NOTEBOOK 2

TAB E: CREATING 12 PRELIMINARY ALTERNATIVES (2006)

PACKAGING THE MOST PROMISING COMPONENTS INTO ALTERNATIVES

As described previously, a series of screening efforts identified several promising possibilities for further study. The best 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.

In July 2006, project staff created 12 alternative packages by combining different river crossing types and transit modes, as well as specific designs to improve safety, freight movement, highway operations, and bicycle and pedestrian access. These 12 packages are described in detail in the documents in this section of the notebook. The 12 alternative packages represented the range of the possible combinations of river crossing and transit components, and the analysis reflected the range of impacts and transportation performance these components could produce.

Staff designed these packages to assess their performance on criteria from the Evaluation Framework, and to see how individual features performed in different combinations. This assessment focused on river crossing types and transit modes. Elements such as interchange configurations and transit alignments were used to model traffic and transit scenarios, but were not individually evaluated or screened.

Evaluation of these 12 alternative packages revealed that multimodal packages performed best. Alternatives that did not include a combination of both highway and transit improvements, such as just an aggressive transportation demand management (TDM) approach or a highway-only investment, were not recommended to be carried into the Draft EIS. A replacement bridge performed best on nearly all criteria, including traffic performance and impacts to the natural environment. Bus rapid transit and light rail provided the best transit performance, particularly when paired with express bus service.

Based on the evaluation of the 12 most promising alternatives, staff recommended to the CRC Task Force that the Draft EIS evaluate the following alternatives: 1) No-Build, 2) replacement bridge with bus rapid transit and express bus, and 3) replacement bridge with light rail and express bus. The CRC Task Force recommended further developing these alternatives in preparation for evaluation in the Draft EIS and undertaking a substantial public involvement effort to gather public input. This process is described in Tab F.

Alternative Packages Evaluation

Columbia River CROSSING

Value	Criteria		Performance Measures
1. Community Livability and Human Resources	1.1 Avoid, then minimize adverse impacts to, and where practicable reduce, noise levels		**1.1.1** No. of residential properties within estimated FHWA noise impact contours.
			1.1.2 No. of residential properties within estimated FTA impact screening contours.
			1.1.3 Identified constraints to providing mitigation for areas with potential impacts
	1.2 Avoid, then minimize adverse impacts to, and where practicable enhance, neighborhood cohesion.		**1.2.1** No. of neighborhoods bisected by new construction
			1.2.2 No. of significantly impacted neighborhoods (> 10% of total area required for new construction)
			1.2.3 No. of neighborhoods divided from their identified resources by new construction
	1.3 Avoid, then minimize adverse impacts to, and where practicable enhance, air quality		**1.3.1** General trade offs in air quality effects of the alternatives
	1.4 Avoid or minimize residential displacements		**1.4.1** No. of residential properties crossed by alternative's conceptual footprint
	1.5 Avoid or minimize business displacements		**1.5.1** No. of commercial/industrial properties crossed by alternative's conceptual footprint
	1.6 Avoid or minimize adverse impacts to, and where practicable, preserve historic, prehistoric, and cultural resources		**1.6.1** No. of historic, archaeological and cultural (i.e., TCP) resource properties within conceptual footprint
			1.6.2 Total acreage of historic, archeological, cultural properties within conceptual footprint
			1.6.3 No. of historic, archaeological and cultural resource properties also within potential noise impact contour
			1.6.4 Total acreage of land located in high probability areas for archeological resources
	1.7 Avoid, then minimize adverse impacts to, and where practicable enhance, public park and recreation resources		**1.7** No. of 4(f) public parks (including # of parks and area of parkland) falling within conceptual footprint
	1.8 Support local comprehensive plans and jurisdiction-approved neighborhood plans including development and redevelopment opportunities, consistent with these plans.		**1.8.1** Does alternative support/uphold principles of multi-modalism and compact growth?
			1.8.2 Is alternative consistent with relevant comprehensive plans?
			1.8.3 Is alternative consistent with project-specific policies in the Vancouver City Center Vision?
			1.8.3 Amount of developable, redevelopable land to be lost under alternative.
	1.9 Incorporate aesthetic values of the community in the project design		**1.9.1** To be measured in later phases of project when design details are available to support evaluation
2. Mobility, Reliability, Accessibility, Congestion Reduction, and Efficiency	2.1 Reduce travel times and delay in the I-5 corridor and within the bridge influence area for passenger vehicles		**2.1.1** Passenger auto travel times in minutes between selected corridor points along I-5. Morning commute (SB I-5) Salmon Creek to Portland CBD; Evening commute (NB I-5) Portland CBD to Vancouver CBD
			2.1.2 Passenger auto vehicle hours of delay (VHD) on I-5 within BIA and corridor area
	2.2 Reduce travel times and delay in the I-5 corridor and within the bridge influence area for transit modes		**2.2.1** Peak period transit vehicle travel time and aggregate VHD (transit vehicle hour delay) from selected corridor points along I-5
	2.3 Reduce the number of hours of daily highway congestion in the I-5 corridor and within the bridge influence area		**2.3.1** No. of congested lane miles and daily number of hours of congestion on I-5 in the I-5 corridor and within bridge influence area
	2.4 Enhance or maintain accessibility of jobs, housing, health care and education to travel markets served by the I-5 Columbia River crossing		**2.4.1** Employment and housing accessibility- No. of jobs and households reachable in 15, 30, 45, and 60 minute trips by auto and transit from specific I-5 travel markets
			2.4.2 Change in # of existing highways/arterials that directly access I-5 within Bridge Influence Area
	2.5 Improve person throughput of I-5 Columbia River crossing		**2.5.1 & 2.5.2** Peak period and daily persons crossing Columbia River between SOV, HOV, and transit modes
	2.6 Improve vehicle throughput of I-5 Columbia River crossing		**2.6.1 & 2.6.2** Peak period and daily SOV, HOV, Bus, and Medium/Heavy Truck volumes across I-5 Columbia River crossing.
			2.6.3 Peak period volumes on east-west and north-south adjacent I-5 corridor arterial roadways within Bridge Influence Area
3. Modal Choice	3.1 Provide for multi-modal transportation choices in the I-5 corridor and within the bridge influence area		**3.1.1** Percent of population and employment with access to transit within 1/4 mile of bus lines and 1/2 mile of HCT stations
			3.1.2 Access to employment and housing within transit travel time contour in 15, 30, 45, and 60 minutes
	3.2 Improve transit service to target markets in the I-5 corridor and within the bridge influence area		**3.2.1** Transit travel times from the 7 Clark County transit markets to the 5 major transit markets in Oregon (both in vehicle and out of vehicle for a few representative pairs) (Salmon Creek, dt Vancouver, N Portland, dt Portland)
	3.3 Improve bike/pedestrian connectivity in the I-5 corridor and within the bridge influence area		**3.3.1** Provide multi-use facility designed to at least minimum design standards; providing continuous and non-circuitous north-south pathway and convenient connections -- qualitatively evaluated
	3.4 Increase vehicle occupancy in the I-5 corridor and within the bridge influence area		**3.4.1** Peak period SOV + HOV + Bus + Medium & Heavy Truck volumes across I-5 Columbia River crossing and vehicle occupancy at I-5 Columbia River crossing
4. Safety	4.1 Enhance Vehicle/Freight Safety		**4.1.1** Highway improvements to I-5 that specifically improve vehicle/freight safety
	4.2 Enhance bike/pedestrian facilities and safety		**4.2.1** Qualitative assessment of bicycle and pedestrian pathways provided within an alternative, and their affect on bike/ped safety
	4.3 Enhance or maintain marine safety		**4.3.1** Quality of navigation channel geometrics to accommodate ship movements. Does alternative improve barge turning maneuvers
	4.4 Enhance or maintain aviation safety		**4.4.1** Ability to accommodate FAA clearance zone for Pearson Airpark
	4.5 Provide sustained life-line connectivity		**4.5.1** Ability to accommodate life-line connections in the I-5 corridor across the Columbia River to be maintained in an earthquake
	4.6 Enhance I-5 incident/emergency response access within the bridge influence area		**4.6.1** Ability to accommodate incident/emergency service access to incidents on I-5 in the bridge influence area

Alternative Packages Evaluation

Columbia River CROSSING

Value	Criteria		Performance Measures
5. Regional Economy/Freight Mobility	**5.1** Reduce travel times and reduce delay for vehicle-moved freight on I-5 within the bridge influence area		**5.1.1** Peak period Medium/Heavy Truck travel times in minutes on I-5 within Bridge Influence Area.
			5.1.2 Peak period Medium/Heavy Truck vehicle hours of delay (VHD) on I-5 within Bridge Influence Area
	5.2 Reduce travel times and reduce delay for vehicle-moved freight in the I-5 corridor		**5.2.1** Peak period Medium/Heavy Truck travel times in minutes within I-5 corridor.
			5.2.2 Peak period aggregate vehicle hours of delay (VHD) for Medium/Heavy Trucks within I-5 Corridor
	5.3 Enhance or maintain efficiency of marine navigation		**5.3.1** Potential for an alternative to avert extension of "no bridge lift" periods tied to I-5 congestion
	5.4 Improve freight truck throughput of the bridge influence area		**5.4.1** Peak period Medium & Heavy Truck volumes across I-5 Columbia River crossing
	5.5 Avoid or minimize adverse impacts to the parallel freight rail corridor		**5.5.1** Peak period congestion along east-west arterials within Bridge Influence Area with at-grade crossings of westerly north-south BNSF railline
	5.6 Enhance or maintain access to port, freight, and industrial facilities		**5.6.1** Peak period Medium/Heavy Truck travel times in minutes between typical freight centers
6. Stewardship of Natural Resources	**6.1** Avoid, then minimize adverse impacts to, and where practicable enhance, threatened or endangered fish and wildlife and their habitat		**6.1.1** Total area in acres of critical and native habitat for threatened and endangered (T&E) species within conceptual footprint
			6.1.2 Relative quality of the habitat identified under Measure 6.1.1
	6.2 Avoid, then minimize adverse impacts to, and where practicable enhance, other fish and wildlife and their habitat		**6.2.1** Total area in acres of fish and wildlife habitat within alternative's conceptual footprint
			6.2.2 Impacts to wildlife crossings/passage
			6.2.3 Type and relative quality of the habitat identified under Measure 6.2.2
	6.3 Avoid, then minimize adverse impacts to, and where practicable enhance, rare, threatened, or endangered plant species		**6.3.1** Total area in acres of rare plant habitat within alternative's conceptual footprint
	6.4 Avoid, then minimize adverse impacts to, and where practicable enhance and/or restore, wetlands		**6.4.1** Total area in acres of wetlands within alternative's conceptual footprint
			6.4.2 Type and relative quality of the wetlands identified under Measure 6.4.1
	6.5 Avoid, then minimize adverse impacts to, and where practicable enhance, water quality		**6.5.1** Total area in acres of additional impervious surface created under alternative. How much existing impervious surface would remain?
	6.6 Minimize total energy consumption of construction and transportation system operations		**6.6.1** Amount of energy use
	6.7 Avoid, then minimize adverse impacts to, and where practicable enhance, waterways		**6.7.1** Identified removal/fill impacts to waterways
7. Distribution of Benefits and Impacts	**7.1** Avoid or minimize disproportionate adverse impacts on, and where practicable, improve conditions for low income and minority populations		**7.1.2** Do potential acquisitions and noise impacts cluster in areas considered high minority or low income?
			7.1.3 Is traffic diverted to census tracts considered high minority or low income?
	7.2 Provide for equitable distribution of benefits to low income and minority populations		**7.2.1** Which block groups experience improved access to I-5, downtown Vancouver, downtown Portland, or other resources?
			7.2.2 Which block groups experience the greatest improvements in transit service?
8. Cost Effectiveness and Financial Resources	**8.1** Minimize the cost of construction.	Criteria 8.1, 8.2 and 8.3 are collectively addressed by measures 8.1.1 through 8.1.6	**8.1.1** Estimated Capital Construction Cost
			8.1.2 Estimated Operations and Maintenance Cost
	8.2 Ensure transportation system construction cost effectiveness.		**8.1.3** Estimated lifecycle cost
			8.1.4 Estimate of FTA Cost Effectiveness index (as an indicator of each alternative's potential eligibility for FTA New Starts funds). This will be reported in ranges given the preliminary nature of the data
	8.3 Ensure transportation system maintenance and operation cost effectiveness.		**8.1.5** Daily Time Savings (vehicle hours) per highway alternative life cycle cost
			8.1.6 Daily reduction in congested hours of operation (hrs/day) per highway alternative life cycle cost
	8.4 Ensure a reliable funding plan for the project		**8.4.1** To be measured in later phases.
			8.4.2 To be measured in later phases.
9. Growth Management, Land Use	**9.1** Support adopted regional growth management and comprehensive plans		**9.1.1** Consistency with regional plan policies (e.g., multi-modalism, compact growth) summarized in Table 1-2 of the draft land use MDR, and other regional plan policies specific to the project. Is the alternative included in the RTP and MTP?
			9.1.2 Proximity of proposed HCT stations to areas of higher density, either existing or planned (in local comprehensive plans) and with supportive parking, pedestrian and other policies in place.
10. Constructability	**10.1** Maintain transportation operations during construction		**10.1.1** Magnitude of delays to current highway, transit, and navigation use.
	10.2 Minimize adverse construction impacts		**10.2.1** Magnitude of noise, air quality, and visual impacts to environment.
	10.3 Provide flexibility to accommodate future transportation system improvements		**10.3.1** Ease by which transportation system can be improved.
	10.4 Use construction practices and materials that minimize environmental impact		**10.4.1** To be measured in later phases.

Note: The 12 staff-recommended alternative packages represented in this matrix sufficiently represent, and support technical work to test, the range of component combinations. As needed, results can be used to assess other possible component combinations not expressly represented in the list of 12. Best performing elements of each alternative package will be available for repackaging and/or refining within the range of alternatives advanced into the Draft EIS.

Columbia River CROSSING

Table 3-1. Draft Alternative Packaging Matrix

Revision date; July 11, 2006

			Alternative Packages										
			Existing Bridges Only		**Supplemental Bridge with Existing Bridges**					**Replacement Bridge**			
			#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
Alternative Package Title			No Action	Trans. System Management/Trans. Demand Management	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 Lite on Existing Bridge	Supplemental Bridge for I-5 and Express Bus	Replacement Bridge for I-5 with Light Rail and Express Bus	Replacement Bridge for I-5 with Light Rail	Replacement Bridge for I-5 with Bus Rapid Transit	Replacement Bridge for I-5 with Bus Rapid Transit Lite	Replacement Bridge for I-5 with Express Bus
Alternative Package Themes			No Action	Minimum Investment: TDM/ TSM Emphasis	Maximum Transit Ridership, Minimum I-5 improvements	Balanced Transit/Highway Improvements with LRT	Balanced Transit/Highway Improvements with BRT-Full	Balanced Transit/Highway Improvements with BRT-Lite	Maximum Vehicle Capacity	Balanced Transit/Highway Improvements with LRT	Balanced Transit/Highway Improvements with LRT	Balanced Transit/Highway Improvements with BRT-Full	Balanced Transit/Highway Improvements with BRT-Lite	Maximum Vehicle Capacity
High Capacity Transit Mode across Col. River			None	None	LRT	LRT	BRT-full	BRT-Lite	None	LRT	LRT	BRT-full	BRT-Lite	None
Other Transit Mode(s) across bridge			Express bus, local bus	Express bus, local bus	Express bus, local bus	Local 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 (GP lanes)	I-5 (GP lanes)	I-5 (GP lanes)	Arterial+LRT	Arterial+BRT	Arterial + BRT	Arterial	N/A	N/A	N/A	N/A	N/A
Function of New Bridge			N/A	N/A	Arterial + LRT	I-5 NB &SB (w/ ML)	I-5 NB &SB (w/ ML)	I-5 NB &SB (w/ ML)	I-5 NB & SB (w/ ML)	I-5 NB &SB (w/ ML) & LRT	I-5 NB &SB (w/ ML) & LRT	I-5 NB &SB (w/ ML) & BRT	I-5 NB &SB (w/ ML) & BRT	I-5 w GP lanes
River Crossing Components	RC-3	Repl/Down/Mid								✓	✓		✓	
	RC-4	Repl/Up/Mid										✓		✓
	RC-9	Supl/Down/Mid				✓	✓	✓	✓					
	RC-23	Arterial (New Bridge)			✓									
Roadways North/South	RNS-1	Interchange Improvements				✓	✓	✓	✓	✓	✓	✓	✓	✓
	RNS-2	Arterial improvements			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	RNS-3	I-5 Safety Improvements		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Transit Components	TR-1	Express Bus in GP [2]	✓	✓	✓									✓
	TR-2	Express Bus in Managed Lanes							✓	✓				
	TR-3	BRT-Lite						✓					✓	
	TR-4	BRT-Full					✓					✓		
	TR-5	LRT			✓	✓				✓	✓			
Bicycle/ Pedestrian Components	B/P-1	Enhance Existing		✓		✓	✓	✓	✓					
	B/P-2	Path on New Bridge			✓				✓	✓	✓	✓	✓	✓
	B/P-4	Vanc. Connectivity		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B/P-5	Hayden Is. Conn.		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	B/P-6	N. Portland Pathway		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Freight Components	F-1	Freight in Managed Lanes				✓	✓				✓	✓		
	F-2	Fr. Bypass Lanes			✓	✓	✓				✓	✓		
	F-5	Fr. DA Ramps										✓		
TSM/TDM Components	T-B	Basic	✓											
	T-A	Aggressive		✓[1]	✓[1]	✓	✓	✓	✓	✓	✓	✓	✓	✓

Changes from June 2006 Task force meeting ersion

1. Assumes no managed lane beyond the existing northbound I-5 HOV lane in Portland.
2. Includes use of existing northbound HOV lane in Portland.

Columbia River CROSSING

Staff Recommendation

for the Range of Alternatives to Advance for Further Analysis in the Columbia River Crossing Draft Environmental Impact Statement

EXECUTIVE SUMMARY

The Columbia River Crossing project staff in consultation with agency partners presents this recommendation for the river crossing and transit components to advance for further analysis in the Draft Environmental Impact Statement. This proposal is intended for the Columbia River Crossing Task Force, interested stakeholders and members of the public.

The Columbia River Crossing project staff in consultation with agency partners proposes forwarding one river crossing and two transit components for further study in the Draft Environmental Impact Statement (DEIS) process:

River Crossing
Mid-level Replacement Bridge

Transit
Bus Rapid Transit (BRT) with complementary Express Bus

Transit
Light Rail Transit (LRT) with complementary Express Bus

The primary goal of the Columbia River Crossing project is to find viable solutions to improve safety, reliability and mobility on Interstate 5 across the Columbia River and between State Route 500 in Vancouver and Columbia Boulevard in Portland.

The analysis of all river crossing and transit options show the Mid-level Replacement Bridge, Bus Rapid Transit with Express Bus and Light Rail Transit with Express Bus performed better on nearly all criteria adopted by the Task Force for decision-making.

These components also meet the project's objectives as stated in the Purpose and Need Statement and Problem Definition.

For these reasons, we propose these river crossing and public transit options be advanced for further analysis during the Draft Environmental Impact Statement (DEIS) process.

We propose the following combinations of components as DEIS alternatives:

RECOMMENDATIONS

Alternative 1
No Action. This alternative is required for any DEIS process as a baseline for comparison with other alternatives.

Alternative 2
Replacement Bridge and Bus Rapid Transit (BRT) with complementary Express Bus service.

Alternative 3
Replacement Bridge and Light Rail Transit (LRT) with complementary Express Bus service.

Beginning in early 2007, additional strategies to reduce congestion and enhance safety will be added to the draft DEIS alternatives as part of a comprehensive proposal for in-depth analysis in the following year. These strategies will focus on highway, freight, bicycle and pedestrian improvements, and methods to reduce single occupant car trips and improve the flow of traffic.

RIVER CROSSING

In addition to the No Action alternative, the CRC staff proposes to advance for further analysis one river crossing option: a mid-level Replacement Bridge. When tested against other river crossing components, a replacement bridge performs better on nearly all criteria adopted for decision-making.

A Replacement Bridge would accommodate all types of travel over the Columbia River, including vehicles, freight, public transit, bicycles and pedestrians. The bridge would be built high enough to avoid the need for a lift span. It also would be designed to avoid impacts to the airspace of Pearson Air Park.

As part of the continued analysis of benefits and impacts in the upcoming year, further study is warranted to determine whether a replacement bridge should be constructed east (upstream) or west (downstream) of the existing Interstate Bridges location.

With this recommendation, CRC staff proposes to dismiss from further consideration two different Supplemental Bridge options that would retain the Interstate Bridges. The first option, "supplemental downstream arterial bridge," calls for keeping interstate traffic on the existing Interstate Bridges and constructing a new bridge for local traffic. The second, "supplemental downstream I-5 bridge," calls for a new bridge for I-5 traffic and would retain the existing bridges for local traffic, bicycles and pedestrians, and public transit.

The CRC staff recommends that the Replacement Bridge option advance for further analysis for the following reasons:

IMPROVES FLOW OF I-5 TRAFFIC

Compared to keeping interstate traffic on the existing Interstate Bridges, a new I-5 bridge would better meet the forecasted travel demands through 2030. Traffic analyses completed in summer 2006 indicate this to be the case even with the construction of a new four lane arterial bridge that also would carry light rail. While some regional and local trips would be carried by a new arterial under the "supplemental downstream arterial bridge" option, forecasts indicate that much of the arterial's capacity would remain unused and it would do little to address the over-capacity conditions on I-5.

Because traffic congestion on the existing bridges is expected to worsen even with construction of a new arterial bridge, retaining the status quo for interstate travel would not meet the project's goals, as stated in the Problem Definition and Purpose and Need Statement.

IMPROVES SAFETY

Crash rates are higher on and near the Interstate Bridges than other comparable urban freeways in Washington and Oregon due to bridge design, bridge lifts, number of vehicles traveling and vehicle speed. Narrow one-foot shoulders do not allow disabled vehicles to pull off the highway safely and the "hump" in the middle of the bridges does not provide sufficient line of sight for vehicles traveling more than about 35 mph.

Retaining the status quo for safety would not meet the project's goals, as stated in the Problem Definition and Purpose and Need Statement. As a result, the "supplemental downstream arterial bridge" option, which calls for continued use of the existing bridges for I-5 traffic, is not recommended to advance.

ELIMINATES NEED FOR SEISMIC UPGRADES

A Replacement Bridge would be built to current seismic standards to withstand a significant earthquake and continue to serve the transportation needs of the region during recovery.

The existing Interstate Bridges do not meet earthquake standards and would likely need to be upgraded if the structures were used for any transportation purpose, including interstate travel, arterial travel, public transit and paths for bicyclists and pedestrians. In August 2006, a panel of seismic experts determined the structure would potentially collapse during a significant earthquake because the soils holding many of the bridge's wooden piers would liquefy. The panel also reported that the structure could be retrofitted to partially meet current earthquake standards (i.e., it could be designed to avoid collapse). However, even with a seismic upgrade to prevent collapse the structure could be rendered unusable after a significant earthquake. A seismic upgrade would require reinforcing each of the piers with a concrete encasement and nearly completely rebuilding the lift structure. Pier encasements would increase the diameter of each pier by 10 to 40 feet, which would reduce the space between piers for marine traffic.

LOWER COSTS

The existing bridges are expensive to maintain and operate in comparison to a Replacement Bridge because of their age, need for bridge lifts, and characteristics of the structures. In addition to current annual operation, maintenance, and capital costs of about $3 million per year, seismically upgrading the bridges could cost between $125 and $265 million.

The existing bridges could accommodate both high capacity transit options under consideration: either light rail or bus rapid transit. However, light rail would require costly upgrades to the bridges for placement of tracks and power.

REDUCES LAND NEEDS

Adverse land use and right-of-way impacts are generally greater for options that reuse the existing bridges because of the need for parallel connections at each end of the structures. This is especially true on Hayden Island where some of the Supplemental Bridge options require an interchange design with a much larger footprint, nearly doubling the permanent property required for the widened I-5 freeway corridor and its interchanges, as well as the right-of-way needed for the existing bridges being used as an arterial. As a result, business and private property displacements would increase with the Supplemental Bridge options.

FEWER IMPACTS TO LOCAL STREETS

The Supplemental Bridge options provide a local arterial connection between downtown Vancouver and Hayden Island. All of the options would cause an increase in congestion in downtown Vancouver and Hayden Island compared to the Replacement Bridge options due to traffic diversion to local streets that would result from congestion on I-5, especially for the Supplemental Arterial option. Other traffic impacts would result from routing Clark County trips to Hayden Island through downtown Vancouver.

In addition, congestion and queueing would result from bridge lifts. The U.S. Coast Guard has said lifts could occur at any time of the day if the existing bridges are not used for interstate traffic. Currently, bridge lifts are restricted from 6:30 to 9 a.m. during the morning peak period and 2:30 to 6 p.m. during the afternoon peak period. A change to frequent bridge lifts would result in increased arterial congestion in downtown Vancouver and on Hayden Island and the vicinity of Marine Drive in Portland.

IMPROVES RIVER NAVIGATION

River navigation problems would worsen from current conditions under the Supplemental Bridge options because nearly three times more bridge piers would be placed in the water creating more navigational hazards. In addition, the piers associated with the existing bridges would be widened as part of the seismic upgrade, further restricting the river navigation channels.

The U.S. Coast Guard currently recognizes this stretch of the Columbia River as one of the more difficult areas to navigate because of currents and the challenges associated with weaving through the Interstate Bridges and the railroad bridge one mile downstream. River navigation would be improved under the Replacement Bridge options because the marine channel alignment would be improved with fewer piers and the need for bridge lifts would be removed.

GREATER RELIABILITY FOR TRANSIT SERVICE

The existing bridges would continue to be affected by bridge lifts. For that reason, a Replacement Bridge provides for more reliable transit service compared to the Supplemental Bridge options that place light rail or bus rapid transit on the existing bridges. Bridge lifts that could occur any time during the day would disrupt transit service throughout the entire transit system.

PROJECT BACKGROUND AND TIMELINE

FALL 2005

Defining the Problems and Potential Solutions

The Columbia River Crossing project staff reviewed data developed by the I-5 Transportation and Trade Partnership and worked with the public, tribal governments and partner agencies to define the primary problems in the project area, which included congestion, dangerous travel conditions and travel demand that exceeds capacity. The staff then used a public process to brainstorm potential solutions and ideas to address the problems. The staff worked with the project's advisory Task Force to develop criteria based on regulatory requirements and community values and concerns to evaluate the potential solutions and ideas.

SPRING 2006

Narrowing the Ideas

Through discussions with the Task Force and community, the CRC project staff studied the options proposed for improving the river crossing and public transportation. A set of 23 initial river crossing ideas was eventually reduced to four and a set of 14 initial public transportation ideas was reduced to five over a series of months.

SPRING – SUMMER 2006

Testing the Preliminary Alternatives

A dozen preliminary alternative packages were generated by combining options under consideration for the purpose of testing and analysis. Each preliminary alternative was composed of components or parts that make up a comprehensive transportation system to address the safe and efficient movement of people and goods between Oregon and Washington. River crossing, highway, transit, freight, bicycle and pedestrian improvements and strategies to reduce travel demand are the components that comprised the alternatives. River crossing and transit components serve as the fundamental elements for analysis of improvements to the I-5 corridor.

The 12 preliminary alternative packages were tested against the evaluation criteria to highlight the strengths and weaknesses of individual components and the best performing combinations. The analysis incorporated community, cost, land use, environmental, environmental justice, and seismic concerns.

Results from this work are now available.

FALL 2006

Identifying Best Performing Components for the Draft Environmental Impact Statement

Columbia River Crossing project staff in collaboration with partner agencies have proposed the best performing river crossing and transit components move forward for further evaluation in the Draft Environmental Impact Statement (DEIS). These best performing river crossing and transit components have been repackaged into three draft DEIS alternatives as part of the proposal. Beginning in early 2007, other components that will incorporate highway, freight, bicycle and pedestrian improvements, and strategies to reduce travel demand will be added to the draft DEIS alternatives for further in depth analysis. The next step is for the Task Force and the community to provide feedback on the recommendations.

This would affect transit reliability, travel times, and ridership beyond just the project area. Each bridge lift during peak periods would back up at least three to four trains or buses at each end of the bridges during peak periods, delaying riders and severely impacting operations north and south of the Columbia River. Today, following a bridge lift, it can take up to an hour to restore highway and transit operations to pre-lift conditions.

Bridge lifts would make high capacity transit service on the existing bridges inferior and more costly compared to operating transit on a new bridge. This raises transportation equity concerns for those options where auto users would be on a new, fixed span bridge and transit users would be on the older, lift span bridge that would be subject to peak period interruptions, decreased reliability, longer travel times and higher operation and maintenance costs. Thus, it would be imprudent to subject a high capacity transit system to frequent and disruptive bridge-lift impacts.

COMMITTED BRIDGE OWNERSHIP

With a Replacement Bridge for I-5 traffic, the Oregon and Washington transportation departments would continue to own, operate and maintain a new bridge similar to the current situation with the Interstate Bridges.

For the Supplemental Bridge options, the functions served by the existing bridges would change to either carrying local arterial traffic or transit. As transportation system uses convert from Interstate to local functions, they move outside of the purview of the DOTs; as such, neither DOT has an interest in owning and operating facilities that function as city or county facilities. If no alternative owner can be found, the U.S. Coast Guard would require the bridges to be removed. To date, no other entity has expressed interest in owning and operating the existing Interstate Bridges.

FEWER IMPACTS TO NATURAL RESOURCES

Long term natural resource impacts are greater for Supplemental Bridge options versus Replacement Bridge options.

An analysis of the Supplemental Bridge options found they would:

- Have more total impervious surface with 10 – 20 percent more deck area, which would increase the amount of pollutants entering the water;
- Place more piers in the water with about 14 compared to five, which would disrupt fish passage routes and provide greater habitat for predators; and
- Be less conducive to reducing pollutants in storm water runoff.

These differences all would result in greater adverse impacts to water quality, salmon and other aquatic resources.

In addition, the bridge lifts that would occur with the Supplemental Bridge options would cause more local traffic congestion and would back up light rail or bus rapid transit vehicles attempting to cross the existing bridges. These transportation impacts would result in higher air quality impacts near the river crossing and higher energy consumption, compared to locating all traffic and transit operations on a new fixed span bridge.

REQUIREMENTS RELATED TO LISTING ON THE NATIONAL REGISTER OF HISTORIC PLACES

The existing I-5 northbound bridge is listed on the National Register of Historic Places and is therefore subject to special protection under Section 4(f) of the U.S. Department of Transportation Act. This federal law prohibits the USDOT (which includes the Federal Highway Administration and Federal Transit Administration) from funding any project that would have an adverse impact on significant historic resources unless it can be demonstrated that there are no "prudent and feasible" alternatives that would avoid the impact.

The lead federal agencies (FHWA and FTA) have the authority to determine whether the avoidance alternatives are "prudent and feasible." The CRC team is confident that the accumulation of factors (identified above) will satisfy the Section 4(f) requirements and have requested the federal lead agencies to provide their legal opinion on the prudence and feasibility of removing the existing bridges. The federal agency opinion will be requested in early 2007.

Formal Section 4(f) analysis and documentation will be completed as part of the NEPA documentation, scheduled for completion in 2008. Required steps would include photographic records and other documentation of the historic elements and nature of the 1917 bridge.

A Short History of the Interstate Bridge

The Interstate Bridge is really two adjacent bridges, the first of which was built in 1917 and today carries northbound I-5 traffic. The first bridge was designed when horses shared traffic with automobiles. With a posted speed limit of 15 mph, most motor vehicles crossing the bridge were Model T Fords powered by a 20 HP engine and top speeds of 45 mph. The companion southbound bridge, opened in 1958, was built to match the 1917 bridge and has similar design features that limit operations and safety under current regional traffic use.

In 1960, 30,000 vehicles crossed the I-5 bridges each day. In 2006, in excess of 130,000 vehicles cross daily, resulting in demand that exceeds capacity during extended morning and evening peak periods. By 2030, it is forecast that about 180,000 vehicles will cross the I-5 bridges each day. Over time, each bridges original two lanes were narrowed and repainted to increase capacity by providing three lanes in each direction. This action left no room for shoulders to accommodate vehicle breakdown and recovery or emergency response. At the same time, modern cars, trucks, and buses now are bigger and faster and require roadway design features that are built to current standards to accomodate safer operations.

TRANSIT

In addition to the No Action alternative, the Columbia River Crossing project team proposes to advance two transit options for further analysis in the process to develop a Draft Environmental Impact Statement:

- Bus Rapid Transit with complementary Express Bus service on I-5 (BRT)
- Light Rail Transit with complementary Express Bus service on I-5 (LRT)

Bus Rapid Transit is a high capacity transit option that incorporates many features commonly associated with light rail. The vehicles may operate either in a roadway separate from the other traffic or in general purpose lanes.

Express Bus service has been combined with both Bus Rapid Transit and Light Rail to better serve transit needs in and beyond the project area. Express Bus service would serve long distance commuter markets by providing direct access to and from Clark County to downtown Portland during morning and evening peak commute hours.

Light Rail is a high capacity transit option that operates in its own right of way, which helps to ensure a fast and reliable transit time. LRT vehicles are typically much larger than buses, thus providing an enhanced capacity for riders.

There were five transit options analyzed by the Columbia River Crossing project team in mid-2006.

- Express Bus service in I-5 general purpose lanes
- Express Bus service in I-5 managed lanes
- Bus Rapid Transit Lite
- Bus Rapid Transit (BRT)
- Light Rail Transit (LRT)

This recommendation would effectively combine the two BRT options with the aim of taking the best aspects of each to create an optimal BRT proposal for the DEIS. In addition, the Express Bus options, with this proposal, would be dropped from further study as stand alone public transportation solution.

The best performing features of Express Bus service in I-5 general purpose lanes and Express Bus service in I-5 managed lanes would be combined with existing local bus service and paired with BRT and Light Rail.

The CRC project team proposes to advance the Bus Rapid Transit and Light Rail options for further refinement and evaluation during the Draft Environmental Impact Statement process for the following reasons:

BUS RAPID TRANSIT (BRT) WITH COMPLEMENTARY EXPRESS BUS SERVICE ON I-5

Reduces Congestion on I-5

Bus Rapid Transit would increase transit use while reducing the number of buses on the highway. Buses would connect directly to the existing TriMet Yellow Line MAX. This option takes advantage of the existing high capacity transit system instead of traveling on I-5 to and from downtown Portland during morning and evening peak commute hours. Bus Rapid Transit holds

promise for significantly increasing transit use. However, because the BRT system evaluated used I-5 general purpose lanes south of Delta Park, it would experience additional delays from freeway incidents and congestion.

Meets Current and Forecasted Transit Demand for the Year 2030

Extensive data gathering, public review, and forecasting projections conducted by the CRC project staff indicate public transit must be reliable, fast, and frequent. The diversity of transit needs in the project area and the Vancouver-Portland metropolitan area cannot be served by one form of transit alone. To effectively serve current and forecasted travel demand in the year 2030, transit components must be combined.

The Bus Rapid Transit option would meet the test of fast and frequent service, but would experience additional travel delays south of Delta Park, thus degrading future reliability. Schedules would be coordinated with existing transit on both sides of the Columbia River; it would connect to an existing high capacity transit system; and in combination with Express Bus service would provide for long distance commuters to connect directly to downtown Portland. Because BRT would work in conjunction with existing transit, it also provides a high capacity transit alternative at a somewhat lower capital cost (when compared to light rail). As part of the continued analysis of benefits and impacts, the project team will refine the capital cost estimates and conduct continued analysis to determine the most optimal Bus Rapid Transit operating plan.

Addresses Public Transit Issues Identified in Project Purpose and Need Statement

The five transit options considered in 2006 were evaluated to determine how well each addressed these transit issues identified in the CRC project's Purpose and Need Statement: markets, reliability, operations and connectivity.

BRT addresses the four transit issues because this option would be part of an integrated transit system connecting transit providers and transit users on both sides of the Columbia River. It would be capable of serving the inner urban core, and when coupled with express bus service would serve suburban long distance transit markets. The option would further enhance transit operations by working in conjunction with existing transit.

Lessons Learned

The analysis of BRT alternatives provided several lessons to help refine the BRT alternative recommended to be carried forward. Some of the key lessons learned include:

- Operating BRT to downtown Portland on I-5 general purpose lanes incurs a large operating expense while subjecting BRT to additional delays due to incidents and congestion.
- In lieu of operating BRT to downtown Portland, the future service should connect directly to the Interstate MAX line, avoiding travel on I-5 south of Delta Park.
- To achieve the capacities needed to serve projected market share, BRT frequencies would need to be relatively higher than LRT. Further study will be needed to optimize the number and frequency of buses operating in downtown Vancouver and Hayden Island.
- Further study will be needed to optimize alignment and station locations.

LIGHT RAIL TRANSIT (LRT) WITH COMPLEMENTARY EXPRESS BUS SERVICE ON I-5

Reduces Congestion on I-5

Light Rail would extend TriMet's Yellow Line MAX service from the Expo Center to Hayden Island and across the Columbia River to downtown Vancouver. This option takes advantage of the existing TriMet Light Rail infrastructure already built and operating from Expo Center to downtown Portland, Portland International Airport (PDX), east Multnomah County and Washington County and under construction to Clackamas County.

Light Rail would provide transit that better connects residents within the project area to employment, cultural, educational, health and recreational centers in the region. Operating on a dedicated guide-way separate from vehicle traffic would ensure reliability and consistency of travel times, while also helping to reduce roadway conflicts and congestion on I-5 general purpose lanes.

Meets Current and Forecasted Transit Demand for the Year 2030

Of all the transit alternatives considered, Light Rail features the highest passenger capacity and would accommodate the projected transit demand of the year 2030. Fast, frequent and reliable service have been identified through surveys and analysis conducted by the CRC project team as the most important features of public transit. Light Rail has an established high degree of travel time reliability that will continue into the future. Complementary Express Bus service will enhance this attribute.

Extension of the existing Light Rail system has a relatively high capital cost, but the lowest incremental operating cost of any of the high capacity transit options analyzed. Because travel demand will increase, Light Rail's low operating cost is also a factor that contributes to the recommendation to move this option forward for further analysis.

Addresses Public Transit Issues Identified in Project Purpose and Need

Light Rail was evaluated during 2006 to determine how well the option addressed the transit issues identified in the CRC project's Purpose and Need Statement: markets, reliability, operations and connectivity.

Light Rail is a specific recommendation outlined in the I-5 Transportation and Trade Partnership Strategic Plan. Combined with complementary Express Bus service, Light Rail addresses the issues identified in the Columbia River Crossing project's Purpose and Need Statement. Transit markets would have the most access to the region's future employment centers. Light Rail with complementary Express Bus service

on I-5 also would offer greater support to development and redevelopment in the City of Vancouver than other alternatives. The system would benefit from the demonstrated reliability of Light Rail. The option would further enhance transit reliability and operation efficiency because it works in conjunction with existing transit systems.

Lessons Learned

The analysis of LRT alternatives provided several lessons to help refine the LRT alternative recommended to be carried forward. Some of the key lessons learned include:

- LRT has the highest degree of travel time reliability now and in the future. LRT also has the highest passenger capacity of any transit mode evaluated to date.
- LRT operating costs are lower than BRT due to the existing and funded Interstate MAX line to the Expo Station. LRT operations need to be refined so that frequencies match the forecasted transit market demand.
- LRT park-and-ride capacities need to be optimized to accommodate the forecasted demand from both the inner urban and suburban commuter markets.
- Further study will be needed to optimize alignment and station locations.

Alternatives Recommended for the DEIS

Building on the proposals detailed above, the CRC project team further recommends three alternatives be evaluated during the DEIS process. When completed, the alternatives will include a comprehensive set of strategies to address all aspects of traffic congestion and highway safety identified into projects' problem definition and purpose and need. At this time, the CRC team is forwarding only the river crossing and transit proposals as the defining elements for future decision-making. The following alternatives are proposed:

ALTERNATIVE 1: NO ACTION

Under the National Environmental Policy Act (NEPA), one of the alternatives considered must be a no-action alternative. Although this alternative does not meet the project Purpose and Need, it establishes a baseline for comparison with other alternatives. It will include only existing facilities and services, as well as projects that can be reasonably anticipated for funding and construction in the Metro and Southwest Washington regional transportation plans.

ALTERNATIVE 2: I-5 REPLACEMENT BRIDGE WITH BUS RAPID TRANSIT (BRT)

River Crossing Features

This alternative includes construction of a new I-5 replacement bridge. It would be built as a mid-level span to comply with vertical clearance requirements

WHAT IS A DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)?

The National Environmental Policy Act (NEPA) is a federal law that regulates the decision-making processes of federally funded projects. The purpose of NEPA is to help ensure that public projects address the needs of the community while avoiding or minimizing negative impacts on human and natural environments.

For any project that might have significant impact on its environment, NEPA requires the development of a Draft Environmental Impact Statement. The DEIS is a summary of the expected impacts each project design, or "alternative," is likely to have on the surrounding area. Developing a DEIS requires an intense and thorough process of analysis for each proposed alternative.

After completion, the DEIS becomes the subject of one or several public hearings. Through integrating comments from these hearings into the DEIS along with other process elements, project sponsors then create a Final Environmental Impact Statement. As part of this process, they also identify a "locally preferred alternative" to signify the decision of a single project alternative to move forward into funding and construction.

above the Columbia River and clearance requirements below Pearson Airpark airspace. The mid-level height allows the bridge to be a fixed-span structure with no bridge lifts. The new bridge could be built either upstream or downstream of the existing I-5 bridges, which would be removed once the new bridge could accommodate traffic. The new bridge would carry I-5 traffic in general purpose lanes and potentially in managed lanes, high capacity transit, express bus and bicycles and pedestrians.

Transit Features

This alternative focuses on BRT as the high capacity transit mode crossing the river. It is the consolidation of the best performing elements of BRT, BRT-Lite, and local bus infrastructure and service within the project area, combined with complementary express bus service on I-5. The BRT service would not run buses to downtown Portland, but would instead involve a transfer to the TriMet LRT Yellow Line MAX for continuation to downtown Portland.

ALTERNATIVE 3: I-5 REPLACEMENT BRIDGE WITH LIGHT RAIL TRANSIT (LRT)

River Crossing Features

Same as Alternative 2.

Transit Features

Light rail would serve as the high capacity transit mode for Alternative 3 and involve a double-track extension from the Exposition Center LRT Station in Portland to a park and ride terminus near downtown Vancouver. Exact transit alignment(s), termini, and supportive park-and-ride facilities will be refined during the DEIS. Complementary express bus service on I-5 also would be part of this alternative.

Other Outstanding Issues to be Addressed

Several outstanding issues will require further refinement and testing leading up to and during the DEIS. The CRC project team will test many of these issues before launching the DEIS process in spring 2007 to narrow the number of outstanding issues and better define the DEIS alternatives. Decisions on these issues will be informed by public feedback and input beginning in December 2006.

High Capacity Transit Alignment and Station Area Refinement

During the screening process to-date, light rail and bus rapid transit were evaluated in the same representative alignment. To complete the DEIS, other alignments for each mode will be evaluated. A short list of alignments, as well as station locations and park and ride facility capacities and locations will be refined for the DEIS analysis.

Roadways North and South Features

Any new Replacement Bridge would include improvements both north and south of the river. These could consist of potential I-5 interchange reconfigurations, arterial street improvements, and I-5 safety improvements within the project area. At some interchange locations, such as Hayden Island, more than one feasible design option may be advanced for evaluation. During the DEIS process, the most appropriate interchange options for safe and efficient operations will be paired with river crossing and transit modes.

Bicycle/Pedestrian Features

Any new replacement bridge would accommodate a multi-use path(s) for bicyclists and pedestrians. Improved connections to Hayden Island, downtown Vancouver, and North Portland would be provided.

Freight Features

As recognized by the CRC Freight Working Group, freight vehicles would gain the greatest benefits from increased mobility on I-5 and arterial street improvements through capacity and safety improvements. Additionally, the Alternative 2 and Alternative 3 proposals, where appropriate and feasible, could integrate one or more of the following freight features that remain under consideration:

- Freight bypass lanes in congested locations where trucks have difficulty merging on and off I-5;
- Freight direct access ramps at key regional freight accesses to/from I-5;
- Enhanced design of highway ramps and interchanges for freight mobility

TDM/TSM Measures

Transportation demand management (TDM) promotes programs that are designed to maximize the people-moving capability of the transportation system by shifting travel to non-automobile modes, increasing the number of persons in vehicles, and influencing the time of, or need to, travel. Transportation system management (TSM) programs tend to be traffic operation-oriented activities implemented by public transportation agencies, and include such measures as improved traffic signal timing, enhanced traveler information, the addition of auxiliary lanes at congested intersections, signing and marking improvements, parking restrictions, one-way street systems, and ramp meter by-pass lanes.

Alone, TDM/TSM measures will not satisfy the range of transportation issues identified along I-5 within the project area. This conclusion was reached during the I-5 Transportation and Trade Partnership, and confirmed by more recent modeling and analysis.

Many TDM/TSM measures have the potential to help reduce travel demand and improve operational performance in the project area. Incorporation of a TDM/TSM program into the DEIS alternatives will serve as part of a larger multi-modal solution. The "build" alternatives carried forward into the DEIS process will incorporate the most appropriate and potentially effective TDM/TSM measures as part of a multi-modal solution.

Managed Lanes

A single managed lane in each direction along I-5 will be tested on the new I-5 replacement bridge and within the project area to support express bus service that complements the light rail and bus rapid transit options. The managed lane system to be tested assumes that I-5 would be re-striped wherever possible to add a managed lane between 139th Street in Clark County and approximately Alberta Street (for northbound I-5) or Victory Boulevard (for southbound I-5) in Portland. The managed lane system would include preferential managed lane merges north and south and would include selected ramp queue jumps for transit vehicles where ramp meters operate. The CRC project team will test managed lane performance to help refine the range of variables needing further evaluation in the DEIS.

Tolling

Early review of funding and financing options for this project suggest that tolling will be required to fund any new Columbia River Crossing. As such, additional work is needed to refine and test various tolling structures and assess how tolling influences at least the following three issues: 1. revenue generation, 2. congestion management, and 3. facility design.

Replacement Bridge Structure Type, Alignment, and Appearance

The Replacement Bridge proposal could include an alignment upstream (east) of the existing bridges or downstream (west). The vertical alignment of both upstream and downstream options will be constrained by clearance requirements above the Columbia River and by clearance requirements below Pearson Airpark airspace. These constraints limit the range of potential bridge structure types that could be employed.

The appearance, aesthetic qualities, and costs of potential bridge structure types will be evaluated during the DEIS process. The CRC project team is developing an Architectural Guidelines and Aesthetic Assessment Framework to engage the public and project stakeholders in a dialogue around these issues.

NEXT STEPS TO REACH A RECOMMENDATION OF THE DEIS RANGE OF ALTERNATIVES

With this document, the CRC project team has issued its proposed range of alternatives to advance into the DEIS. Over the next three months, the project team will conduct a series of meetings with project stakeholder groups and the public to obtain input on this recommendation.

The CRC Task Force will discuss the proposal at its December 13, 2006 meeting. Task Force comments and recommendations from that meeting will be included in the materials presented to the public for consideration. In January 2007, a series of public and agency outreach events will occur to gain feedback on the proposal. The Task Force is scheduled to consider public feedback during its February 2007 meeting and make a final recommendation on the DEIS range of alternatives.

Columbia River CROSSING

Sponsored by the Oregon Department of Transportation and the Washington State Department of Transportation.

Americans with Disabilities Act (ADA) Information: Individuals requiring reasonable accommodations may request written material in alternative formats by calling the Columbia River Crossing Project Office (360-737-2726 or 503-256-2726). For individual needs in Oregon call the Oregon Department of Transportation (503-986-3700). For individuals who are deaf or hard of hearing call the Washington State TTY (1-800-833-6388) or the Oregon State TTY (1-800-735-2900).

Title VI: The project ensures full compliance with Title VI of the Civil Rights Act of 1964 by prohibiting discrimination against any person on the basis of race, color, national origin or sex in the provision of benefits and services resulting from its federally assisted programs and activities. For questions regarding the Title VI Program, you may contact WSDOT's Title VI Coordinator at 360-705-7098.

MORE INFORMATION

Web www.ColumbiaRiverCrossing.org
Phone 866-396-2726 (toll-free)

SUBMIT A COMMENT

Comments and questions about the Columbia River Crossing project may be submitted at any time through the following channels:

E-Mail feedback@columbiarivercrossing.org
Mail 700 Washington St., Suite 300
Vancouver, WA 98660
Fax 360-737-0294
Phone 866-396-2726 (toll-free)

PRELIMINARY
ALTERNATIVE PACKAGES

COLUMBIA RIVER CROSSING

Columbia River CROSSING

Updated: 11/28/06

Preliminary Alternative Packaging Process

The selected highway and transit ideas have been combined into 12 preliminary alternative packages to test how they perform together. Testing these alternative packages will highlight the strengths and weaknesses of individual components, and identify the most promising combinations. Each alternative package includes both a river crossing and transit component as well as components to improve safety, freight movement, highway operations and bicycle and pedestrian access. A "no action" package will be studied, and will serve as a baseline for comparisons. Later this year, high-performing components will be repackaged to build three to four alternatives that offer a range of strong solutions. These most promising alternatives will be analyzed in detail to determine cost, engineering design, and environmental and community impacts. A full report of this analysis, called the Draft Environmental Impact Statement, is expected to be complete at the end of 2007.

Bridge Crossing and Public Transportation Options Selected for Review

The project team is investigating many types of solutions to safety and congestion problems in the Columbia River Crossing project area. The team started with 23 ideas to improve or replace the Interstate Bridge and 14 ideas to improve transit service between Vancouver and Portland.

Staff and the 39-member task force worked to reduce the number of ideas for additional anaylsis. The following river crossing ideas are being further studied:

- Mid-level replacement bridge (RC-3, RC-4)
- Mid-level supplemental bridge downstream of existing structure (RC-9)
- Arterial crossing combined with improvements to I-5 (RC-23)

The following public transit ideas will be further studied:

- Express buses (TR-1, TR-2)
- Bus rapid transit (TR-3, TR-4)
- Light rail (TR-5)

Columbia River CROSSING

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Updates to Alternative Package Descriptions

This third edition is revised from second edition published on August 22, 2006. This document was originally prepared for the Columbia River Crossing Task Force meeting on July 12, 2006.

Changes to this version:

In Alternative Packages 6 and 7, the Hayden Island interchange will *not* be removed, but instead will be reconfigured. Exact text changes are as follows:

Deleted	Alternative Package 6–Supplemental Bridge for I-5; Bus Rapid Transit Lite on Existing Bridge **Highways: "Remove Hayden Island interchange; no direct access to Hayden Island from I-5"**
Edited	Alternative Package 6– Supplemental Bridge for I-5; Bus Rapid Transit Lite on Existing Bridge **Highways: "Interchange reconfigurations at Marine Drive, Hayden Island, SR-14, Mill Plain, 4th Plain, SR 500 and 39th"**
Deleted	Alternative Package 7– Supplemental Bridge for I-5 and Express Bus **Highways: "Remove Hayden Island interchange; no direct access to Hayden Island from I-5"**
Edited	Alternative Package 7–Supplemental Bridge for I-5 and Express Bus **Highways: "Interchange reconfigurations at Marine Drive, Hayden Island, SR-14, Mill Plain, 4th Plain, SR 500 and 39th"**

No Action

River Crossing

No new river crossing or improvements to the existing bridges

I-5 traffic remains on existing bridges

Transit

No changes to existing local and express bus transit,
other than growth and/or reduction in service
consistent with long term plans by C-TRAN and TriMet

~

Express bus

~

Local bus

Transportation System/Transportation Demand Management

Basic level

Highways

Currently planned and programmed projects throughout the region move forward, consistent with Metro's Regional Transportation Plan and RTC's Metropolitan Transportation Plan. Planned improvements to I-5 between Delta Park and Lombard Avenue in Oregon will occur.

Freight

No freight-specific improvements

Bicycle/Pedestrian

No specific improvements

Legend

- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Transit Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Transit Station
- Reconfigured Interchange

Transportation System Management/Transportation Demand Management Focus

River Crossing

No new river crossing or improvements to the existing bridges

~

I-5 traffic remains on existing bridges

Transit

Existing express bus and local bus service would
be increased from current levels.
Transit service would continue to use general purpose travel lanes.

~

Express bus

~

Local bus

Transportation System/Transportation Demand Management

Aggressive level

Highways

Targeted safety improvements in high accident areas

~

Currently planned and programmed projects throughout the region move forward, consistent with Metro's Regional Transportation Plan and RTC's Metropolitan Transportation Plan. Planned improvements to I-5 between Delta Park and Lombard Avenue in Oregon will occur.

~

Managed lanes on I-5 for HOV and transit between 134th and SR 500

Freight

No freight-specific improvements

Bicycle/Pedestrian

Improvements on the existing bridges with enhanced connections
to North Portland, Hayden Island and downtown Vancouver

Legend

- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Transit Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Transit Station
- Reconfigured Interchange

Transit Emphasis

Supplemental Bridge for Arterial Traffic with Light Rail

River Crossing

New arterial bridge to the west that also carries light rail

~

Existing bridges carry I-5 traffic

Transit

Extend MAX Yellow Line light rail to north of downtown Vancouver

~

Express Bus

~

Local bus

Transportation System/Transportation Demand Management

Aggressive level

Highways

Targeted safety improvements in high accident areas

~

Arterial connections between Marine Drive, Hayden Island and downtown Vancouver

~

Remove Hayden Island interchange; no direct access to Hayden Island from I-5

Freight

Freight bypass on-ramp lanes at key interchanges to be determined

Bicycle and Pedestrian Improvements

Improvements on the existing bridges with enhanced connections to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge
- Supplemental Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Light Rail Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Light Rail Station
- Reconfigured Interchange

Balanced Transit/Highway Emphasis

Supplemental Bridge for I-5; Light Rail on Existing Bridge

River Crossing

New I-5 bridge west of existing bridge

~

Existing bridges carry light rail and arterial traffic

Transit

Extend MAX Yellow Line light rail to north of downtown Vancouver

~

Local bus

Transportation System/ Transportation Demand Management

Aggressive level

Highways

Safety improvements throughout the corridor

~

Interchange reconfigurations at Marine Drive, SR-14, Mill Plain, 4th Plain, SR 500 and 39th

~

Arterial connections between Marine Drive, Hayden Island and downtown Vancouver

~

Remove Hayden Island interchange; no direct access to Hayden Island from I-5

~

Managed lanes on I-5 for HOV and/or freight use between 134th and Delta Park

Freight

Potential managed lanes for freight

~

Freight bypass on-ramp lanes at key interchanges to be determined

Bicycle and Pedestrian Improvements

Improvements on the existing bridges with enhanced connections to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge
- Supplemental Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Light Rail Transit Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Light Rail Station
- Reconfigured Interchange

Balanced Transit/Highway Emphasis

Supplemental Bridge for I-5; Bus Rapid Transit on Existing Bridge

River Crossing

New I-5 bridge west of existing bridge

~

Existing bridges carry Bus Rapid Transit and arterial traffic

Transit

Bus Rapid Transit in dedicated lanes from north of downtown Vancouver to Delta Park

~

Express bus in managed lanes across new bridge

~

Local bus

Transportation System/Transportation Demand Management

Aggressive

Highways

Safety improvements throughout the corridor

~

Interchange reconfigurations at Marine Drive, SR-14, Mill Plain, 4th Plain, SR 500 and 39th

~

Arterial connections between Marine Drive, Hayden Island and downtown Vancouver

~

Remove Hayden Island interchange; no direct access to Hayden Island from I-5

~

Managed lanes on I-5 for HOV and/or freight use between 134th and Delta Park

Freight

Potential managed lanes for freight

~

Freight bypass on-ramp lanes at key interchanges to be determined

Bicycle and Pedestrian Improvements

Improvements on the existing bridges with enhanced connections to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge
- Supplemental Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Bus Rapid Transit Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Bus Rapid Transit Station
- Reconfigured Interchange

Balanced Transit/Highway Emphasis

Supplemental Bridge for I-5; Bus Rapid Transit Lite on Existing Bridge

River Crossing

New I-5 bridge (west)

~

Existing bridges carry Bus Rapid Transit Lite and arterial traffic

Transit

Bus Rapid Transit Lite service from Clark County park and ride lots to downtown Portland in general purpose and managed lanes

~

Local bus

Transportation System/Transportation Demand Management

Aggressive

Highways

Safety improvements throughout the corridor

~

Interchange reconfigurations at Marine Drive, Hayden Island, SR-14, Mill Plain, 4th Plain, SR 500 and 39th

~

Arterial connections between Marine Drive, Hayden Island and downtown Vancouver

~

Managed lanes on I-5 for HOV and/or freight use between 134th and Delta Park

Freight

Potential managed lanes for freight

~

Freight bypass on-ramp lanes at key interchanges to be determined

Bicycle and Pedestrian Improvements

Improvements on the existing bridges with enhanced connections to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge
- Supplemental Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Bus Rapid Transit Lite Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Bus Rapid Transit Lite Station
- Reconfigured Interchange

Vehicle Capacity Emphasis

Supplemental Bridge for I-5 and Express Bus

River Crossing

New I-5 bridge west

~

Existing bridges carry arterial traffic

Transit

Express bus service from new and expanded Clark County park and ride lots to downtown Portland

~

Local bus

Transportation System/Transportation Demand Management

Aggressive

Highways

Safety improvements throughout the corridor

~

Interchange reconfigurations at Marine Drive, Hayden Island, SR-14, Mill Plain, 4th Plain, SR 500 and 39th

~

Arterial connections between Marine Drive, Hayden Island and downtown Vancouver

~

Managed lanes on I-5 for HOV and/or freight use between 134th and Delta Park

Freight

No freight-specific improvements

Bicycle and Pedestrian Improvements

Improvements on the existing bridges with enhanced connections to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge
- Supplemental Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Transit Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Transit Station
- Reconfigured Interchange

Balanced Transit/Highway Emphasis

Replacement Bridge for I-5 with Light Rail and Express Bus

River Crossing

New bridge (west) with light rail, general purpose lanes and managed lanes

Transit

Extend MAX Yellow Line light rail to north of downtown Vancouver

~

Express bus in managed lanes across new bridge

~

Local bus

Transportation System/Transportation Demand Management

Aggressive

Highways

Safety improvements throughout the corridor

~

Interchange reconfigurations at Marine Drive, Hayden Island, SR-14, Mill Plain, 4th Plain, SR 500 and 39th

~

Managed lanes on I-5 for transit and HOV use between 134th and Delta Park

Freight

No freight-specific improvements

Bicycle and Pedestrian Improvements

Facilities on the new bridge with enhanced connections to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge (removed)
- Replacement Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Transit Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Light Rail Station
- Reconfigured Interchange

Balanced Transit/Highway Emphasis

Replacement Bridge for I-5 with Light Rail

River Crossing

New bridge (west) with light rail, general purpose lanes and managed lanes

Transit

Extend MAX Yellow Line light rail to north of downtown Vancouver

~

Local Bus

Transportation System/Transportation Demand Management

Aggressive

Highways

Safety improvements throughout the corridor

~

Interchange reconfigurations at Marine Drive, Hayden Island, SR-14, Mill Plain, 4th Plain, SR 500 and 39th

~

Managed lanes for HOV and/or freight use between 134th and Delta Park

Freight

Freight bypass on-ramp lanes at key interchanges to be determined

~

Potential managed lanes for freight

Bicycle and Pedestrian Improvements

Facilities on the new bridge with enhanced connections to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge (removed)
- Replacement Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Light Rail Transit Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Light Rail Station
- Reconfigured Interchange

Balanced Transit/Highway Emphasis

Replacement Bridge for I-5 with Bus Rapid Transit

River Crossing

New bridge (east) with general purpose lanes and managed lanes.

~

Bus Rapid Transit in separated right of way

Transit

Bus Rapid Transit service in dedicated right of way from north of downtown Vancouver to Delta Park

~

Local bus

Transportation System/Transportation Demand Management

Aggressive

Highways

Safety improvements throughout the corridor

~

Interchange reconfigurations at Marine Drive, Hayden Island, SR-14, Mill Plain, 4th Plain, SR 500 and 39th

~

Managed lanes on I-5 for transit and HOV use between 134th and Delta Park

Freight

Potential managed lanes for freight

~

Freight bypass on-ramp lanes at key interchanges to be determined

~

Direct access ramps for freight at key locations to be determined

Bicycle and Pedestrian Improvements

Facilities on the new bridge with enhanced connections to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge (removed)
- Replacement Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Bus Rapid Transit Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Bus Rapid Transit Station
- Reconfigured Interchange

Balanced Transit/Highway Emphasis

Replacement Bridge for I-5 with Bus Rapid Transit Lite

River Crossing

New bridge (west) with Bus Rapid Transit Lite in separated right of way

Transit

Bus Rapid Transit Lite service from Clark County park and ride lots to downtown Portland in general purpose and managed lanes

~

Local bus

Transportation System/Transportation Demand Management

Aggressive

Highways

Safety improvements throughout the corridor

~

Interchange reconfigurations at Marine Drive, Hayden Island, SR-14, Mill Plain, 4th Plain, SR 500 and 39th

~

Managed lanes on I-5 for transit and HOV use between 134th and Delta Park

Freight

No freight-specific improvements

Bicycle and Pedestrian Improvements

Facilities on the new bridge with enhanced connections to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge (removed)
- Replacement Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- New Potential Bus Rapid Transit Lite Alignments
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Bus Rapid Transit Lite Station
- Reconfigured Interchange

Vehicle Capacity Emphasis

Replacement Bridge for I-5 with Express Bus

River Crossing

New bridge (east) with general purpose lanes

Transit

Express bus service from Clark County
park and ride lots to downtown Portland

~

Local bus

Transportation System/Transportation Demand Management

Aggressive

Highways

Safety improvements throughout the corridor

~

Interchange reconfigurations at Marine Drive, Hayden Island,
SR-14, Mill Plain, 4th P lain, SR 500 and 39th

Freight

No freight-specific improvements

Bicycle and Pedestrian Improvements

Facilities on the new bridge with enhanced connections
to North Portland, Hayden Island and downtown Vancouver

Legend

- Existing Bridge (removed)
- Replacement Bridge
- Arterial Lanes
- Managed Lanes/Freight Lane
- Safety and Capacity Improvements
- New Potential Park and Ride
- Existing/Potential Transit Station
- Reconfigured Interchange

Columbia River CROSSING

Preliminary Alternative Packages

	Existing Bridges Only		Supplemental Bridge (Downstream) with Existing Bridges					Replacement Bridge				
Alternative Package #	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Title	No Action	Trans. System Management/ Trans. Demand Management	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 Lite 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	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
High Capacity Transit Mode across Col. 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 bridge	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	I-5 General Purpose	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 Lane	I-5 w/ Managed Lane	I-5 w/ Managed Lane	I-5 w/ Managed Lane	I-5 w/ Managed Lane & Light Rail	I-5 w/ Managed Lane & Light Rail	I-5 w/ Managed Lane & Bus Rapid Transit	I-5 w/ Managed Lane & Bus Rapid Transit	I-5 w General Purpose lanes
Bike & Pedestrian Improvements	N/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

NOTE: These are preliminary and are subject to change prior to Draft Environmental Impact Statement.

Revised: November 2, 2006

Columbia River CROSSING

Memorandum

March 26, 2007

TO: Hal Dengerink and Henry Hewitt, Co-Chairs

FROM: Fourth Alternative Subcommittee (Prepared by CRC Staff)

SUBJECT: Fourth CRC DEIS Alternative Recommendation

COPY: Doug Ficco, WSDOT and John Osborn, ODOT – Co-Directors

ATTACHMENTS: Fourth Alternative Progression Diagram
Fourth Alternative Subcommittee Recommendation

BACKGROUND

At the February 27, 2007 Task Force meeting, a subcommittee was formed to develop a potential fourth alternative for analysis in the CRC project's DEIS. The subcommittee included the following members:

Metro Councilor Rex Burkholder, Co-Chair
Clark County Commissioner Steve Stuart, Co-Chair
Hal Dengerink, CRC Task Force Co-Chair, ex-officio subcommittee member
Henry Hewitt, CRC Task Force Co-Chair, ex-officio subcommittee member
Dean Lookingbill, SW Washington Regional Transportation Council
Fred Hansen, TriMet
Jeff Hamm, C-TRAN
Walter Valenta, Bridgeton Neighborhood
Scot Walstra, Greater Vancouver Chamber of Commerce
Tom Zelenka, Schnitzer Group

Meetings were held weekly at the former Hayden Island Yacht Club, 12050 N. Jantzen Drive, Portland, Oregon. Meeting dates and times were:

March 12, 2007, 2:30 p.m. to 4:30 p.m.
March 19, 2007, 8:00 a.m. to 9:00 a.m.
March 26, 2007, 8:00 a.m. to 10:00 a.m.

The following ground rules were adopted at the initial March 12th meeting:

Ground Rules for Developing the Fourth Alternative:

1. We will produce an alternative in three weeks.
2. The alternative will aspire to meet the CRC project's Purpose and Need Statement.
3. Our job is to assemble the best possible solutions that do the following:
    a. Maximize the utility of the existing bridges
    b. Provides High Capacity Transit (HCT) between Clark and Multnomah counties
    c. Provides high quality bicycle and pedestrian access
    d. Minimizes impacts on downtown Vancouver and Hayden Island
    e. Ensure better freight mobility
    f. Address issues of barge and ship traffic on the Columbia River
4. The Task Force members named by the chairs will be the members of the subcommittee unless the co-chairs (Commissioner Stuart and Councilor Burkholder) and the CRC Task Force co-chairs decide more expertise is needed.

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5. While subcommittee meetings will be noticed and will be open to the public, only officially designated members will participate. Given that the recommendation on including any proposed alternative will be made by the CRC Task Force, the subcommittee will not take any public testimony.
6. Our goal is to make decisions by consensus.

Evaluation Criteria for the Fourth Alternative

The subcommittee recommended the performance of the fourth alternative should aspire to achieve the following criteria in accordance with the CRC project's Purpose and Need:

- encouraging mode shift
- moving people and freight
- optimizing interchanges
- using existing bridges most effectively
- minimizing impacts to land use, minimizing footprints
- providing a lower cost alternative

PROCESS

For the initial meeting, CRC presented two "book-end" options for review by the committee. Option A was essentially a "No-Build" for I-5 with TDM/TSM and transit service. Option B added six lanes of new capacity for I-5, three in each direction, and used the existing bridges for auxiliary lanes in addition to transit service. Both alternatives addressed appropriate interchange modifications, safety improvements, TDM/TSM, freight enhancements, bicycle/pedestrian upgrades, seismic retrofits, and relocation of the railroad moveable span.

For the March 19, 2007 meeting, CRC staff was asked to provide conceptual layouts for three modifications to Options A and B along with an evaluation of their performance sufficient to begin shaping the proposed fourth alternative. The following three recommendations were optimized and evaluated by CRC staff:

- Option A+: Essentially a No-Build option for I-5 with aggressive TDM and Transit components to meet the demand to move people across the river, including a new HCT bridge across the river. I-5 improvements were targeted at improving safety and system flow.
- Option A++: The same as Option A+ with the addition of two I-5 auxiliary lanes, one in each direction, on a new bridge combined with HCT.
- Option B-: Uses the existing I-5 Bridges as auxiliary lanes and provides for two new I-5 lanes in each direction on a new bridge to carry through traffic and HCT. Appropriately sized TDM strategies and increased transit service is added to balance the demand.

Upon presentation of the performance results of the three options, CRC staff was asked to evaluate an additional option that fell somewhere between Option A++ and Option B-. CRC staff added another option for review at the March 26th meeting. These two options are described below:

- Option A++ Modified: This option uses the existing Interstate Bridges for I-5 traffic and adds two lanes, one in each direction, on a new bridge with HCT. Pricing or tolling may be used on the new or existing lanes to reduce vehicle demand. Transit service is increased sufficiently to encourage options to driving alone. A new moveable span is provided on the railroad crossing that best serves navigation needs.
- Option B- Modified: CRC staff recommended an option that uses the existing bridges for NB traffic and a new bridge for SB traffic. The total number of lanes can be limited to eight, two lanes each on the existing bridges and four lanes on the new bridge. This option has the same number of I-5 lanes as Option A++ Modified described above, but more effectively and efficiently uses existing infrastructure and alignments. SB lanes can transition directly to the new alignment without the need for additional shoulders and the fly-over. TDM and Transit is

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similar to Option A++ Modified. HCT can share the SB highway bridge. This option also improves opportunities to toll all vehicles crossing the Columbia River.

At the March 26, 2007 subcommittee meeting, Option B- Modified was recommended as the fourth alternative for presentation to the Task Force at their March 27, 2007 meeting.

Following is a detailed description of the Fourth Alternative subcommittee recommendation:

FOURTH ALTERNATIVE SUBCOMMITTEE RECOMMENDATION

A total of eight I-5 lanes will be provided, four in each direction. The existing Interstate Bridges will carry northbound traffic and will be modified to carry two lanes on each bridge. The existing southbound bridge will be converted to northbound for two general purpose through lanes. The existing northbound bridge will carry two lanes, one for general purpose and the other as an auxiliary lane. Four I-5 southbound lanes will be provided on a new bridge with HCT, three general purpose lanes and one auxiliary lane. HCT lanes can either be for light rail or express bus. Transit service will be sized to meet increase demand for riders. Tolling will be used for project funding and will also reduce travel demand. Other TDM as well as TSM and freight enhancements will be included. Bicycles and pedestrians will be on a wider, retrofitted path on the existing bridges. Interchange modifications will be included in relationship to the mainline I-5 improvements to assure the best operational characteristics. A seismic upgrade of the existing bridges may be required. A new railroad moveable span may be required to benefit navigation.

Component improvements recommended include:

Highway

- The existing I-5 bridges are re-striped to provide two lanes on each bridge and allows for an outside safety shoulder for disabled vehicles. The two lanes on the NB bridge will connect with the interchanges as well as allow for through traffic. The two lanes on the SB bridge will become through NB lanes.
- Four new SB I-5 lanes are provided on a new bridge along with HCT. The new lanes will allow for three through lanes and one auxiliary lane connecting SR 14 with Hayden Island.
- Interchanges are modified to improve intersection performance in accordance with operational analysis that balances the mainline improvements. Spot safety improvements are included.
- Traffic system management tools are incorporated to improve I-5 operations.

Transit

- A new river crossing bridge for HCT is included with the new highway bridge.
- HCT capacity is increased to serve approximately 25,000 persons per day.
- Express bus service and local and feeder bus service are increased to serve the added transit capacity. Increase in transit service is based on data generated from model runs and confirmed by the transit providers.
- Park-and-ride lot capacity is increased from the existing 1,872 spaces in the I-5 corridor to approximately 7,500. Recommendations for reduction in park-and-ride spaces can be achieved based on modeling results and transit service recommendations.

TDM/TSM

- Tolling is included for both the new I-5 bridge and existing bridges with variable pricing to reflect peak hour demand. Pricing is focused on generating revenue to help fund the new improvements as well as reducing demand.
- Transit operating subsidies are provided to encourage increased transit service and use.

Freight Mobility

- Trucks have the opportunity to use the new I-5 capacity.

- Spot modifications at key intersections improve truck flow in the interchanges.
- Rebuilding the SB lanes allows ramp by-pass lanes for transit and trucks.

Bicycle/Pedestrian

- Bicycle and pedestrian traffic will use the existing Interstate Bridges. Existing facilities will be widened either on the east side only to provide for a 15 foot-wide path or 10 feet on each side of the two bridges for two paths.
- Bicycle and pedestrian connections are improved throughout the corridor.

Seismic

- Seismic retrofit to "no-collapse" standards would most likely be required for this option.

Railroad Swing Span

- A new railroad marine navigation moveable span is constructed to align with primary navigation needs.

It is important to note that the description of components for the fourth alternative is much more detailed than CRC staff recommendations for the replacement bridge. All alternatives carried into the DEIS will undergo operational analysis to assure best performing elements are included and transit and interchange improvements will be carried forward that are cost-beneficial and sized to meet 2035 demand as required by FHWA and FTA.

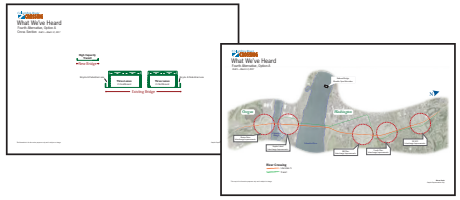
Columbia River CROSSING

What We've Heard

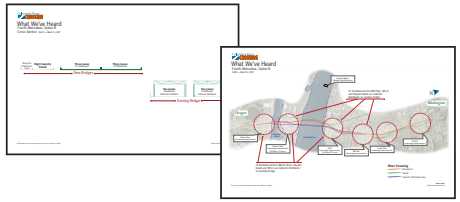
Task Force Subcommitte
Fourth Alternative Progression

Meeting Materials *March 12, 2007*

Option A



Option B

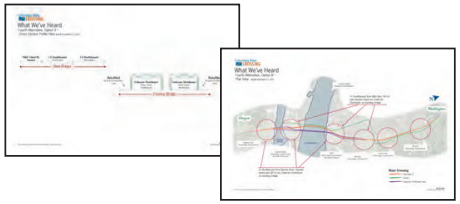


Meeting Results *March 12, 2007*
for presentation at March 19, 2007 meeting

Option A+

Option A++

Option B –



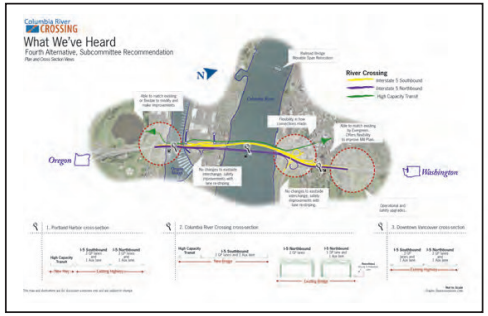
Meeting Results *March 19, 2007*
for presentation at March 26, 2007 meeting

Option A++ modified

Option B – modified

Meeting Results *March 26, 2007*
for presentation at March 27, 2007 Task Force meeting

Fourth Alternative Subcommittee recommendation



Not to Scale —*Graphic Representations Only*
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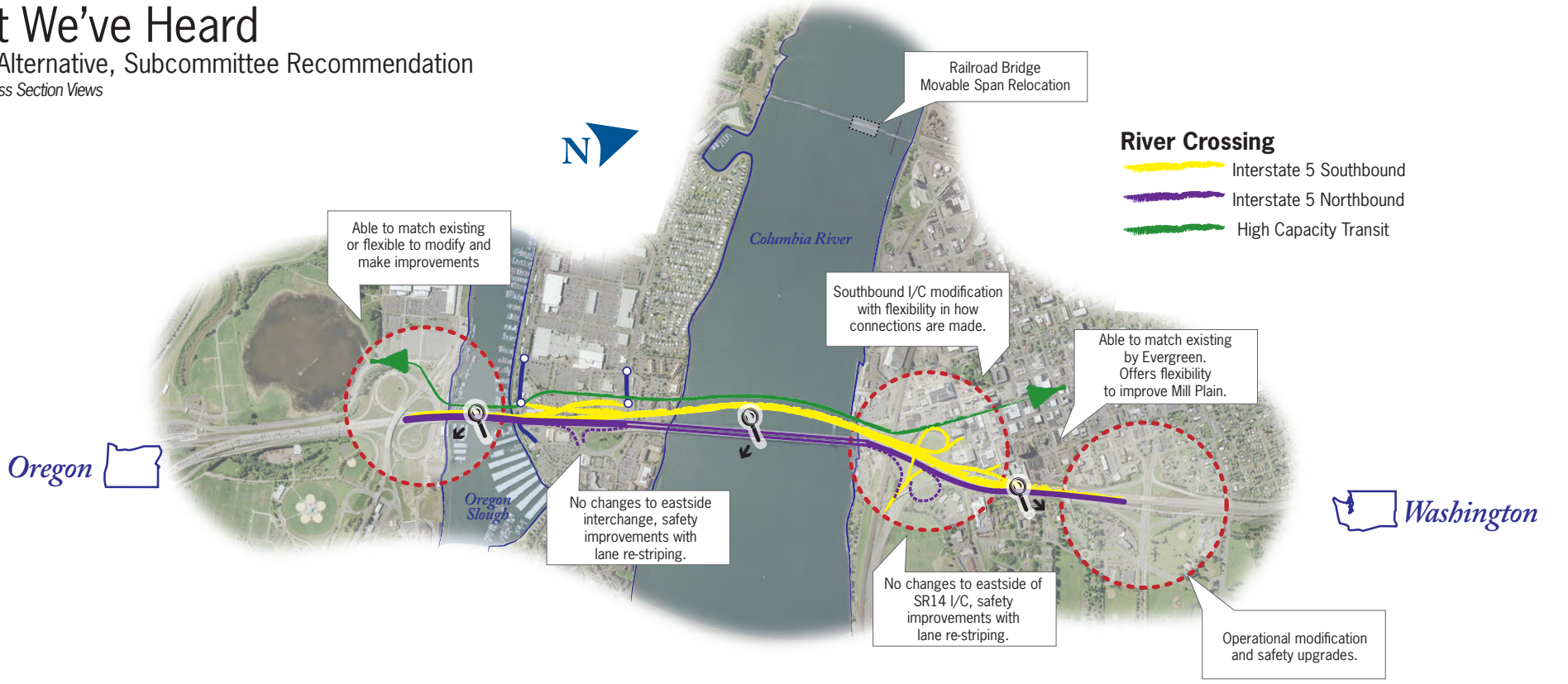
Columbia River CROSSING

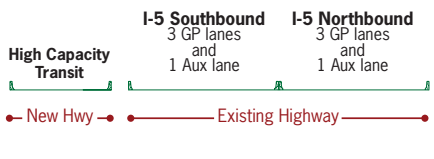
What We've Heard

Fourth Alternative, Subcommittee Recommendation

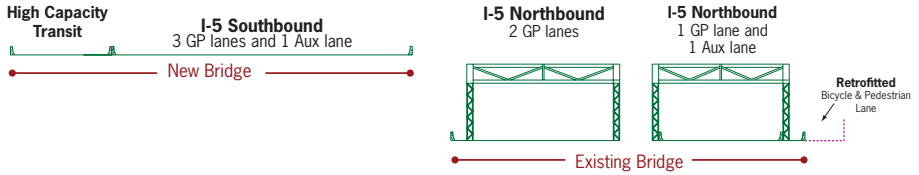
Plan and Cross Section Views



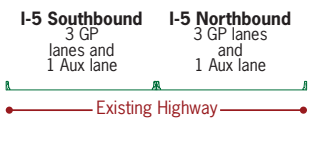
1. Portland Harbor cross-section



2. Columbia River Crossing cross-section



3. Downtown Vancouver cross-section



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Not to Scale
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