APPENDIX D

Early Screening of Project Components and Evaluation of Alternatives Packages

The Columbia River Crossing (CRC) co-lead agencies and project team led the process of developing potential alternatives for the CRC project. This involved first identifying possible transportation components (e.g., transit technologies, river crossing types, river crossing locations and other components) that could potentially address the various needs identified for the CRC project. Over 70 such components were identified in the 2002 I-5 Transportation and Trade Partnership Final Strategic Plan and through additional public and stakeholder outreach that continued through 2006.

After identifying these components, project staff evaluated their potential to address the project's Purpose and Need. This evaluation focused on transit components and river crossing options. Other components, such as transportation demand management (TDM) measures or highway improvements north and south of the river, could not be adequately evaluated at the time because their performance would depend critically on their integration with transit and river crossing improvements.

The initial screening effort in April 2006 evaluated 37 river crossing and transit components using a pass/fail test designed to eliminate ideas well outside the scope of the project and/or that clearly could not address the relevant elements of the project's Purpose and Need. This test relied upon six pass/fail questions to determine which river crossing and transit components should advance for further consideration. These questions asked whether each component:

1. Either increases vehicular capacity or decreases vehicular demand?
2. Improves transit performance within the bridge influence area?[1]
3. Improves freight mobility within the bridge influence area?
4. Improves safety and decreases vulnerability to incidents within the bridge influence area?
5. Improves bicycle and pedestrian mobility within the bridge influence area?
6. Reduces seismic risk of the I-5 Columbia River Crossing?

Components were eliminated from further consideration if they failed any of these six questions, as failure on any of these questions was deemed a fatal flaw for meeting this project's Purpose and Need. Transit components were only evaluated on the first, second, and fourth questions, as the other questions do not apply to the transit portion of this project. Information about the screening processes can be found in Section 2.7, Alternatives Development and Screening Process, of this FEIS, and in the CRC memo, Development of the Range of Alternatives.

1 The bridge influence area (BIA) consists of the I-5 corridor within the CRC project area, which extends from SR 500 in Vancouver, Washington, south to approximately Columbia Boulevard in Portland, Oregon.

The following table summarizes the results of the initial screening process:

Early Screening Results

F = Fail
P = Pass
U = Undetermined – components were not dropped based upon this result

N/A = Not applicable

			Increase vehicular capacity or decrease vehicular demand?	Improve transit performance?	Improve freight mobility	Improve safety and decrease vulnerability to incidents?	Improve bicycle and pedestrian mobility?	Reduce seismic risk of the I-5 Columbia River Crossing?	Overall
Transit	TR-1	Express Bus in general purpose lanes	P	P	N/A	U	N/A	N/A	P
	TR-2	Express Bus in managed lanes	P	P	N/A	U	N/A	N/A	P
	TR-3	Bus Rapid Transit (BRT)-Lite	P	P	N/A	U	N/A	N/A	P
	TR-4	Bus Rapid Transit (BRT)- Full	P	P	N/A	U	N/A	N/A	P
	TR-5	Light Rail Transit (LRT)	P	P	N/A	U	N/A	N/A	P
	TR-6	Streetcar	P	P	N/A	U	N/A	N/A	P
	TR-7	High Speed Rail	F	F	N/A	U	N/A	N/A	F
	TR-8	Ferry Service	F	F	N/A	U	N/A	N/A	F
	TR-9	Monorail System	P	F	N/A	U	N/A	N/A	F
	TR-10	Magnetic Levitation Railway	F	F	N/A	U	N/A	N/A	F
	TR-11	Commuter Rail	P	F	N/A	U	N/A	N/A	F
	TR-12	Heavy Rail	P	F	N/A	U	N/A	N/A	F
	TR-13	Personal Rapid Transit	F	F	N/A	U	N/A	N/A	F
	TR-14	People Mover/Automated Guideway Transit	P	F	N/A	U	N/A	N/A	F
River Crossing	RC-1	Replacement Bridge-Downstream/Low-level/Movable	P	P	P	P	P	P	P
	RC-2	Replacement Bridge-Upstream/Low-level/Movable	P	P	P	P	P	P	P
	RC-3	Replacement Bridge-Downstream/Mid-level	P	P	P	P	P	P	P
	RC-4	Replacement Bridge-Upstream/Mid-level	P	P	P	P	P	P	P
	RC-5	Replacement Bridge-Downstream/High-level	P	P	P	F	P	P	F
	RC-6	Replacement Bridge-Upstream/High-level	P	P	P	F	P	P	F
	RC-7	Supplemental Bridge-Downstream/Low-level/Movable	P	P	P	U	P	U	P
	RC-8	Supplemental Bridge-Upstream/Low-level/Movable	P	P	P	U	P	U	P
	RC-9	Supplemental Bridge-Downstream/Mid-level	P	P	P	U	P	U	P
	RC-10	Supplemental Bridge-Upstream/Mid-level	P	P	P	F	P	U	F
	RC-11	Supplemental Bridge-Downstream/High-level	P	P	P	F	P	U	F
	RC-12	Supplemental Bridge-Upstream/High-level	P	P	P	F	P	U	F
	RC-13	Tunnel to supplement I-5	P	P	P	P	P	U	P
	RC-14	New Corridor Crossing	P	F	P	F	F	F	F
	RC-15	New Corridor Crossing plus widen existing I-5 Bridges	P	F	P	F	F	F	F
	RC-16	New Western Highway (I-605)	F	F	F	F	F	F	F
	RC-17	New Eastern Columbia River Crossing	F	F	F	F	F	F	F
	RC-18	I-205 Improvements	F	F	F	F	F	F	F
	RC-19	Arterial Crossing to supplement I-5	F	P	F	F	P	F	F
	RC-20	Replacement Tunnel	F	F	F	P	F	P	F
	RC-21	33rd Avenue Crossing	F	F	F	F	F	F	F
	RC-22	Non-Freeway Multimodal Columbia River Crossing	F	P	F	F	P	F	F
	RC-23	Arterial Crossing with I-5 Improvements	P	P	P	P	P	P	P

Packaging the Most Promising Components

Following the screening of the components listed above, and further evaluation that eliminated other specific components (including streetcar, low-level bridge, and supplemental tunnel), project staff created 12 alternative packages by combining the most promising components. The best performing river crossing types appeared to be a replacement bridge or a supplemental arterial or highway bridge. Express bus, bus rapid transit, and light rail were the most promising transit modes for meeting the Purpose and Need of this project. The 12 packages, listed on the next page, combined different river crossing types and transit modes, as well as specific designs to improve safety, freight movement, highway operations, and bicycle and pedestrian access.

Twelve Alternative Packages Evaluated Prior to Selection of DEIS Alternatives

Existing Bridges Only		Supplemental Bridge (Downstream) with Existing Bridges					Replacement Bridge				
1	2	3	4	5	6	7	8	9	10	11	12
Title											
No Action	Trans. Demand Management / Trans. System Management (TSM)	Supplemental Bridge for Arterial Traffic with Light Rail	Supplemental Bridge for I-5; Light Rail on Existing Bridge	Supplemental Bridge for I-5; Bus Rapid Transit on Existing Bridge	Supplemental Bridge for I-5; Bus Rapid Transit Light on Existing Bridge	Supplemental Bridge for I-5 and Express Bus	Downstream Replacement Bridge for I-5 w/ Light Rail and Express Bus	Downstream Replacement Bridge for I-5 w/ Light Rail	Upstream Replacement Bridge for I-5 w/ Bus Rapid Transit	Downstream Replacement Bridge for I-5 w/ Bus Rapid Transit Lite	Upstream Replacement Bridge for I-5 w/ Express Bus
Themes											
No Action	Minimum Investment: TDM/TSM Emphasis	Maximum Transit Ridership, Minimum I-5 improvements	Balanced Transit/Highway Improvements w/ Light Rail	Balanced Transit/Highway Improvements w/ Bus Rapid Transit	Balanced Transit/Highway Improvements w/ Bus Rapid Transit-Lite	Maximum Vehicle Capacity	Balanced Transit/Highway Improvements w/ Light Rail Transit	Balanced Transit/ Highway Improvements w/ Light Rail Transit	Balanced Transit/ Highway Improvements w/ Bus Rapid Transit	Balanced Transit/ Highway Improvements w/ Bus Rapid Transit-Lite	Maximum Vehicle Capacity
High Capacity Transit Mode across Columbia River											
None	None	Light Rail	Light Rail	Bus Rapid Transit	Bus Rapid Transit-Lite	None	Light Rail	Light Rail	Bus Rapid Transit	Bus Rapid Transit - Lite	None
Other Transit Mode(s) across Bridges											
Express bus, local bus	Express bus, local bus	Express bus, local bus	Local bus	Express bus, local bus	Local bus	Express bus, local bus	Express bus, local bus	Local bus	Local bus	Local bus	Express Bus, local bus
Function of Existing Bridges											
I-5 General Purpose lanes	I-5 General Purpose lanes	I-5 General Purpose lanes	Arterial+Light Rail	Arterial+Bus Rapid Transit	Arterial + Bus Rapid Transit	Arterial	N/A	N/A	N/A	N/A	N/A
Function of New Bridge											
N/A	N/A	Arterial + Light Rail	I-5 w/ Managed Lanes	I-5 w/ Managed Lanes	I-5 w/ Managed Lanes	I-5 w/ Managed Lanes	I-5 w/ Managed Lanes & Light Rail	I-5 w/ Managed Lanes & Light Rail	I-5 w/ Managed Lanes & Bus Rapid Transit	I-5 w/ Managed Lanes & Bus Rapid Transit	I-5 w/ General Purpose lanes
Bike & Pedestrian Improvements											
N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes