Tax on Car Rentals:** a maximum of a 2.172 percent sales and use tax upon retail car rentals within the agency's jurisdiction. This revenue option will also would be insufficient by itself to support most CRC alternatives.
- **Sales and Use Tax:** not to exceed 9/10th of 1 percent. This is separate from and in addition to the 9/10th of 1 percent sales and use tax allowed, with voter approval, under C-TRAN's PBTA authority. Currently each 1/10th of 1 percent sales and use tax generates \$5.2 million within the full C-TRAN district.

Under the HCT Act, a transit agency must receive voter approval of a "high capacity transportation system plan and financing plan" as a pre-requisite to levying the funding sources listed above. To seek voter approval, the C-TRAN Board of Directors must enact a resolution placing the system plan on the ballot. It is anticipated that, if needed, the measure would be placed on the ballot prior to the issuance of the record of decision (ROD) by FTA and FHWA. Voter approval of a systems plan that includes the taxing authorities outlined above constitutes approval of the tax. A single ballot proposition may seek approval for one or more of the authorized taxing sources.

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<sup>18</sup> RCW 81.104.

<sup>19</sup> Washington State Joint Transportation Committee, Transportation Resource Manual, updated January 2007.

There is continuing discussion regarding whether HCT funding should be derived from a C-TRAN district-wide tax, or through a HCT sub-district covering the City of Vancouver or the Vancouver urban growth boundary. There are two potential ways to implement sub-district funding if sought under the HCT Act:

- C-TRAN could establish a sub-district on its own, and hold a systems plan and funding vote under the HCT Act within the sub-district. A statutory amendment is required for this approach; or
- Through an interlocal agreement with C-TRAN, the City of Vancouver could be authorized as the HCT transit agency, and the City could seek voter approval within its boundaries of the HCT system plan and funding under the HCT Act.

### **Transportation Benefit District Revenue Options**

The Vancouver City Council has the authority to establish a Transportation Benefit District (TBD) within the City. With Clark County Commission agreement, the City Council could establish a TBD covering the Vancouver urban growth area, which includes areas outside the current city boundary. A TBD could have the authority to construct and operate public transportation, including high capacity transit, and other transportation improvements. A public vote is not required to establish a TBD, but may be required to provide funds. Potentially applicable funding options of a TBD include:

- **A Sales and Use Tax not to exceed 2/10th of 1 percent:** Voter approval is required. The tax may not be in effect longer than 10 years unless reauthorized by voters.
- **Excess Property Tax Levies:** which can be levied for one year for any eligible purpose or for multiple years if used to repay general obligation bonds; voter approval is required.
- **Motor Vehicle License Renewal Fee on vehicles of 6,000 pounds or less:** An annual License Renewal Fee of up to a \$20 can be levied by approval of the TBD Board. An annual License Renewal Fee of up to \$100 can be levied with voter approval.

Implementation of TBD funding, if desired, could be undertaken in two ways:

- Through an interlocal agreement with C-TRAN, the City of Vancouver could be authorized to be the HCT transit agency, and the City could then establish a TBD within the city boundaries to develop and operate the HCT alternative and, subject to voter approval within the TBD, if required, use the funding authorities of the TBD to fund the HCT project; or
- Through an interlocal agreement with C-TRAN, the City of Vancouver could be authorized to be the HCT transit agency. Through an interlocal agreement with Clark County, Vancouver and Clark County could jointly establish a TBD within the Vancouver urban growth boundary to develop and operate the HCT alternative, and, subject to voter approval within the TBD, if required, use the funding authorities of the TBD to fund the HCT project.

### **Currently Available TriMet Revenues**

The Tri-County Metropolitan Transportation District of Oregon (TriMet) operates the transit system within the project area in Oregon. TriMet is a municipal corporation providing fixed-route and demand-responsive paratransit service within the urban areas of Clackamas, Multnomah, and Washington Counties, Oregon. TriMet currently operates about 44 miles of light rail service, and is completing an 8-mile light rail extension and a 15-mile commuter rail line. TriMet is governed by a seven-member Board of Directors, appointed by the Governor of Oregon. Board members represent, and must live in, certain geographical districts.

TriMet currently receives about \$360 million in continuing annual revenues.

TriMet currently levies a 0.6618 percent tax (\$6.618 per \$1000) on the gross payrolls of private businesses and municipalities within its district. The payroll tax is dedicated to TriMet and is TriMet's largest source of operating revenue, accounting for 52 percent (\$187.5 million) of its operating revenues in FY 2007. TriMet projects a long-term growth rate for the payroll tax of 6.2 percent per year. TriMet also adopted an ordinance that calls for increasing the payroll tax rate annually by one-hundredth of one percent, reaching a final tax rate of 0.7218 percent in FY 2014. TriMet also levies a 0.6618 percent tax on the gross profits earned within its district by self-employed individuals. The self-employment tax rate is scheduled to increase at the same rate as the payroll tax. State of Oregon government offices located within TriMet's district boundaries are not subject to the payroll tax. Instead, the State makes in-lieu of tax payments to TriMet based on 0.6218 percent of their gross payrolls. Passenger revenues are TriMet's second largest revenue source. In FY 2007, passenger revenues totaled \$75.9 million, 21 percent of operating revenue. Grants, interest income, and other operating revenues comprise the remainder of TriMet's existing revenue sources. The federal grants currently available to TriMet are described in Section 4.3.1.

Over the next two years, TriMet must absorb increased operations costs caused by the completion of the South Corridor MAX line and the Commuter Rail line, reducing TriMet's near-term ability to assume additional financial obligations with existing resources. In addition, TriMet is currently engaged in project development activities for a future Milwaukie MAX line, which will place additional financial pressures on TriMet. However, TriMet's payroll tax has consistently exhibited continued real growth, which improves its capacity to make existing revenues available for a CRC project. Analyses of the simultaneous implementation of the Milwaukie MAX Project and CRC Project found that TriMet had the financial capacity to operate both projects.

### **Additional Revenue Options available to TriMet**

If needed, TriMet could seek additional revenues from such sources as:

- A multi-year allocation of Surface Transportation Program (STP) or Congestion Management Air Quality (CMAQ) funds through Metro's Metropolitan Transportation Improvement Program (MTIP) process and GARVEE bonds to advance funding into the construction period;

- An allocation of state lottery funds through the Oregon legislature; or
- A contribution from private entities benefiting from the project in the Hayden Island area.

#### 4.4 Capital Finance Plan Scenarios

In this section the project costs and revenues discussed above are assembled into a range of preliminary capital finance plan scenarios. For each alternative there are a range of terminus options, capital costs, and amounts available from each revenue source, as well as a toll and non-tolled scenario. Thus, a number of financial plan scenarios are possible. The finance plan scenarios shown below will be refined during the FEIS stage. These preliminary scenarios illustrate basic financial trade-offs and issues associated with the alternatives.

The preliminary capital funding scenarios shown in Exhibits 4.4-1 through 4.4-4 employ eight categories of revenues to meet the capital cost requirements of each alternative. Additional analyses are required to select the combination of individual funding sources within each category. These individual sources will be addressed in the funding plan incorporated in the FEIS. The eight categories of revenue sources used in the preliminary capital funding scenarios include:

- **Existing State Revenues:** which include only the \$20 million currently committed to the project by WSDOT through the Transportation Partnership Account.
- **State Administered Funds:** which includes all of the potential state funding options for Oregon and Washington discussed in Section 4.3.2 and the all of the formula federal funds administered by both states described in Section 4.3.1. The amounts shown in Exhibits 4.4-1 through 4.4-4 for State Administered Revenues represent the aggregate amounts contributed by WSDOT and ODOT. The current WSDOT-ODOT agreement on the CRC project only addresses pre-construction activities and provides for an equal sharing of pre-construction expenses. The cost responsibility between the DOTs for construction will be addressed during preparation of the FEIS. Thus the funding scenarios shown in Exhibits 4.4-1 through 4.4-4 show the cumulative total of the WSDOT and ODOT contributions.
- **Federal Discretionary Highway Funds:** which include all of the potential highway discretionary programs described in Section 4.3.1. The amounts shown in Exhibits 4.4-1 through 4.4-4 for Federal Discretionary Highway Funds represent the aggregate amounts contributed by these programs during the design and construction stages of the project.
- **Federal Discretionary Transit Funds:** which includes Section 5309 New Starts funds, Section 5309 Bus funds, and the other transit-eligible discretionary grant programs described in Section 4.3.1. While it is anticipated that the New Starts program will be the primary source of these revenues, other discretionary grant programs may be sought for specific project elements such as park-and-rides and bus purchases.

- **Toll Bond Proceeds:** which are discussed in Section 4.3.3.
- **C-TRAN Revenues:** which include the federal formula funds administered by C-TRAN discussed in Section 4.3.1, and the currently available and additional funding options for C-TRAN described in Section 4.3.4. To size the amounts required from C-TRAN and TriMet, this analysis assumes two alternative cost sharing formulae that proportion the local match required from each transit district based on the relative length of the transit extension associated with the district: (i) using the Jantzen Beach station as the dividing point, and (ii) using the state line as the dividing point. While C-TRAN's share may be funded with a combination of revenue sources, the base assumption is that a C-TRAN district-wide sales and use tax would be used to provide local match. The capital funding scenarios show the sales and use tax rates need to provide the local capital match under this base assumption. The amounts needed for operating and maintaining the transit alternatives are addressed in Section 4.5.
- **TriMet Revenues:** which include the federal formula funds administered by TriMet discussed in Section 4.3.1, and the currently available and additional funding options for TriMet described in Section 4.3.4. The amounts required for TriMet are based on the alternative cost sharing formulae described above.
- **Toll Credits:** as discussed in Section 4.3.2 are used to meet local match requirements where applicable.

COLUMBIA RIVER CROSSING

Exhibit 4.4-1

**Capital Finance Plan Scenarios by Alternative and Full-Length Transit Terminus: With Tolls**

Terminus	Alternative 2				Alternative 3				Alternative 4				Alternative 5			
	Kiggins Bowl terminus		Lincoln terminus		Kiggins Bowl terminus		Lincoln terminus		Kiggins Bowl terminus		Lincoln terminus		Kiggins Bowl terminus		Lincoln terminus	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Highway Cost	\$2,846	\$2,997	\$2,866	\$3,011	\$2,857	\$2,983	\$2,869	\$3,043	\$2,658	\$2,799	\$2,670	\$2,809	\$2,665	\$2,802	\$2,675	\$2,813
Transit Cost	\$863	\$918	\$669	\$725	\$1,045	\$1,108	\$850	\$881	\$939	\$981	\$744	\$778	\$1,102	\$1,148	\$906	\$946
<b>Total Cost</b>	<b>\$3,709</b>	<b>\$3,915</b>	<b>\$3,535</b>	<b>\$3,736</b>	<b>\$3,902</b>	<b>\$4,091</b>	<b>\$3,719</b>	<b>\$3,924</b>	<b>\$3,597</b>	<b>\$3,781</b>	<b>\$3,414</b>	<b>\$3,587</b>	<b>\$3,767</b>	<b>\$3,950</b>	<b>\$3,581</b>	<b>\$3,758</b>
<b>Sources</b>																
Existing State Revenue <sup>b</sup>	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20
Federal Discretionary Highway Funds	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600
Toll Bond Proceeds <sup>c</sup>	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160
State Administered Revenues <sup>d</sup>	\$876- \$1,356	\$1,027- \$1,507	\$896- \$1,376	\$1,041- \$1,521	\$887- \$1,367	\$1,012- \$1,492	\$899- \$1,379	\$1,073- \$1,553	\$878- \$1,328	\$1,019- \$1,469	\$890- \$1,340	\$1,029- \$1,479	\$885- \$1,335	\$1,022- \$1,472	\$895- \$1,345	\$1,033- \$1,483
Federal Discretionary Transit Funds	\$750	\$750	\$669	\$725	\$750	\$750	\$750	\$750	\$750	\$750	\$744	\$750	\$750	\$750	\$750	\$750
C-TRAN Funds <sup>e</sup>	\$86- \$102	\$129- \$151	\$0	\$0	\$226- \$265	\$274- \$321	\$71- \$88	\$93- \$115	\$145- \$170	\$177- \$207	\$0	\$20- \$25	\$269- \$316	\$304- \$357	\$111- \$137	\$140- \$172
TriMet Funds <sup>e</sup>	\$12- \$27	\$17- \$40	\$0	\$0	\$30- \$69	\$37- \$84	\$13- \$29	\$16- \$38	\$19- \$44	\$24- \$54	\$0	\$4-\$8	\$36- \$83	\$41- \$94	\$20- \$45	\$25- \$56
<b>Total Revenues</b>	<b>\$3,709</b>	<b>\$3,915</b>	<b>\$3,535</b>	<b>\$3,736</b>	<b>\$3,902</b>	<b>\$4,091</b>	<b>\$3,719</b>	<b>\$3,924</b>	<b>\$3,597</b>	<b>\$3,781</b>	<b>\$3,414</b>	<b>\$3,587</b>	<b>\$3,767</b>	<b>\$3,950</b>	<b>\$3,581</b>	<b>\$3,758</b>
Toll Credits <sup>f</sup>	\$60	\$16	\$134	\$145	\$0	\$0	\$70	\$45	\$0	\$0	\$149	\$127	\$0	\$0	\$25	\$0
C-TRAN Sales and Use Tax Rate <sup>g</sup>	0.10%- 0.12%	0.15%- 0.18%	0.00%	0.00%	0.27%- 0.32%	0.33%- 0.39%	0.10%- 0.11%	0.13%- 0.14%	0.17%- 0.20%	0.21%- 0.25%	0.00%	0.03%	0.32%- 0.38%	0.37%- 0.43%	0.16%	0.20%- 0.21%

<sup>a</sup> Low cost estimate is 60% confidence estimate from cost risk assessment, High cost estimate is 90% confidence estimate from risk assessment.

<sup>b</sup> From WSDOT's Transportation Partnership Account.

<sup>c</sup> See Exhibit 4.3-1.

<sup>d</sup> Low end of state and regional sources assumes high federal discretionary funds and toll bond proceeds; High end of state and regional sources assumes low federal discretionary funds and bond proceeds.

<sup>e</sup> Low end of C-TRAN share and High end of TriMet share assumes state line as cost dividing point; High end of C-TRAN share and Low end of TriMet share assumes Hayden Is. station as dividing point.

<sup>f</sup> Toll credits do not directly contribute funds to construct the project; they are only used to offset statutory match requirements.

<sup>g</sup> Assumes C-TRAN district wide tax base; if sub-district approach is selected, the tax rate within the sub-district must be proportionately higher.

Note: Costs and revenues are in millions of year of expenditure dollars and rounded to nearest million.

Exhibit 4.4-2

**Capital Finance Plan Scenarios by Alternative and Full-Length Transit Terminus: Without Tolls**

Terminus	Alternative 2				Alternative 3				Alternative 4				Alternative 5			
	Kiggins Bowl terminus		Lincoln terminus		Kiggins Bowl terminus		Lincoln terminus		Kiggins Bowl terminus		Lincoln terminus		Kiggins Bowl terminus		Lincoln terminus	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Highway Costs	\$2,846	\$2,997	\$2,866	\$3,011	\$2,857	\$2,983	\$2,869	\$3,043	\$2,658	\$2,799	\$2,670	\$2,809	\$2,665	\$2,802	\$2,675	\$2,813
Transit Costs	\$863	\$918	\$669	\$725	\$1,045	\$1,108	\$850	\$881	\$939	\$981	\$744	\$778	\$1,102	\$1,148	\$906	\$946
<b>Total Costs</b>	<b>\$3,709</b>	<b>\$3,915</b>	<b>\$3,535</b>	<b>\$3,736</b>	<b>\$3,902</b>	<b>\$4,091</b>	<b>\$3,719</b>	<b>\$3,924</b>	<b>\$3,597</b>	<b>\$3,781</b>	<b>\$3,414</b>	<b>\$3,587</b>	<b>\$3,767</b>	<b>\$3,950</b>	<b>\$3,581</b>	<b>\$3,758</b>
<b>Sources</b>																
Existing State Revenues <sup>b</sup>	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20
Federal Discretionary Highway Funds	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600
Toll Bond <sup>c</sup>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Administered Revenues <sup>d</sup>	\$2,226- \$2,426	\$2,377- \$2,577	\$2,246- \$2,446	\$2,391- \$2,591	\$2,237- \$2,437	\$2,362- \$2,562	\$2,249- \$2,449	\$2,423- \$2,623	\$2,038- \$2,238	\$2,179- \$2,379	\$2,050- \$2,250	\$2,189- \$2,389	\$2,045- \$2,245	\$2,182- \$2,382	\$2,055- \$2,255	\$2,193- \$2,393
Federal Discretionary Transit Funds	\$750	\$750	\$669	\$725	\$750	\$750	\$750	\$750	\$750	\$750	\$744	\$750	\$750	\$750	\$750	\$750
C-TRAN Funds <sup>e</sup>	\$86- \$102	\$129- \$151	\$0	\$0	\$226- \$265	\$274- \$321	\$71- \$88	\$93- \$115	\$145- \$170	\$177- \$207	\$0	\$20- \$25	\$269- \$316	\$304- \$357	\$111- \$137	\$140- \$172
TriMet Funds <sup>e</sup>	\$12- \$27	\$17- \$40	\$0	\$0	\$30- \$69	\$37- \$84	\$13- \$29	\$16- \$38	\$19- \$44	\$24- \$54	\$0	\$4-\$8	\$36- \$83	\$41- \$94	\$20- \$45	\$25- \$56
<b>Total Revenues</b>	<b>\$3,709</b>	<b>\$3,915</b>	<b>\$3,535</b>	<b>\$3,736</b>	<b>\$3,902</b>	<b>\$4,091</b>	<b>\$3,719</b>	<b>\$3,924</b>	<b>\$3,597</b>	<b>\$3,781</b>	<b>\$3,414</b>	<b>\$3,587</b>	<b>\$3,767</b>	<b>\$3,950</b>	<b>\$3,581</b>	<b>\$3,758</b>
Toll Credits <sup>f</sup>	\$60	\$16	\$134	\$145	\$0	\$0	\$70	\$45	\$0	\$0	\$149	\$127	\$0	\$0	\$25	\$0
C-TRAN Sales and Use Tax Rate <sup>g</sup>	0.10- 0.12%	0.15- 0.18%	0.00%	0.00%	0.27- 0.32%	0.33- 0.39%	0.10- 0.11%	0.13- 0.14%	0.17- 0.20%	0.21- 0.25%	0.00%	0.03%	0.32- 0.38%	0.37- 0.43%	0.16%	0.20- 0.21%

<sup>a</sup> Low cost estimate is 60% confidence estimate from cost risk assessment, High cost estimate is 90% confidence estimate from risk assessment.

<sup>b</sup> From WSDOT's Transportation Partnership Account.

<sup>c</sup> See Exhibit 4.3-1.

<sup>d</sup> Low end of state and regional sources assumes high federal discretionary funds and toll bond proceeds; High end of state and regional sources assumes low federal discretionary funds and bond proceeds.

<sup>e</sup> Low end of C-TRAN share and High end of TriMet share assumes state line as cost dividing point; High end of C-TRAN share and Low end of TriMet share assumes Hayden Is. station as dividing point.

<sup>f</sup> Toll credits do not directly contribute funds to construct the project; they are only used to offset statutory match requirements.

<sup>g</sup> Assumes C-TRAN district wide tax base; if sub-district approach is selected, the tax rate within the sub-district must be proportionately higher.

Note: Costs and revenues are in millions of year of expenditure dollars and rounded to nearest million.





Exhibit 4.4-3

**Capital Finance Plan Scenarios by Alternative and Minimum Operable Segment: With Tolls**

Terminus	Alternative 2				Alternative 3				Alternative 4				Alternative 5			
	Mill Plain		Clark College		Mill Plain		Clark College		Mill Plain		Clark College		Mill Plain		Clark College	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
<b>Cost Estimate<sup>a</sup></b>																
Highway Costs	\$2,741	\$2,911	\$2,763	\$2,905	\$2,772	\$2,920	\$2,773	\$2,920	\$2,560	\$2,719	\$2,575	\$2,711	\$2,586	\$2,743	\$2,586	\$2,699
Transit Costs	\$519	\$559	\$555	\$594	\$596	\$628	\$654	\$689	\$565	\$597	\$617	\$637	\$629	\$704	\$697	\$787
<b>Total Costs</b>	<b>\$3,260</b>	<b>\$3,470</b>	<b>\$3,318</b>	<b>\$3,499</b>	<b>\$3,368</b>	<b>\$3,548</b>	<b>\$3,427</b>	<b>\$3,609</b>	<b>\$3,125</b>	<b>\$3,316</b>	<b>\$3,192</b>	<b>\$3,348</b>	<b>\$3,214</b>	<b>\$3,447</b>	<b>\$3,283</b>	<b>\$3,486</b>
<b>Sources</b>																
Existing State Revenue <sup>b</sup>	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20
Federal Discretionary Highway Funds	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600	\$400- \$600
Toll Bond Proceeds <sup>c</sup>	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$1,070- \$1,350	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160	\$910- \$1,160
State Administered Revenues <sup>d</sup>	\$771- \$1,251	\$941- \$1,421	\$793- \$1,273	\$935- \$1,415	\$802- \$1,282	\$950- \$1,430	\$803- \$1,283	\$950- \$1,430	\$780 - \$1,230	\$939- \$1,389	\$795- \$1,245	\$931- \$1,381	\$806- \$1,256	\$963- \$1,413	\$806- \$1,256	\$919- \$1,369
Federal Discretionary Transit Funds	\$519	\$559	\$555	\$594	\$596	\$628	\$654	\$689	\$565	\$597	\$617	\$637	\$629	\$704	\$697	\$750
C-TRAN Funds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$26- \$32
TriMet Funds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5- \$11
<b>Total Revenues</b>	<b>\$3,260</b>	<b>\$3,470</b>	<b>\$3,318</b>	<b>\$3,499</b>	<b>\$3,368</b>	<b>\$3,548</b>	<b>\$3,427</b>	<b>\$3,609</b>	<b>\$3,125</b>	<b>\$3,316</b>	<b>\$3,192</b>	<b>\$3,348</b>	<b>\$3,214</b>	<b>\$3,394</b>	<b>\$3,283</b>	<b>\$3,439</b>
Toll Credits <sup>e</sup>	\$104	\$112	\$111	\$119	\$119	\$126	\$131	\$138	\$113	\$119	\$123	\$127	\$126	\$141	\$139	\$148
C-TRAN Sales and Use Tax Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05- 0.06%

<sup>a</sup> Low cost estimate is 60% confidence estimate from cost risk assessment, High cost estimate is 90% confidence estimate from risk assessment.

<sup>b</sup> From WSDOT's Transportation Partnership Account.

<sup>c</sup> See Exhibit 4.3-1.

<sup>d</sup> Low end of state and regional sources assumes high federal discretionary funds and toll bond proceeds; High end of state and regional sources assumes low federal discretionary funds and bond proceeds.

<sup>e</sup> Toll credits do not directly contribute funds to construct the project; they are only used to offset statutory match requirements.

Note: Costs and revenues are in millions of year of expenditure dollars and rounded to nearest million.

Exhibit 4.4-4

**Capital Finance Plan Scenarios by Alternative and Minimum Operable Segment: Without Tolls**

Terminus	Alternative 2				Alternative 3				Alternative 4				Alternative 5			
	Mill Plain		Clark College		Mill Plain		Clark College		Mill Plain		Clark College		Mill Plain		Clark College	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Highway Costs	\$2,741	\$2,911	\$2,763	\$2,905	\$2,772	\$2,920	\$2,773	\$2,920	\$2,560	\$2,719	\$2,575	\$2,711	\$2,586	\$2,744	\$2,586	\$2,699
Transit Costs	\$519	\$559	\$555	\$594	\$596	\$628	\$654	\$689	\$565	\$597	\$617	\$637	\$629	\$704	\$697	\$787
<b>Total Costs</b>	<b>\$3,260</b>	<b>\$3,470</b>	<b>\$3,318</b>	<b>\$3,499</b>	<b>\$3,368</b>	<b>\$3,548</b>	<b>\$3,427</b>	<b>\$3,609</b>	<b>\$3,125</b>	<b>\$3,316</b>	<b>\$3,192</b>	<b>\$3,348</b>	<b>\$3,214</b>	<b>\$3,447</b>	<b>\$3,283</b>	<b>\$3,486</b>
<b>Sources</b>																
Existing State Revenue <sup>v</sup>	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20
Federal Discretionary Highway Funds	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600	\$400-\$600
Toll Bond Proceeds <sup>c</sup>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Administered Revenues <sup>d</sup>	\$2,121-\$2,321	\$2,291-\$2,491	\$2,143-\$2,343	\$2,285-\$2,485	\$2,152-\$2,352	\$2,300-\$2,500	\$2,153-\$2,353	\$2,300-\$2,500	\$1,940-\$2,140	\$2,099-\$2,299	\$1,955-\$2,155	\$2,091-\$2,291	\$1,966-\$2,166	\$2,124-\$2,324	\$1,966-\$2,166	\$2,079-\$2,279
FTA New Starts Grant	\$519	\$559	\$555	\$594	\$596	\$628	\$654	\$689	\$565	\$597	\$617	\$637	\$629	\$704	\$697	\$750
C-TRAN Funds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$26-\$32
TriMet Funds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5-\$11
<b>Total Revenues</b>	<b>\$3,260</b>	<b>\$3,470</b>	<b>\$3,318</b>	<b>\$3,499</b>	<b>\$3,368</b>	<b>\$3,548</b>	<b>\$3,427</b>	<b>\$3,609</b>	<b>\$3,125</b>	<b>\$3,316</b>	<b>\$3,192</b>	<b>\$3,348</b>	<b>\$3,214</b>	<b>\$3,394</b>	<b>\$3,283</b>	<b>\$3,439</b>
Toll Credits <sup>e</sup>	\$104	\$112	\$111	\$119	\$119	\$126	\$131	\$138	\$113	\$119	\$123	\$127	\$126	\$130	\$139	\$148
C-TRAN Sales and Use Tax Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05-0.06%

<sup>a</sup> Low cost estimate is 60% confidence estimate from cost risk assessment, High cost estimate is 90% confidence estimate from risk assessment.

<sup>b</sup> From WSDOT's Transportation Partnership Account.

<sup>c</sup> No-toll scenario.

<sup>d</sup> Low end of state and regional sources assumes high federal discretionary funds and toll bond proceeds; High end of state and regional sources assumes low federal discretionary funds and bond proceeds.

<sup>e</sup> Toll credits do not directly contribute funds to construct the project; they are only used to offset statutory match requirements.

Note: Costs and revenues are in millions of year of expenditure dollars and rounded to nearest million.

With tolling (Exhibit 4.4-1) \$876 million to \$1.521 billion in State Administered Revenues would be required to fund Alternative 2 with the full-length transit terminus options. Without tolling (Exhibit 4.4-2) \$2.226 to \$2.591 billion in State Administered Revenues would be required. With the Kiggins Bowl terminus, Alternative 2 would require \$86 to \$151 million in C-TRAN Funds and \$12 to \$40 million in TriMet Funds. If funded through a district-wide tax, the C-TRAN contribution would require a 0.10 percent to 0.18 percent increase in the sales and use tax rate. With the Lincoln terminus or the Mill Plain or Clark College MOS (Exhibits 4.4-3 and 4.4-4), toll credits could be used to meet local match requirements for Alternative 2.

With tolling (Exhibit 4.4-1) \$887 million to \$1.492 billion in State Administered Revenues would be required to fund Alternative 3 with the full-length transit terminus options. Without tolling (Exhibit 4.4-2) \$2.237 to \$2.623 billion in State Administered Revenues would be required. With the Kiggins Bowl terminus, Alternative 3 would require \$226 to \$321 million in C-TRAN Funds and \$30 to \$84 million in TriMet Funds. If funded through a district-wide tax, the C-TRAN contribution would require a 0.27 percent to 0.3 percent increase in the sales and use tax rate. With the Lincoln terminus, Alternative 3 would require \$0 to \$115 million in C-TRAN Funds and \$0 to \$38 million in TriMet Funds. If funded through a district-wide tax, the C-TRAN contribution would require up to a 0.14 percent increase in the sales and use tax rate. With the Mill Plain or Clark College MOS (Exhibits 4.4-3 and 4.4-4), toll credits could be used to meet local match requirements for Alternative 3.

With tolling (Exhibit 4.4-1) \$878 million to \$1.469 billion in State Administered Revenues would be required to fund Alternative 4 with the full-length transit terminus options. Without tolling (Exhibit 4.4-2) \$2.038 to \$2.389 billion in State Administered Revenues would be required. With the Kiggins Bowl terminus, Alternative 4 would require \$145 to \$207 million in C-TRAN Funds and \$19 to \$54 million in TriMet Funds. If funded through a district-wide tax, the C-TRAN contribution would require a 0.17 percent to 0.25 percent increase in the sales and use tax rate. With the Lincoln terminus the C-TRAN contribution would require, at most, a very minor increase in the sales and use tax rate. With the Mill Plain or Clark College MOS (Exhibits 4.4-3 and 4.4-4), toll credits could be used to meet local match requirements for Alternative 4.

With tolling (Exhibit 4.4-1) \$885 million to \$1.472 billion in State Administered Revenues would be required to fund Alternative 5 with the full-length transit terminus options. Without tolling (Exhibit 4.4-2) \$2.045 to \$2.393 billion in State Administered Revenues would be required. With the Kiggins Bowl terminus, Alternative 5 would require \$269 to \$357 million in C-TRAN Funds and \$36 to \$94 million in TriMet Funds. If funded through a district-wide tax, the C-TRAN contribution would require a 0.32 percent to 0.40 percent increase in the sales and use tax rate. With the Lincoln terminus, Alternative 5 would require \$111 to \$172 million in C-TRAN Funds and \$20 to \$56 million in TriMet Funds. If funded through a district-wide tax, the C-TRAN contribution would require a 0.16 percent to 0.21 percent increase in the sales and use tax rate. With the Mill Plain or Clark College MOS

(Exhibits 4.4-3 and 4.4-4), toll credits could be used to meet local match requirements for Alternative 5.

## 4.5 CRC Operations and Maintenance Costs and Finance Scenarios

In this section the operating and maintenance (O&M) costs and revenues for the CRC alternatives are discussed and assembled into a range of preliminary finance plan scenarios. While these preliminary scenarios will be refined during the FEIS stage, they illustrate the basic O&M financial trade-offs and issues associated with the CRC alternatives and transit terminus options.

The responsibility for funding the O&M costs of the CRC alternatives will be defined in an agreement between WSDOT, ODOT, C-TRAN, and TriMet that will be prepared during the FEIS. It is currently assumed that all transit-related O&M costs will be shared between C-TRAN and TriMet and all highway-related O&M costs, including those related to tolling, will be shared by ODOT and WSDOT. Where overlapping O&M costs exist, such as those relating to a joint highway/transit bridge, a cost sharing formula will be developed that allocates costs based on the relative burdens placed by the highway and transit uses.

### 4.5.1 Highway Operations and Maintenance

#### Highway O&M Costs

A preliminary analysis was undertaken to identify the operations, maintenance, and major rehabilitation costs associated with the highway component of the CRC alternatives.<sup>20</sup> These costs will be refined in future project development stages. The preliminary estimates of the highway O&M costs of the CRC alternatives include:

- *Facility O&M Costs*, including such expenses as landscaping, sign repair and replacement, guardrail repair, painting, pavement marking, snow removal, lift span operation, incident response, lighting, etc. These costs address both the bridge and the roadway costs in the project area. Routine bridge maintenance costs were extrapolated from actual cost experience on the I-5 crossing. Routine roadway maintenance costs were based on a per-mile cost assumption. The annual Facility O&M Costs for Alternatives 2 and 3, which assume the replacement crossing, were estimated to be about \$0.7 million in current dollars. Annual Facility O&M Costs for Alternatives 4 and 5, which assume the supplemental crossing, were estimated at \$1.4 million; the difference resulting from the costs of the lift span operation on the existing bridges. The Annual Facility O&M costs for the Stacked Transit/Highway Bridge will be developed during the FEIS stage.
- *Periodic Major Maintenance, Renovation and Rehabilitation* expenditures, including deck overlays, asphaltting, and painting the trusses. The existing bridges are estimated to require \$107 million

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<sup>20</sup> CRC, Operations, Maintenance, and Major Rehabilitation Assumptions including Toll Collection Costs, 2007

(current dollars) in rehabilitation and renovation costs over the 40-year planning period.

- *Toll Collection O&M Costs*, including fixed and variable costs. Fixed toll collection costs were estimated to be \$1.5 million per year in current dollars, based on factors derived for WSDOT's SR 520 project and independent analyses undertaken for the CRC Project. Variable toll O&M costs include those costs associated with toll collection, customer service, and enforcement activities that vary directly with marginal changes in traffic. These costs were estimated on a cost per transaction basis. The cost in current dollars of processing each electronic payment is estimated to be \$0.25 per transaction and the additional cost of processing a pay-by-plate transaction is estimated to be \$1.00. Credit card fees were assumed to be two percent of total gross revenues.

### **Highway O&M Finance Scenario**

If the crossing were not tolled, the highway O&M costs associated with the CRC alternatives would be divided between the states and funded through their respective highway trust funds, as is the current practice. If the crossing is tolled, the highway and bridge maintenance and operations costs of the CRC alternatives would be paid with toll revenues throughout the duration of the tolls. The net toll revenues used to estimate the toll bond capacity in Section 4.3 deducted the highway O&M costs from the gross toll revenues in advance of any debt service payments. When the tolls are terminated, the highway O&M costs would be divided between the states and funded through the respective highway trust funds.

Since the states currently fund the O&M costs on the existing bridge and freeway and the highway O&M costs associated with the CRC alternatives are either similar to (for Alternatives 4 and 5) or less than (for Alternatives 2 and 3) the O&M costs on the existing facilities, no problems are anticipated in meeting highway O&M costs of the CRC alternatives.

## **4.5.2 Transit Operations and Maintenance Costs**

### **Assumptions Underlying Transit O&M Costs**

The transit components of the CRC alternatives require operation of a high-capacity transit line that crosses state and transit district boundaries, causing certain unique operations-related issues to be addressed. The O&M costs are based on the policy assumptions summarized below.

The bi-state governance of transit operations and maintenance would be handled through intergovernmental/interlocal agreements between C-TRAN and TriMet. TriMet and C-TRAN have the authority to enter into such agreements with each other. While the terms of the agreements will be addressed during preparation of the FEIS, an intergovernmental/Interlocal agreement would typically leave existing governing structures in place; establish specific roles, responsibilities, and authorities for both parties; and require approval of significant operations and maintenance issues by the Boards of both districts. A bi-state compact, which typically refers to the creation of a legislatively and Congressionally

approved quasi-independent entity for operations and maintenance of the bi-state system, is an alternative governance structure that was considered, but is currently not assumed because it may add administrative complexity without providing a commensurate benefit.

Transit riders from each district would be allowed to seamlessly and freely transfer to transit services in the other district. Each transit district would accept valid fare instruments from the other district. An agreement would be established describing how bi-state farebox revenues are shared between the districts to ensure an equitable allocation of these revenues.

While each transit agency would have certain approval authorities regarding operations, one agency would have primary responsibility to operate and maintain the HCT line. If BRT is implemented, it is assumed that C-TRAN would operate and maintain the BRT vehicles and guideway. The BRT riders would transfer to/from the Interstate MAX light rail line at the Expo Center station and TriMet would operate and maintain the Interstate MAX line. If light rail is implemented, it is assumed that TriMet would operate and maintain the light rail vehicles, guideway, and systems. The actual details of such arrangements, such as which agency would operate/maintain specific park-and-rides and stations, will be resolved during the FEIS stage.

Since the transit networks incorporated in each CRC alternative operate within and serve the C-TRAN and TriMet districts, a transit operations cost sharing agreement would be established between the districts. This analysis assumes that (i) the local bus service provided by both districts would remain the sole responsibility of the transit district providing the service; (ii) the base cost of operating the Interstate MAX line between downtown and Expo Center would remain TriMet's obligation; and (iii) a cost sharing formula would be established between the two transit districts to pay for the marginal cost<sup>21</sup> of extending high-capacity transit between the Expo Center and the northern transit terminus.

Regarding the sharing of high-capacity transit O&M costs, this analysis assumes two alternative cost sharing formulae that proportion the local match required from each transit district based on the relative length of the alignment associated with the district: (i) using the Jantzen Beach station as the dividing point, and (ii) using the state line as the dividing point. During the preparation of the FEIS, C-TRAN and TriMet will negotiate a cost allocation formula, which will be incorporated in an intergovernmental/interlocal agreement and approved by the governing boards of both districts.

### **Transit O&M Costs**

Given the policy framework described above, year 2030 transit O&M costs associated with the terminus options were estimated based on the detailed networks and cost estimating methodology described in the CRC Transit Technical Report.<sup>22</sup> Operations and maintenance costs are based on the service scenarios assumed for this analysis.

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<sup>21</sup> Marginal cost is the added cost of the build alternatives compared to the No-Build alternative.

<sup>22</sup> CRC Transit Technical Report, 2007.

As shown in Exhibit 4.5-1, the transit O&M costs (year 2030) associated with the full-length transit terminus options for Alternatives 2 and 3, are \$3.51 to \$5.31 million (2007 dollars) higher than for the No-Build Alternative. The transit O&M costs for Alternative 3 are \$0.90 to \$1.80 million (2007 dollars) less than those for Alternative 2. The transit O&M costs associated with the full-length transit terminus options with Alternatives 4 and 5 are substantially higher than those associated with Alternatives 2 and 3 due to the enhanced C-TRAN network incorporated in Alternatives 4 and 5.

Exhibit 4.5-1

**Year 2030 Transit O&M Costs by Alternative and Full-Length Transit Terminus<sup>a</sup>**

Terminus	No-Build	Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	N/A	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln
Corridor LRT <sup>b</sup>	\$7.30	\$7.30	\$7.30	\$11.08	\$10.87	(f)	\$7.30	(f)	\$11.05
Corridor BRT	\$0.00	\$4.24	\$4.29	\$0.00	\$0.00	(f)	\$6.58	(f)	\$0.00
<b>Total Corridor HCT</b>	\$7.30	\$11.54	\$11.59	\$11.08	\$10.87	(f)	\$13.88	(f)	\$11.05
TriMet Corridor Bus <sup>c</sup>	\$33.22	\$33.08	\$33.08	\$33.08	\$33.08	(f)	\$42.85	(f)	\$41.95
C-TRAN Corridor Bus <sup>d</sup>	\$29.25	\$30.30	\$30.41	\$29.86	\$29.33	(f)	\$57.65	(f)	\$52.45
<b>Total Corridor Bus</b>	\$62.47	\$63.38	\$63.48	\$62.94	\$62.41	(f)	\$100.50	(f)	\$94.41
Marginal Total HCT O&M cost <sup>e</sup>	N/A	\$4.24	\$4.29	\$3.78	\$3.57	(f)	\$6.58	(f)	\$3.75
Marginal Total Corridor Bus O&M cost <sup>f</sup>	N/A	\$0.91	\$1.01	\$0.47	-\$0.06	(f)	\$38.03	(f)	\$31.94
<b>Total Marginal O&amp;M Cost<sup>e</sup></b>	N/A	\$5.15	\$5.31	\$4.25	\$3.51	(f)	\$44.61	(f)	\$35.69

Source: CRC Transit Technical Report, 2007.

<sup>a</sup> Costs are annual 2030 transit O&M costs and are stated in millions of 2007 dollars rounded to nearest ten thousand.

<sup>b</sup> Corridor O&M costs include light rail operations on the existing Interstate MAX line between downtown Portland and the Expo Center, plus any applicable extension.

<sup>c</sup> TriMet Corridor bus O&M costs are based on operations within a north/northeast Portland sub-district serving the Interstate MAX line.

<sup>d</sup> C-TRAN Corridor bus O&M costs include all fixed route bus service and express service in the C-TRAN system, excluding any HCT O&M costs.

<sup>e</sup> Added costs compared to the No Build alternative.

<sup>f</sup> O&M costs for Alternatives 4 and 5 paired with the Kiggins Bowl transit terminus were not modeled; these O&M costs would not be materially higher than those shown for the Lincoln terminus option.

Exhibit 4.5-2 shows the 2030 transit O&M costs associated with the MOS terminus options. For the MOS terminus options, the transit O&M cost associated with Alternative 3 is \$2.2 to \$2.3 million (2007 dollars) less than those associated with Alternative 2. The transit O&M cost associated with the Mill Plain District MOS terminus option is slightly lower than those associated with the Clark College MOS option.

Exhibit 4.5-2

**Year 2030 Transit O&M Costs by Alternative and Minimum Operable Segment Terminus Options<sup>a</sup>**

Terminus	No Build	Alternative 2		Alternative 3	
	N/A	Mill Plain	Clark College	Mill Plain	Clark College
Corridor LRT <sup>b</sup>	\$7.30	\$7.30	\$7.30	\$9.60	\$10.34
Corridor BRT	\$0.00	\$4.41	\$4.42	\$0.00	\$0.00
<b>Total Corridor HCT</b>	\$7.30	\$11.71	\$11.72	\$9.60	\$10.34
TriMet Corridor Bus <sup>c</sup>	\$33.22	\$33.08	\$33.08	\$33.08	\$33.08
C-TRAN Corridor Bus <sup>d</sup>	\$29.25	\$30.09	\$30.13	\$29.92	\$29.39
<b>Total Corridor Bus</b>	\$62.47	\$63.16	\$63.20	\$62.99	\$62.39
Total Marginal HCT O&M Cost <sup>e</sup>	N/A	\$4.41	\$4.42	\$2.30	\$3.04
Total Marginal Corridor Bus O&M Cost <sup>e</sup>	N/A	\$0.69	\$0.73	\$0.52	-\$0.08
<b>Total Marginal O&amp;M Cost<sup>e</sup></b>	N/A	\$5.10	\$5.15	\$2.82	\$2.96

Source: CRC Transit Technical Report.

- <sup>a</sup> Costs are annual 2030 O&M costs and are stated in millions of 2007 dollars rounded to nearest ten thousand.
- <sup>b</sup> Corridor O&M costs include light rail operations on the existing Interstate MAX line between downtown Portland and the Expo Center, plus any applicable extension.
- <sup>c</sup> TriMet Corridor bus O&M costs are based on operations within a north/northeast Portland sub-district serving the Interstate MAX line.
- <sup>d</sup> C-TRAN Corridor bus O&M costs include all fixed route bus service and express service in the C-TRAN system, excluding any HCT O&M costs.
- <sup>e</sup> Marginal costs compared to the No Build Alternative.

**Transit Operations and Maintenance Finance Plan Scenarios**

While C-TRAN’s share of CRC-related O&M costs may be funded with a combination of revenue sources, the base assumptions is that a C-TRAN district-wide sales and use tax that would be used to provide the revenue needed to cover O&M shortfalls.

The transit O&M finance scenarios presented in the following section address the additional costs of the build alternatives compared to the No-Build alternative. C-TRAN is developing a 20-year improvement plan for its district that may require supplemental revenues independent of the CRC project. Future efforts would integrate the CRC project financing requirements with those of the 20-year plan, once the 20-year plan is settled. The current TriMet 20-year plan incorporates CRC O&M costs.

Exhibit 4.5-3 shows the transit O&M finance plan scenarios resulting from the policy assumptions described above for each alternative and full-length transit terminus.



Exhibit 4.5-3

**Transit O&M Finance Plan Scenarios by Alternative and Full-Length Transit Terminus<sup>a</sup>**

Terminus	Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln	Kiggins Bowl	Lincoln
<b>C-TRAN</b>								
C-TRAN share of annual marginal HCT O&M costs <sup>b</sup>	\$3.2-\$3.8	\$3.1-\$3.8	\$2.9-\$3.4	\$2.5-\$3.1	(d)	\$4.7-\$5.8	(d)	\$2.7-\$3.3
C-TRAN annual marginal bus O&M cost	\$1.1	\$1.2	\$0.6	\$0.1	(d)	\$28.4	(d)	\$23.2
<b>Total C-TRAN O&amp;M Cost</b>	\$4.3-\$4.9	\$4.3-\$5.0	\$3.5-\$4.0	\$2.6-\$3.2	(d)	\$33.1-\$34.2	(d)	\$25.9-\$26.5
Required C-TRAN Sales and Use Tax Rate	0.08%- 0.09%	0.08%- 0.09%	0.06%- 0.07%	0.05%- 0.06%	(d)	0.61%- 0.63%	(d)	0.48%- 0.49%
<b>TriMet</b>								
TriMet share of annual marginal HCT O&M costs <sup>b</sup>	\$0.4-\$1.0	\$0.5-\$1.2	\$0.4-\$0.9	\$0.4-\$1.0	(d)	\$0.8-\$1.9	(d)	\$0.5-\$1.1
TriMet annual marginal bus O&M cost	-\$0.1	-\$0.1	-\$0.1	-\$0.1	(d)	\$9.6	(d)	\$8.7
<b>Total TriMet O&amp;M Cost</b>	\$0.3-\$0.9	\$0.4-\$1.1	\$0.3-\$0.8	\$0.3-\$0.9	(d)	\$10.4-\$11.5	(d)	\$9.3-\$9.8

<sup>a</sup> Costs are for 2030 O&M costs and are stated in millions of 2007 dollars rounded to nearest hundred thousand.

<sup>b</sup> Marginal O&M costs represent the difference between the O&M cost for the applicable alternative and the No Build. The range shown reflects the alternative cost sharing formula between C-TRAN and TriMet.

<sup>c</sup> Assumes that C-TRAN's total marginal cost would be paid by increase to district-wide sales and use tax. If sub-district tax undertaken, the required tax rate increase would be proportionately higher.

<sup>d</sup> O&M costs for Alternatives 4 and 5 paired with the Kiggins Bowl transit terminus were not modeled; the C-TRAN and TriMet shares of O&M Cost would not be materially higher than those shown for the Lincoln terminus option.

As shown, the year 2030 transit O&M costs (in 2007 dollars) for Alternative 2 allocable to C-TRAN range between \$4.3 and \$5.0 million. These costs could be met by increasing the district wide sales and use tax rate by less than 1/10th of 1 percent. The year 2030 marginal transit O&M costs of Alternative 3 allocable to C-TRAN are slightly lower than for Alternative 2. For Alternatives 2 and 3, the year 2030 transit O&M costs allocable to TriMet range between \$0.3 and \$1.1 million, which TriMet can meet with existing resources. The year 2030 O&M costs of Alternatives 4 and 5 allocable to C-TRAN range between \$25.9 and \$34.2 million. This would necessitate a sales and use tax rate increase of 0.48 percent to 0.63 percent. Additional O&M funding would also be required by TriMet.

Exhibit 4.5-4 shows the transit O&M finance plan scenarios for the transit MOS terminus options. The 2030 transit O&M costs allocable to C-TRAN and the associated sales and use tax rate are slightly lower for the MOS options than those shown for Alternatives 2 and 3 in Exhibit 4.5-3. While the 2030 transit O&M costs allocable to TriMet are higher than those shown for Alternatives 2 and 3, they remain within TriMet's ability to meet with existing revenues.

Exhibit 4.5-4

**Transit O&M Finance Plan Scenarios by Alternative and MOS Terminus Options <sup>a</sup>**

Terminus	Alternative 2		Alternative 3	
	Mill Plain	Clark College	Mill Plain	Clark College
C-TRAN				
C-TRAN share of annual marginal HCT O&M cost <sup>b</sup>	\$2.3-\$3.5	\$2.9-\$3.7	\$1.2-\$1.8	\$2.0-\$2.6
C-TRAN annual marginal bus O&M cost	\$0.8	\$0.9	\$0.7	\$0.1
<b>Total C-TRAN O&amp;M Cost</b>	<b>\$3.1-\$4.3</b>	<b>\$3.8-\$4.6</b>	<b>\$1.9-\$2.5</b>	<b>\$2.1-\$2.7</b>
Required C-TRAN Sales and Use Tax Rate <sup>c</sup>	0.06%-0.06%	0.07%-0.09%	0.03%-0.05%	0.04%-0.05%
TriMet				
TriMet share of annual marginal HCT O&M cost <sup>b</sup>	\$0.9-\$2.1	\$0.7-\$1.5	\$0.5-\$1.1	\$0.5-\$1.1
TriMet annual marginal bus O&M cost	-\$0.1	-\$0.1	-\$0.1	-\$0.1
<b>Total TriMet O&amp;M Cost</b>	<b>\$0.8-\$2.0</b>	<b>\$0.6-\$1.4</b>	<b>\$0.4-\$1.0</b>	<b>\$0.4-\$1.0</b>

<sup>a</sup> Costs are for 2030 O&M costs and are stated in millions of 2007 dollars rounded to nearest hundred thousand.

<sup>b</sup> Marginal O&M costs represent the difference between the O&M cost for the applicable alternative and the No-Build. The range shown reflects the alternative cost sharing formula between C-TRAN and TriMet. Low end of C-TRAN share and High end of TriMet share assumes state line as cost dividing point; High end of C-TRAN share and Low end of TriMet share assumes Hayden Is. station as dividing point.

<sup>c</sup> Assumes that C-TRAN's total marginal cost would be paid by increase to district-wide sales and use tax. If sub-district tax undertaken, the required tax rate increase would be proportionately higher.

## 4.6 Implementation Issues

Implementation of the CRC project, including its financial plan, would require a wide range of public and governmental activities, agreements, and approvals. These include the following:

- Following publication of the DEIS, the governing bodies of the participating governments must approve a locally preferred alternative to advance to the Final Environmental Impact Statement (FEIS) stage.
- An initial New Starts rating package (including a preliminary finance plan and cost effectiveness evaluation of the locally preferred alternative) and an application to enter Preliminary Engineering must be submitted to and approved by FTA.
- WSDOT, ODOT, C-TRAN, TriMet, and possibly the Cities of Vancouver and Portland, must prepare agreements on roles and responsibilities for project development, construction, and capital funding that address such issues as project management and decision-making, capital cost sharing, how potential cost-overruns are managed, and contracting procedures.

- Agreements between C-TRAN and TriMet must be prepared that addresses roles and responsibilities for operation and maintenance of the high-capacity transit extension and related bus service, including such issues as fare reciprocity, service and transfer policy, and cost and revenue sharing.
- If new state funding sources are required in Washington and/or Oregon, legislative approval of a funding bill would be required by the applicable legislature(s).
- If federal discretionary highway funds are included in the final finance plan, the funds would either have to be incorporated in one or more bills approved by Congress; and/or a discretionary grant, or combination of grants, must be approved administratively by FHWA and/or FTA.
- If required, C-TRAN must prepare and secure voter approval of an HCT system and finance plan required under Washington's HCT Act, including any associated revenue sources required by the transit capital plan and operations and maintenance finance plan.
- To secure the Oregon transit contribution, the TriMet Board must approve the project.
- If Transportation Benefit District funds are employed in the final plan, the City of Vancouver and, possibly, Clark County must establish the district, and, if necessary, seek voter approval of the associated funding.
- WSDOT must formally allocate the needed amount of toll credits to the project.
- WSDOT, ODOT, C-TRAN, TriMet, and potentially other entities, must enter into binding commitments to provide their respective funding shares to the project.
- A final environmental impact statement (FEIS) must be prepared and record of decision (ROD) issued.
- The proposed action must be incorporated into the fiscally constrained regional transportation plans for Metro and RTC, and air quality conformity will have to be demonstrated.
- Subsequent to the FEIS, an updated New Starts rating package must be submitted and FTA rating obtained, and a Final Design application submitted to and approved by FTA.
- If tolling is included in the locally preferred alternative, a toll agreement between ODOT, WSDOT, and FHWA must be prepared, and the toll rates must be set by the transportation commission of each state.
- A finance plan must be submitted to FHWA in compliance with its requirements for Major Projects.
- To obtain the federal discretionary New Starts grant, the project must receive a sufficient New Starts rating; FTA must approve and, after Congressional review, execute a full funding grant agreement.

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