Summary

The following summarizes information from the I-5 Columbia River Crossing Final Environmental Impact Statement (FEIS), including project background, the problems the project is seeking to fix, the alternatives for addressing these problems, the locally preferred alternative (LPA), and the key impacts. It concludes with a brief discussion of the next steps and methods by which the public can continue to be involved in the project.

What is the I-5 Columbia River Crossing project?

The Interstate 5 (I-5) Columbia River Crossing (CRC) project is a multimodal project focused on improving safety, reducing congestion, and increasing mobility of motorists, freight traffic, transit riders, bicyclists, and pedestrians along a 5-mile section of the I-5 corridor connecting Vancouver, Washington, and Portland, Oregon. The transit component of the CRC locally preferred alternative would extend light rail transit from the existing Metropolitan Area Express (MAX) Yellow Line northern terminus at the Expo Center, across Hayden Island and the Columbia River, and through downtown Vancouver to a terminus at Clark College. The highway improvements would extend from State Route 500 (SR 500) in northern Vancouver, south through downtown Vancouver, and over the I-5 bridges across the Columbia River to just north of Columbia Boulevard in north Portland (Exhibit 1).

Transit connections within the CRC project area are currently constrained by many of the same problems facing highway users. Outdated, substandard highway design features and traffic congestion increase travel times and the frequency of accidents, and reduce reliability for bus travel between Clark County and Portland. Additionally, transit users coming from or going to Hayden Island or Vancouver have to transfer to buses, commute to nearby park and rides, walk, or bike in order to access light rail.

Exhibit 1

Columbia River Crossing Project Area Map

Dimensions are approximate.

I-5 is the only continuous north-south interstate highway on the West Coast, linking the United States, Canada, and Mexico. In the Vancouver-Portland metropolitan region, I-5 is one of two major north-south highways that provide interstate connectivity and mobility. I-5 directly connects the central cities of Vancouver and Portland. Traffic conditions on the I-5 crossing over the Columbia River are influenced by the 5-mile section of I-5 between SR 500 in Vancouver and Columbia Boulevard in Portland. This section includes seven interchanges that connect three state highways and several major arterial roadways. These interchanges serve a variety of land uses and provide access to downtown Vancouver, two international marine ports, industrial centers, residential neighborhoods, retail centers, and recreational areas.

Who is leading the CRC project?

The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) are the lead federal agencies for this study. Both agencies must ensure that the National Environmental Policy Act (NEPA) process is properly conducted and completed, including the publication of this Final Environmental Impact Statement (FEIS), before they provide funding or approval to construct the project. After the NEPA process is complete, FTA and FHWA will sign a Record of Decision (ROD) that will identify the selected alternative or the No-Build Alternative. Additionally, if a build alternative is selected, the ROD will describe all measures needed to mitigate unavoidable environmental effects, as well as a monitoring and enforcement program to ensure that these measures are carried out effectively. By signing the ROD, the FTA and FHWA are affirming that federal regulations have been met, thereby allowing the project to proceed with property acquisitions and final design of the selected alternative.

State transportation agencies and local governments in the Vancouver-Portland metropolitan region have joined together to develop a strategy for addressing highway, freight, transit, bicycle, and pedestrian needs within the CRC project area. The co-lead agencies for this project, in addition to the aforementioned federal lead agencies, are the Washington State Department of Transportation

Agencies and Indian Tribes working with this project

- City of Vancouver
- City of Portland
- Clark County Community Development Department
- Chinook Tribe (non-federally recognized)
- Confederated Tribes of the Colville Reservation
- Confederated Tribes of the Grand Ronde, Oregon
- Confederated Tribes of Siletz Indians, Oregon
- Confederated Tribes of the Umatilla Indian Reservation, Oregon
- Confederated Tribes of the Warm Springs Reservation of Oregon
- Confederated Tribes and Bands of the Yakama Nation, Washington
- Cowlitz Indian Tribe, Washington
- Federal Aviation Administration
- National Marine Fisheries Service
- National Park Service
- Nez Perce Tribe of Idaho
- Nisqually Indian Tribe
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Land Conservation and Development
- Oregon Department of State Lands
- Oregon State Historic Preservation Office
- Spokane Tribe of Indians, Washington
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Environmental Protection Agency
- U.S. General Services Administration
- U.S. Fish and Wildlife Service
- Vancouver Housing Authority
- Washington State Department of Natural Resources
- Washington State Department of Archaeology and Historic Preservation
- Washington State Department of Ecology
- Washington State Department of Fish and Wildlife

See Appendix A for more information on how this project has coordinated with local, state, and federal agencies and tribes.

(WSDOT), the Oregon Department of Transportation (ODOT), the Tri-County Metropolitan Transportation District (TriMet), the Southwest Washington Regional Transportation Council (RTC), Metro, and the Clark County Public Transportation Benefit Area (C-TRAN). These co-lead agencies, together with the Cities of Vancouver and Portland, comprise the local agencies that are sponsoring this project. Each of these sponsoring agencies will be responsible for approving all or part of the project that will be built.

WSDOT and ODOT are leading the preliminary highway design and project management. TriMet and C-TRAN are leading the preliminary transit design and would operate the transit elements of the project. Metro and RTC are the Metropolitan Planning Organizations (MPOs) for the region and maintain the regional and metropolitan transportation plans that include the LPA for the CRC project. The Cities of Portland and Vancouver have specific permitting authority over some elements of the project. In addition, each of these agencies' elected or appointed leadership (including the Metro Council, Regional Transportation Council, TriMet Board, C-TRAN Board, Vancouver City Council and Portland City Council) endorsed the CRC project's LPA. Other state and federal agencies and stakeholders are also participating in technical, regulatory, or advisory roles.

The agencies leading the CRC project have worked with many other local, state, and federal agencies (see list) and with many private and public stakeholder groups during the planning and development of this project. Appendix A describes the agencies this project is working with and the coordination processes within this diverse group.

Exhibit 2
Preceding Studies

Dimensions are approximate.

What studies preceded the CRC project?

Major transportation improvements in the CRC project area have been studied for over a decade. In 2001, the Washington and Oregon governors appointed a bi-state task force of 28 community members, business representatives, and elected officials to address concerns about congestion on I-5 between Portland and Vancouver. This task force, called the I-5 Trade and Transportation Partnership, developed a plan to improve transportation in the I-5 corridor between the I-405 interchange in Portland and the I-205 interchange north of Vancouver (Exhibit 2), and adopted the Final Strategic Plan on June 18, 2002. Their recommendations include:

- Expand I-5 to include three through-lanes in each direction, including the area through Delta Park.
- Introduce a phased light rail loop in Clark County in the vicinity of the I-5, SR 500/Fourth Plain, and I-205 corridors.
- Provide an additional bridge or a replacement crossing for the I-5 crossing of the Columbia River, with up to two additional lanes each direction for merging traffic and two light rail tracks.
- Improve interchanges and add merging lanes between SR 500 in Vancouver and Columbia Boulevard in Portland, including a full interchange at Columbia Boulevard.
- Improve capacity for freight rail.

- Encourage bi-state coordination of land use and transportation issues to reduce highway demand and protect corridor investments.
- Involve communities along the corridor to ensure that final project outcomes are equitable.

The I-5 CRC project was developed to further study and develop solutions to several of these recommendations. See Section 2.7 of the FEIS for more information on the I-5 Trade and Transportation Partnership and early development of the CRC project.

High-capacity transit in the I-5 corridor through north Portland and Vancouver has been proposed and studied periodically since the early 1990s. In 1993, local agencies began studying high-capacity transit in the "South/North Corridor," which extended from Clackamas and Milwaukie, Oregon, to Vancouver, Washington (Exhibit 2). FTA and Metro published the South/North Corridor Project Draft Environmental Impact Statement in 1998. This identified a variety of alignments and length options for a light rail corridor connecting Milwaukie, downtown Portland, north Portland, and downtown Vancouver. Subsequent funding challenges delayed construction of the full corridor but did allow construction of one light rail segment, known as the Yellow Line or Interstate MAX. The Yellow Line extends from the Rose Quarter near downtown Portland to the Expo Center in north Portland.

In 2009, TriMet opened another new light rail line that includes a new north-south axis in downtown Portland that could accommodate a future extension to Milwaukie, also part of the original South/North Corridor. In October 2010, FTA, Metro and TriMet published an FEIS for proposed extension of this line to Milwaukie.

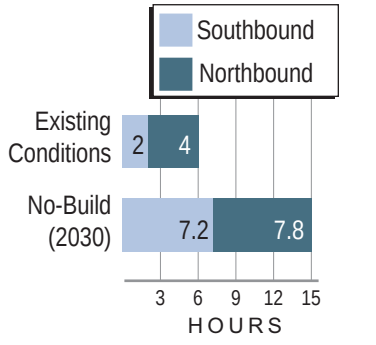
The transit component of the LPA would extend light rail transit from the existing MAX Yellow Line northern terminus at the Expo Center, across Hayden Island and the Columbia River, and through downtown Vancouver, ending at Clark College. Each of these projects is part of the vision outlined in the original planning studies of the 1990s.

What problems does this project seek to fix?

The CRC project seeks to address six problems, as described below:

1. **Growing travel demand and congestion**: Heavy congestion on I-5 in the project area is the result of growth in regional population, employment, and interstate commerce (Exhibit 3). The existing I-5 crossing provides three lanes for northbound and southbound travel, each, which can accommodate approximately 5,500 vehicles per hour in each direction. However, there are more people who want to use the crossing during peak periods than the bridges can accommodate, which results in stop-and-go traffic in the mornings and afternoons. Cars entering I-5 have little room to accelerate and merge with highway traffic (short merging lanes), and cars on I-5 have no room to pull off the highway (narrow or no shoulders) when an accident occurs or when vehicles break

Exhibit 3
Projected Hours of Congestion on I-5 Crossing



TERMS & DEFINITIONS

Traffic Terms

Congestion – For highways, congestion is defined as when the average speed falls below 30 mph.

Peak Period – More generally described as "rush hour," this is the time when travel patterns generate the most traffic, especially in a certain direction. For this FEIS, "peak period" refers to a 4-hour period in the morning and a 4-hour period in the afternoon/evening when traffic volumes are highest.

down. These conditions make congestion worse and decrease safety. Traffic can also become congested when the bridges' lift spans are raised to allow large river vessels to navigate underneath the bridges.

2. **Impaired freight movement**: Congestion on I-5 reduces freight mobility between regional markets in Portland and Vancouver, as well as national and international (Mexico or Canada) destinations along the I-5 corridor. Freight trucks most often travel in the middle of the day to avoid congestion, but can be delayed by bridge lifts, as illustrated in Exhibit 4. As hours of congestion continue to increase over time, travel times for freight trucks will continue to increase—even when traveling during the off-peak hours. This increases delivery times and raises shipping costs. It also negatively affects this region's economy. Truck-hauled freight in the Portland-Vancouver metropolitan region is expected to grow more rapidly than other forms of freight movement (such as marine-hauled freight). Truck-hauled freight is forecast to grow from 67 percent of total freight movement in 2000 to 75 percent in 2035 (Metro 2006).

Exhibit 4

A Bus and Truck Wait During a Bridge Lift

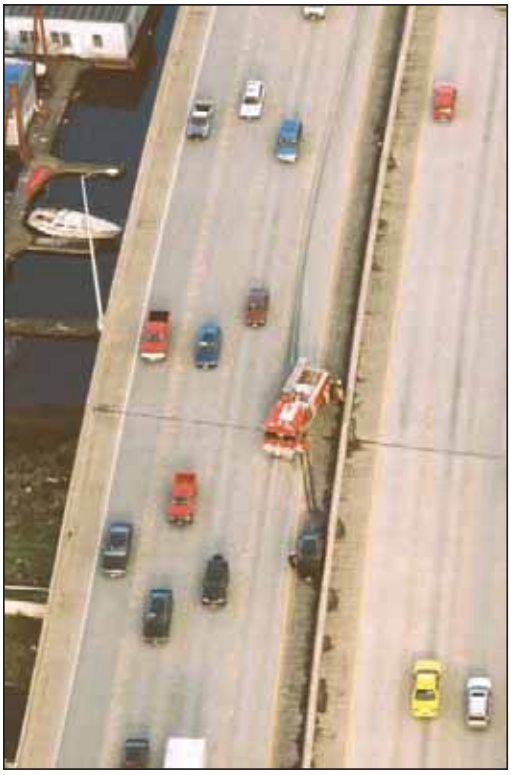
3. **Limited public transportation operation, connectivity, and reliability**: Congestion on I-5 reduces bus travel speeds and reliability. Local bus services currently travel between downtown Vancouver and downtown Portland. Express bus routes serve commuters by providing service directly from Clark County park and rides to downtown Portland. Both of these services travel over the I-5 bridges. Southbound bus travel times across the bridge are currently up to three times longer during parts of the AM peak compared to off-peak. Travel times for public transit using general purpose lanes on I-5 in the Bridge Influence Area are expected to increase substantially by 2030.

4. **Safety and vulnerability to incidents**: Over 300 vehicle crashes are reported annually on I-5 in the project area, making this one of the most

accident-intensive sections of I-5 (Exhibit 5 illustrates one such accident). This high accident rate is a result of multiple highway design features that do not meet current standards, including:

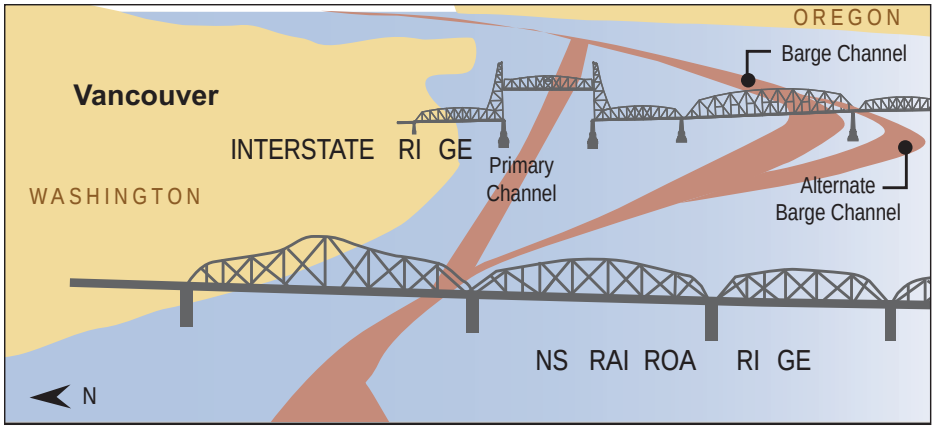
- Close interchange spacing – Within the CRC project area, I-5 has six interchanges spaced approximately one-half mile apart. The recommended minimum distance between interchanges is 1 mile so that cars entering and exiting the highway have enough distance to fully merge with traffic or diverge to the off-ramp before the next interchange.
- Short on- and off-ramps – Several on-ramps are not long enough for vehicles to reach highway speed before merging with highway traffic. Off-ramps are too short for safely slowing down, and during heavy traffic, these short ramps may cause exiting vehicles to back up onto I-5. This generates traffic congestion and can cause accidents because maneuvering is difficult, especially for large trucks.
- Vertical grade changes – A "hump" in the I-5 bridges that accommodates the Columbia River shipping channel blocks the view of roadway conditions ahead. This blocked view reduces speeds and creates potential hazards to motorists.

Exhibit 5
Accident on a Narrow Shoulder Closes Traffic Lane



- Narrow lanes and shoulders – Several portions of I-5 in the project area have narrow inside and outside shoulders, while the I-5 bridges essentially have no shoulders, with less than 1 foot between the outside lanes and the bridges' side barriers. The northbound I-5 bridge also has lanes 1 foot narrower than the minimum standard for a highway, and no shoulders. These conditions place vehicles very close to physical barriers and other vehicles, causing motorists to slow down, and do not provide space for disabled or emergency vehicles.
- Hazardous river navigation – The U.S. Coast Guard (USCG) allows ODOT to not raise the I-5 bridges' lift spans during peak traffic periods because of the substantial impacts this would have on bridge traffic. This requires boats heading downstream (west) to navigate using the fixed "barge channel" near the middle of the river, and then quickly turn to line up with the narrow opening on the north end of the Burlington Northern Santa Fe (BNSF) railroad bridge, located about 1 mile downstream (Exhibit 6). This movement is especially difficult during high river levels.

Exhibit 6
Constrained River Navigation



Not to scale.

5. **Substandard bicycle and pedestrian facilities**: The bicycle and pedestrian paths on the I-5 bridges are very narrow (4 feet wide in most places, decreasing to less than 4 feet at some locations) and extremely close to traffic and to the steel trusses (Exhibit 7). Also, the connections to these paths at both ends of the bridges are difficult to follow, especially around the Marine Drive and Hayden Island interchanges, which at times require riders to cross active roadways. Many existing non-motorized facilities cannot be used by persons with disabilities, and thus do not comply with the Americans with Disabilities Act (ADA) accessibility standards.

Exhibit 7
Bicycle and Pedestrian Path

6. **Seismic vulnerability**: The I-5 crossing of the Columbia River mainstem consists of two bridges, one built in 1917 (the northbound structure) and the other built in 1958 (the southbound structure). The foundations of both bridges rest in soils that could liquefy during a major earthquake. Neither bridge was built to current earthquake safety standards and could be damaged or collapse during a major earthquake.

How has the public been involved in project development?

Since its inception in 2005, the Columbia River Crossing project has implemented a comprehensive public outreach program to ensure the community's values are integrated into project development. The outreach program is multi-faceted because of the variety of interested stakeholders that live in the two states within neighborhoods close to the project and bridge users that live outside the I-5 corridor.

CRC staff uses many different communication methods to reach affected and interested parties in ways that are useful to the receiver of the information. Since October 2005, project staff has had more than 27,000 public outreach contacts at about 900 events. These interactions and project outreach efforts have been targeted to reach neighborhoods; low-income, minority and limited English proficiency populations; and special interest groups.

CRC presents regularly at neighborhood association, community organization and business meetings and participates in community fairs and festivals. The project has convened nine community advisory groups over the last 5 years. These groups have gathered interested parties in the following topic areas: freight, bicycle and pedestrian, community and environmental justice, Marine Drive interchange, transit alignment and design in Washington, transit design in Oregon, urban design and overall project development. The project has sponsored more than 25 open houses, design workshops and question and answer sessions to help inform the public and gather opinions at major decision points, including defining the purpose and need, screening initial components, analyzing preliminary alternatives, selecting the Draft EIS (DEIS) alternatives and choosing a locally preferred alternative (LPA). Since the selection of the LPA, these events have focused on design details such as the number of lanes, interchange designs, and transit alignments and station locations (see the description of the LPA in the following sections).

Comments received at events and by phone, email or mail are recorded and considered by project staff. Summaries or copies of these comments were provided to advisory leadership groups such as the Task Force, through June 2008, and the Project Sponsors Council, since June 2008, for their reference in making project recommendations. Major themes of comments received from 2005 through 2009 primarily included preferences for taking action to solve the problems in a short time frame, specific river crossing options (including alternate highways), and transit modes. Other comment themes included the location of I-5 improvements for this project; the number of lanes and size of the highway facilities; the need for improved bicycle and pedestrian facilities, including the size or length of the facilities; project aesthetics; project cost; tolling; impacts to low-income and minority communities; concerns about environmental effects, including changes in air quality; the project's contribution to land use changes and climate change; community impacts during construction of the project, and others.

More information regarding the project's public involvement efforts can be found in Appendix B of the FEIS.

The Governors of Oregon and Washington formed the Project Sponsors Council (PSC) to advise the departments of transportation on project development. PSC is comprised of executive or elected officials (plus two citizen co-chairs) from the following local and state agencies involved in the planning and decision making for the CRC project:

- Oregon Department of Transportation
- Washington Department of Transportation
- City of Portland
- City of Vancouver
- Metro
- SW Washington Regional Transportation Council
- TriMet
- C-TRAN

How was the locally preferred alternative identified for the CRC project?

The locally preferred alternative (LPA) represents the alternative preferred by FHWA and the local and regional agencies sponsoring the CRC project. The LPA is the same as the "Preferred Alternative" typically used in FHWA environmental impact statements. Long before the local agencies identified their LPA, the project sponsors began evaluating a wide range of potential solutions for addressing the identified problems in the CRC corridor.

Extensive public input and analysis conducted from 2005 through 2007 helped to identify a long list of ideas and to screen that list down to the most promising alternatives and options. This range of alternatives and options was evaluated in greater detail in the DEIS. Please refer to the section in this summary titled "What other choices have been considered for addressing the problems in the CRC corridor?" for a description of these options and alternatives.

Following the publication of the DEIS on May 2, 2008, the project actively solicited public and stakeholder feedback on the DEIS during a 60-day comment period. During this time, the project received over 1,600 public comments.[1]

During and following the public comment period, the elected and appointed boards and councils of the local agencies sponsoring the CRC project held hearings and workshops to gather further public input on and discuss the DEIS alternatives as part of their efforts to determine and adopt an LPA. Local agency-elected boards and councils determined their preference based on the results of the evaluation in the DEIS and on public and agency input.

In the summer of 2008, the local agencies sponsoring the CRC project defined the LPA as follows:

- A replacement bridge as the preferred river crossing.
- Light rail as the preferred high-capacity transit mode.
- Clark College as the preferred northern terminus for the light rail extension.

The preferences for a replacement crossing and for light rail transit were identified by all six local agencies in resolutions with specific conditions. These resolutions and an update on the status of the conditions are included in Appendix F of this FEIS. Only the agencies in Vancouver—C-TRAN, the City of Vancouver, and RTC—specified a preferred location for the light rail terminus. The adoption of the LPA by the local agencies does not represent a formal decision or federal funding commitment by the federal agencies—FHWA and FTA—that are leading this project. A formal decision by FHWA and FTA about whether and how this project should be constructed will follow the FEIS and will be documented in the ROD as described above.

What is the LPA?

The LPA is a refined version of one of the DEIS alternatives (referred to as Alternative 3 in the DEIS). The LPA includes a variety of transportation improvements throughout the 5-mile project corridor, including:

- A new river crossing over the Columbia River and I-5 highway improvements. Includes improvements to seven interchanges, north and south of the river, as well as related enhancements to the local street network.

1 Some comments submitted were signed by multiple individuals. In these cases, each signature was counted as a separate comment submittal (e.g., if one letter was signed by three individuals, the comments included in the letter were treated as though they had been submitted three times). Approximately 1,350 unique comments were submitted on the DEIS, and when delineated into separate topics, totaled approximately 5,000 separate comments.

- A variety of bicycle and pedestrian improvements throughout the project corridor.
- Extension of light rail from the Expo Center in Portland to Clark College in Vancouver, along with associated transit improvements, including transit stations, park and rides, bus route changes, and expansion of a light rail transit maintenance facility.
- A new toll on motorists using the river crossing as a demand management and financing tool.
- Transportation demand and system management measures to be implemented with the project.

The LPA includes two design options and a construction phasing option. The two design options, referred to as LPA Option A and LPA Option B, are the result of substantial public input and additional analysis and design work around the Hayden Island and Marine Drive interchanges. LPA Option A is the option preferred by the federal project leads and the local sponsoring agencies. LPA Option A includes local vehicular access between Marine Drive and Hayden Island on a local multimodal bridge. LPA Option B does not have vehicle traffic lanes on the light rail bridge, but instead provides direct access between Marine Drive and the island with collector-distributor lanes that would be built adjacent to I-5.

In addition to the two design options, this FEIS also evaluates the potential for phasing highway construction; that is, building part of the highway improvements in an initial phase and constructing the remaining improvements at a later date.

Following the adoption of the LPA in July 2008, the project team continued to evaluate and solicit input from the public, other stakeholders, and project sponsors on other elements of the project that would help further refine and develop the LPA. This included input on the following:

- **Marine Drive interchange design**: A diverse stakeholder group analyzed the traffic operations, property impacts, and potential environmental effects for a range of interchange designs and ultimately identified a design that balanced many competing interests, including freight mobility, property impacts to the Expo Center and other nearby properties, financial considerations, and environmental effects.
- **Hayden Island interchange design**: The CRC Project Sponsors Council (PSC) met several times to discuss the Hayden Island interchange design. The PSC recommended an option that includes local traffic between Marine Drive and Hayden Island on a local multimodal bridge separate from the I-5 mainline (referred to in this FEIS as Option A).
- **Number of add/drop lanes on the river crossing and in other highway sections**: The PSC ultimately voted unanimously to recommend that the replacement bridges be constructed with five lanes in each direction with full shoulders on both sides of both bridges to provide for safe operations between interchanges and efficient movement of people and goods.
- **Number of separate bridge structures over the Columbia River**: The DEIS evaluated both two-bridge and three-bridge options. Several

advantages of the two-bridge design were identified in the DEIS, including fewer piers with less in-water structure, smaller surface area generating less stormwater runoff, and a more compact crossing with less imposing visual obstruction of the river. After the publication of the DEIS, the agencies sponsoring the project worked with FTA and FHWA and determined that the less common two-bridge design, with light rail transit and a multi-use pathway running beneath the highway deck, is feasible to construct across the Columbia River at this location.

- **Light rail alignment over Hayden Island**: After the publication of the DEIS, the City of Portland completed a separate planning and outreach process that yielded a Hayden Island Plan, which included a preference for the light rail transit alignment adjacent to, instead of offset from, the I-5 interchange and called for the station to be focused on Tomahawk Island Drive, a new east-west street under I-5.
- **Light rail alignment in downtown Vancouver**: Project staff, working with the Vancouver Working Group, identified several advantages of the Washington-Broadway couplet, including better support of development potential in downtown and the ability to accommodate more uses on these streets than could be afforded with a two-way transit guideway on Washington Street.
- **Light rail alignment east-west to Clark Park and Ride**: Following a close vote by the Vancouver Working Group on a McLoughlin Boulevard or 17th Street transit alignment to Clark College, the City of Vancouver Council and C-TRAN requested additional research and public outreach be conducted by CRC staff; with this additional information, they ultimately selected the 17th Street light rail transit alignment option.
- **Station and park and ride locations**: Due to design constraints, the location of the light rail stations and park and rides were refined after the publication of the DEIS. Three park and rides—Clark, Mill and Columbia—were recommended by project staff based on impacts to parking, cost-effectiveness, transit operations and traffic modeling.
- **Cost reduction measures**: The project team, working with stakeholder groups, identified several elements of the project design that could be modified or postponed to reduce construction costs, including retaining the existing North Portland Harbor Bridge, lowering the Hayden Island interchange onto fill and retaining walls, and eliminating a northbound add/drop lane on I-5 between SR 14 and SR 500. Potential deferred elements include the I-5 braided on- and off-ramps at Victory Boulevard, the Marine Drive to northbound I-5 flyover ramp, and the northern half of the SR 500 interchange.

For a detailed discussion of these refinements, see Chapter 2 (Section 2.7.9).

What other choices have been considered for addressing the problems in the CRC corridor?

Before beginning the DEIS, the project sponsors evaluated a wide range of potential solutions for addressing the identified problems in the CRC corridor. Elements of the CRC project have been proposed and studied since the early

1990s. In 2002, the I-5 Transportation and Trade Partnership produced an evaluation of multiple highway, transit, and river crossing improvements in this corridor and other parts of I-5. This process gathered public and stakeholder input on issues and potential solutions for transportation problems in the I-5 corridor. Starting in October 2005, CRC project staff began working closely with the public, stakeholders, and local jurisdictions to develop the CRC project's Purpose and Need (Chapter 1).

Following the adoption of the CRC Purpose and Need, the project team developed an Evaluation Framework that reflects the Purpose and Need and set forth the criteria by which project components would be evaluated and screened for further consideration. The project team began soliciting ideas for and identifying possible transportation components (for example, various transit technologies and river crossing types and locations); over 70 such components were identified. With public and agency input, project staff performed two rounds of evaluation and screening, as well as additional evaluation and research, to narrow these options and assemble these components into the 12 most promising alternative packages. Project staff then analyzed how well each alternative would address the criteria from the Evaluation Framework. In January 2007, the project team launched an intensive public involvement effort to present the results of this evaluation and invite comments on which alternatives should move forward into the DEIS. For more information on the alternatives' development and screening process, see Chapter 2, Section 2.7, or the Development of the Range of Alternatives technical memorandum.

Following the public process to develop and screen potential solutions, the DEIS presented the project team's detailed assessment of the most promising alternatives. All build alternatives assessed in the DEIS included transit, highway, bicycle, and pedestrian improvements. Some of these were physical improvements, such as adding highway capacity or building transit facilities. Others were operational improvements to help the system function more efficiently, such as adding meters to a highway ramp to manage how quickly vehicles enter the highway or tolling the river crossing to reduce automobile traffic.

Four build alternatives were assessed in the DEIS, in addition to a No-Build Alternative. The No-Build Alternative is required by NEPA as a means to compare the effects of constructing the various project alternatives with the likely effects if the project is not constructed. Each alternative was composed of several components that, when combined, created a particular multimodal alternative that comprehensively addresses the problems this project seeks to fix. These components include:

- Multimodal river crossing and highway improvements
    - Bridges over the Columbia River carrying transit, highway, bicycle, and pedestrian traffic
    - Bicycle and pedestrian improvements between north Portland and downtown Vancouver
    - Highway and interchange improvements between Marine Drive in north Portland and SR 500 in Vancouver
- High-capacity transit modes

- Transit terminus and alignment options
  - Transit terminus (endpoint) options
  - Transit alignment options
- Transit operations (frequency of train or bus rapid transit service)
- Bridge tolls
- Transportation system management (TSM) and transportation demand management (TDM) measures

Exhibit 8 summarizes the components included in each alternative. Exhibit 9 identifies the key features of each alternative. Exhibit 10 illustrates the LPA and the build alternatives analyzed in the DEIS. This exhibit is followed by a detailed description of the LPA.

Exhibit 8
Comparison of the LPA and DEIS Alternatives (Alternatives 2–5)

Components	Alternative 1 (No-Build)	LPA	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Multimodal River Crossing and Highway	Existing	**Replacement**	Replacement	Replacement	Supplemental	Supplemental
Transit Mode[a]	None	**Light Rail**	Bus Rapid Transit	Light Rail	Bus Rapid Transit	Light Rail
Transit Terminus	N/A	**Clark College**	Kiggins Bowl, Lincoln, Clark College MOS[b],or Mill Plain MOS	Kiggins Bowl, Lincoln, Clark College MOS, or Mill Plain MOS	Kiggins Bowl, Lincoln, Clark College MOS, or Mill Plain MOS	Kiggins Bowl, Lincoln, Clark College MOS, or Mill Plain MOS
TDM/TSM Measures[c]	Current Programs	**Similar to DEIS**	Expanded TDM/TSM programs			
I-5 Bridge Toll[e,f]	None	**Standard rate**	Standard rate	Standard rate[d]	Higher rate	Higher rate
Transit Operations	Existing	**Efficient (refined)**	Efficient	Efficient	Increased	Increased

Notes:

a Transit Mode also dictated the location of a maintenance base expansion. Bus rapid transit would have entailed expanding a bus maintenance facility in eastern Vancouver. Light rail transit would entail expanding the Ruby Junction Maintenance Facility in Gresham. See Section 2.2.3.

b MOS = Minimum Operable Segment.

c See Section 2.2.5 for a description of the TSM/TDM measures.

d Alternative 3 was also evaluated without a toll to help quantify the traffic effects of tolling the I-5 crossing.

e Standard rate is based on toll rates that, for passenger cars with transponders, would range from $1.00 during off-peak times to $2.00 during peak travel times (2006 dollars).

f Higher rate is based on toll rates that, for passenger cars with transponders, would range from $1.00 during off-peak times to $2.50 during peak travel times (2006 dollars).

Exhibit 9
Key Transit and Highway Features of the LPA and DEIS Alternatives

Alternative	Transit Features	Highway Features
No-Build Alternative (DEIS Alternative 1)	• Modest increases to C-TRAN service hours for bus routes throughout Vancouver and Clark County to keep pace with anticipated changes in congestion. • Modest increases to TriMet's services hours for bus routes throughout north and northeast Portland to keep pace with anticipated changes in congestion. • Completion of the first phase of the South Corridor light rail project on the Portland Transit Mall and I-205.	• I-5 widening and improvements around Delta Park.
Locally Preferred Alternative (Refinement of DEIS Alternative 3)	• Extension of the light rail guideway from the Expo Center over Hayden Island and across the Columbia River to a terminus at Clark College in Vancouver. The light rail guideway would extend 2.9 miles north from the Expo Center and would include seven transit stations and three structured park and rides with 2,900 spaces. • Expansion of TriMet's Ruby Junction light rail maintenance facility in Gresham. • 19 light rail vehicles (LRVs) would be included in this alternative. • Changes to C-TRAN local bus routes to connect with the new light rail stations and park and rides.	• A new replacement crossing over the Columbia River, with a "stacked transit/ highway bridge" design that would include transit beneath the western highway bridge deck and a bicycle and pedestrian path beneath the eastern highway deck. Each bridge would have five traffic lanes and full design shoulders. • Improvements to the following I-5 interchanges: Victory Boulevard, Marine Drive, Hayden Island, SR 14, Mill Plain, Fourth Plain, and SR 500. With highway phasing, certain portions of the improvements at the Victory Boulevard, Marine Drive, and SR 500 interchanges would be deferred. • Auxiliary lanes for traffic entering and/or exiting I-5 between Victory Boulevard and SR 500. • A toll would be charged on the I-5 crossing, with higher rates during peak travel periods.
Replacement crossing with bus rapid transit (DEIS Alternative 2)	• Changes to C-TRAN local bus routes to connect with the new bus rapid transit (BRT) stations and park and rides. • Expansion of TriMet's Ruby Junction light rail maintenance facility in Gresham. • Changes to C-TRAN local bus routes to connect with the new bus guideway and park and rides. • 27 BRT vehicles (60' articulated buses) and 12 standard buses would be included in this alternative.	• A new replacement crossing over the Columbia River, with either three separate bridges (two for interstate traffic and a third for buses, bicycles, and pedestrians) or a "stacked highway/transit bridge" design that would include transit beneath the western highway bridge deck and a bicycle and pedestrian path beneath the eastern highway deck. • Improvements to the following I-5 interchanges: Marine Drive, Hayden Island, SR 14, Mill Plain, Fourth Plain, and SR 500. • Additional auxiliary lanes for traffic entering and/or exiting I-5 between Marine Drive and SR 500. • A toll would be charged on the I-5 crossing, with higher rates during peak travel periods.

Alternative	Transit Features	Highway Features
Replacement crossing with light rail (DEIS Alternative 3)	• Extension of the light rail guideway from the Expo Center over Hayden Island and across the Columbia River to a terminus in Vancouver. Depending on transit terminus, the light rail guideway would extend between 2.07 and 4.22 miles north from the Expo Center and would include five to seven transit stations and three to five structured or surface park and rides with up to 2,410 spaces. • Changes to C-TRAN local bus routes to connect with the new light rail stations and park and rides. • Expansion of TriMet's Ruby Junction light rail maintenance facility in Gresham. • 14 LRVs and 27 standard buses would be included in this alternative.	• Same highway features as Alternative 2. • This alternative was also modeled without a toll to determine the potential effects of tolling on traffic patterns.
Supplemental crossing with bus rapid transit (DEIS Alternative 4)	• Same transit features as Alternative 2, but higher frequency operations of bus rapid transit and local bus routes. • This alternative would include 38 bus rapid transit vehicles and 143 standard buses.	• A new, supplemental crossing for southbound interstate traffic and exclusive lanes for buses. • Both existing I-5 bridges would be re-striped for two lanes each to carry northbound I-5 traffic. • Seismic retrofits to the existing bridges. • Improvements to the following I-5 interchanges: Marine Drive, Hayden Island, SR 14, Mill Plain, Fourth Plain, and SR 500. • Additional auxiliary lanes (generally one less additional lane than Alternatives 2 and 3) for traffic entering and/or exiting I-5 between Marine Drive and SR 500. • A toll would be charged on the I-5 crossing, with higher rates during peak travel periods. During these peak travel periods, the toll would be higher than with Alternatives 2 or 3.
Supplemental crossing with light rail (DEIS Alternative 5)	• Same transit features as Alternative 3, but higher frequency operations for light rail and for local bus routes. • This alternative would include 18 LRVs and 147 standard buses.	• Same highway features as Alternative 4.

Exhibit 10

LPA and Alternatives Evaluated In DEIS

Locally Preferred Alternative

Alternatives 2 and 3

Replacement River Crossing
with BRT (Alt 2) or Light Rail (Alt 3)

Alternatives 4 and 5

Supplemental River Crossing
with BRT (Alt 4) or Light Rail (Alt 5)

Map dimensions are approximate. MOS=minimum operable segment

What improvements would be constructed with the LPA?

The major components of the LPA were listed earlier in this section. The following describes each of these major LPA components in detail.

Multimodal River Crossing and Highway Improvements

Exhibit 11
Composite Deck Truss

Columbia River Bridges

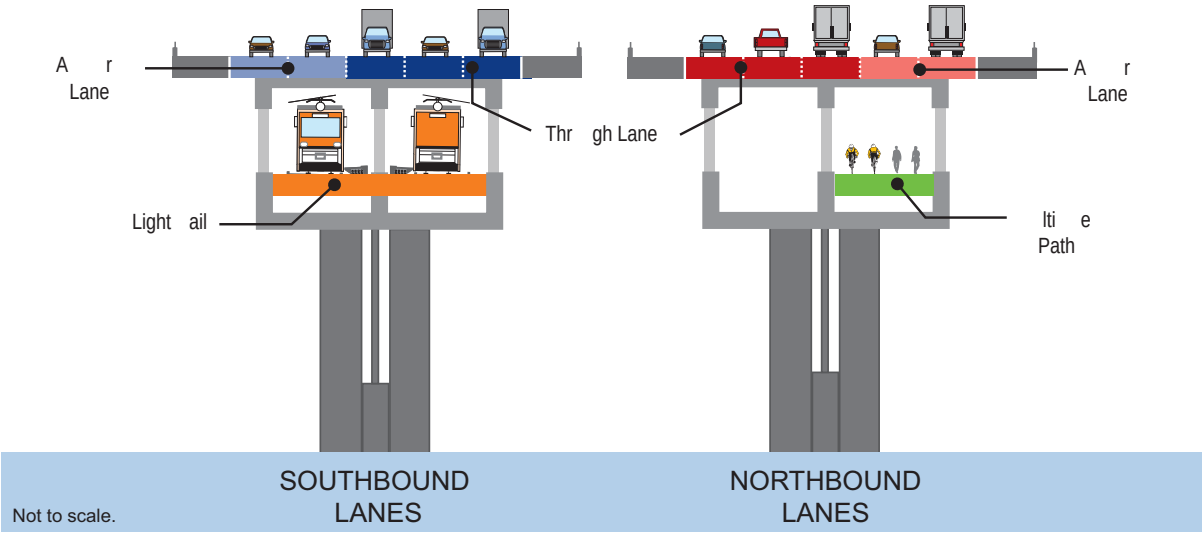
The parallel bridges that form the existing I-5 crossing over the Columbia River would be replaced by two new parallel bridges slightly downstream from the existing alignment. The proposed bridge type is a composite deck truss in which the "walls" are constructed of diagonal steel members (Exhibit 11) that would allow for a partially open-sided, covered passage for the multi-use pathway and light rail trackway. The eastern structure would accommodate northbound highway traffic on the upper bridge deck, with a 16- to 20-foot-wide bicycle and pedestrian path underneath; the western structure would carry southbound traffic on the upper bridge deck, with a two-way light rail guideway below. While the existing bridges have only three lanes each, with virtually no shoulders, each of the new bridges would be wide enough to accommodate three through lanes and two auxiliary lanes, and would provide full-width shoulders (Exhibit 12). The auxiliary lanes on the outsides of each structure would provide improved safety and reduced congestion for traffic entering and/or exiting the highway at one of the closely spaced interchanges near the river.

The new bridges would be high enough to provide approximately 95 feet of vertical clearance for river traffic beneath, but not so high as to impede the take-offs and landings by aircraft using Pearson Field or Portland International Airport to the east. The new bridge structures over the Columbia River would not include lift spans, and both of the new bridges would each be supported by six piers in the water and two piers on land. Emergency access to the transit guideway and bike/pedestrian paths on the lower decks of the bridge would be provided by the project design and would allow access for rescue trains and first responders.

North Portland Harbor Bridges

With either LPA Option A or LPA Option B, the existing highway structure over North Portland Harbor would be retained and would accommodate mainline I-5 traffic. With LPA Option A, four new, narrower parallel structures would be built across the waterway: three on the west side and

Exhibit 12
LPA Columbia River Crossing Cross-section



one on the east side of the existing North Portland Harbor bridge. Option A would not widen or seismically upgrade the existing North Portland Harbor bridge. The three easternmost new structures would carry on- and off-ramps to mainline I-5. The westernmost new structure would include a two-lane local multimodal bridge for local traffic to and from Hayden Island, light rail transit, and bicycle lanes and sidewalks.

LPA Option B would build the same number of structures over North Portland Harbor as Option A, although the locations of certain functions on those bridges would differ. The existing bridge over North Portland Harbor would be widened and would receive seismic upgrades.

LPA Option B would not have vehicle traffic lanes on the light rail bridge but would include the multi-use path on that bridge. Direct access between Marine Drive and Hayden Island would be provided with collector-distributor lanes. The two structures adjacent to the highway bridge would carry traffic merging onto or exiting off of mainline I-5 between the Marine Drive and Hayden Island interchanges.

Highway, Interchange, and Local Street Improvements

The LPA includes improvements to seven interchanges along a 5-mile segment of I-5 between Victory Boulevard in Portland and SR 500 in Vancouver. These improvements include some reconfiguration of adjacent local streets to complement the new interchange designs, as well as new facilities for bicyclists and pedestrians. The bicycle and pedestrian improvements are described in the next section.

- **Victory Boulevard:** Improve the northbound on-ramp and southbound off-ramp to lengthen merging distances. If the highway component of the project were phased, these improvements would be deferred.
- **Marine Drive Interchange:** Reconfigure to allow the highest volume movements to move freely without being impeded by stop signs or traffic lights. With LPA Option A, local traffic between Martin Luther King Jr. Boulevard/Marine Drive and Hayden Island would travel via a local

multimodal bridge over North Portland Harbor connecting to the local street system under the Marine Drive interchange. With LPA Option B, there would be no vehicle traffic lanes on the light rail transit/multi-use path bridge over North Portland Harbor. Instead, vehicles traveling between Martin Luther King Jr. Boulevard/Marine Drive and Hayden Island would travel in collector-distributor lanes on bridges that would parallel each side of I-5 over North Portland Harbor. With either option, if the highway component were phased, improvements to the Marine Drive to I-5 southbound flyover ramp would be deferred and would require traffic to travel though a signalized interchange.

- **Hayden Island Interchange:** Restructure to include ramps parallel to the highway rather than looped ramps, thus lengthening merging distances. As mentioned above, with LPA Option A, local vehicular access to the island would be via a local multimodal bridge, and with Option B local vehicular access would be via collector-distributor lanes. Either option provides a new local road (N Tomahawk Island Drive) that crosses under the I-5 mainline to improve neighborhood connectivity.
- **SR 14:** Rebuild ramps to tie in with higher bridges over the Columbia River, and relocate access points into and from downtown Vancouver to improve traffic circulation. Raising I-5 at this interchange allows for an extension of Main Street beneath the BNSF railroad crossing, providing greater access to Vancouver's waterfront.
- **Mill Plain Boulevard:** Reconfigure to improve the capacity of the interchange by reducing delay for traffic entering or exiting the freeway.
- **Fourth Plain Boulevard:** Improve ramps to better accommodate freight traffic and construct new access to the proposed park and ride at Clark College.
- **SR 500 Interchange:** Construct new highway-to-highway connections to improve travel times and reduce traffic on local streets accessing I-5. If the highway component were phased, the ramps connecting SR 500 and I-5 to and from the north would be deferred.

Why build add/drop lanes?

Add/drop (or auxiliary) lanes connect two or more highway interchanges. These lanes improve safety and reduce congestion by providing space for cars and trucks entering the highway to speed up before merging into traffic and to slow down after diverging out of traffic. This is especially important at and around the river crossing, where three large interchanges (Marine Drive, Hayden Island, and SR 14) all have traffic entering and exiting I-5 within a 1.5-mile segment.

In addition to interchange improvements, the LPA would develop a local circulation system adjacent to and connecting under the Marine Drive interchange. This system would include connections to the local multimodal bridge (with Option A), a new road on the east side of the Expo Center (adjacent to the light rail transit station), a public street on the south side of the Expo Center, construction of a new connection under I-5, realignment of Marine Drive east of I-5 to connect to Martin Luther King Jr. Boulevard away from the I-5 interchange, and reconfiguration of the Vancouver Way and Union Court connections to Martin Luther King Jr. Boulevard.

Highway safety and mobility would be improved with a series of auxiliary (add/drop) lanes that would be sequentially added and then dropped at strategic locations through the corridor. The add/drop lanes would allow vehicles to travel between given points without merging into mainline interstate traffic, and would allow vehicles exiting or entering to minimize conflicts with through traffic. See Chapter 2 for detailed descriptions of the locations of these add/drop lanes.

High-capacity Transit Improvements

The primary transit element of the LPA is a 2.9-mile extension of the current MAX Yellow Line light rail from the Expo Center in north Portland, where it currently ends, to Clark College in Vancouver. To accommodate and complement this major addition to the region's transit system, a variety of additional improvements are also included in the LPA:

- Park and ride facilities in Vancouver near three of the new light rail stations.
- Expansion of TriMet's Ruby Junction light rail maintenance base in Gresham, Oregon.
- Changes to C-TRAN local bus routes.
- Upgrades to the existing Yellow Line light rail crossing over the Willamette River via the Steel Bridge.

Operating Characteristics

Nineteen new light rail vehicles (LRVs) would be purchased as part of the CRC project to operate this extension of the MAX Yellow Line. With the LPA, LRVs in the new guideway and in the existing Yellow Line alignment are planned to operate with 7.5-minute headways during the "peak of the peak" periods (the 2-hour period within the 4-hour morning and afternoon/evening peak periods when demand for transit is the highest) and 15-minute headways during all other times.

Light Rail Alignment and Stations

Exhibit 13 illustrates the alignments and station locations described below.

OREGON LIGHT RAIL ALIGNMENT AND STATION

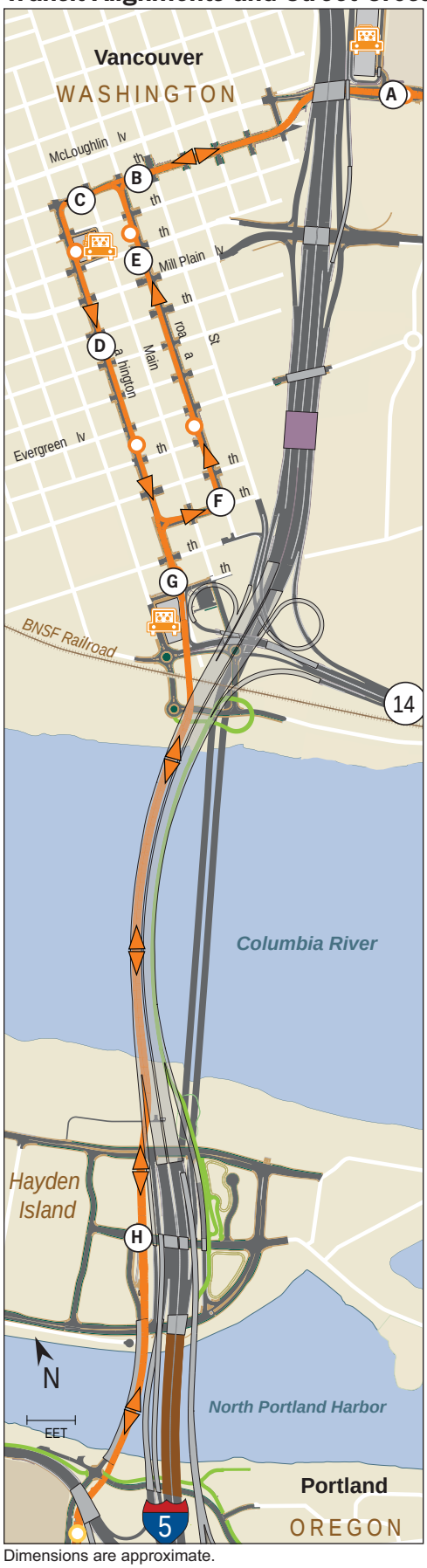
A two-way light rail alignment for northbound and southbound trains would be constructed to extend from the existing Expo Center MAX station over North Portland Harbor to Hayden Island. Immediately north of the Expo Center, the alignment would curve eastward toward I-5, pass beneath Marine Drive, and then rise over a flood wall onto a bridge to cross North Portland Harbor. The two-way guideway over Hayden Island would be elevated at approximately the height of the rebuilt mainline of I-5, as would a new transit station immediately west of I-5. The alignment would extend northward on Hayden Island along the western edge of I-5, until it transitions into the hollow support structure of the new western bridge over the Columbia River.

DOWNTOWN VANCOUVER LIGHT RAIL ALIGNMENT AND STATIONS

After crossing the Columbia River under the deck of the southbound I-5 bridge, the light rail alignment would descend on structure to touch down on Washington Street, south of 5th Street, then continue north on Washington Street to 7th Street. The elevation of 5th Street would be raised to allow for an at-grade crossing of the tracks on Washington Street. Between 5th and 7th Streets, the two-way guideway would run down the center of the street. Traffic would not be allowed on Washington between 5th and 6th Streets and would be two-way between 6th and 7th Streets. There would be a station on each side of the street on Washington between 5th and 6th Streets.

Exhibit 13

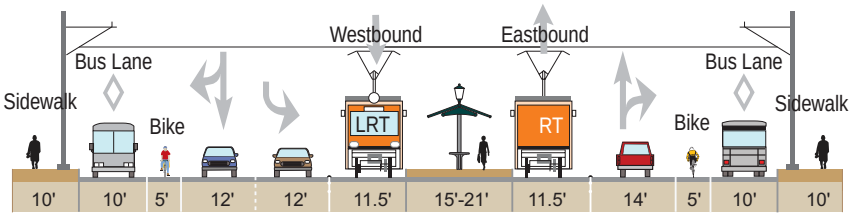
Transit Alignments and Street Cross-Sections (1 of 2)



Dimensions are approximate.

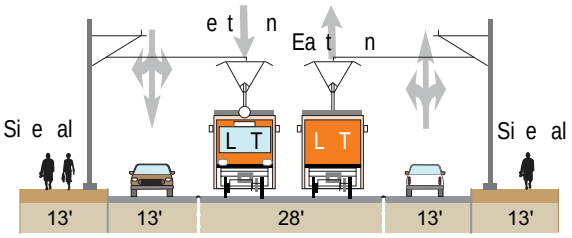
A. Terminus

Station block with center platform
Double track in median and center platform



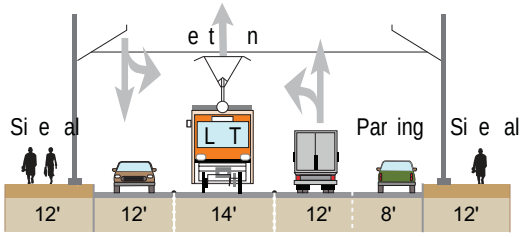
B. 17th Street

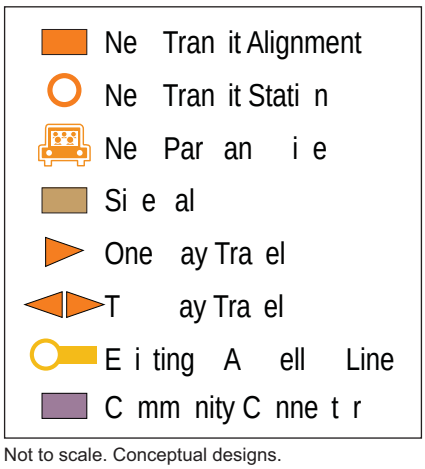
Non-station block
from Broadway to G Streets
Double track in median



C. 17th Street

Non-station block
from Washington to Main
Single track in median with parking lane





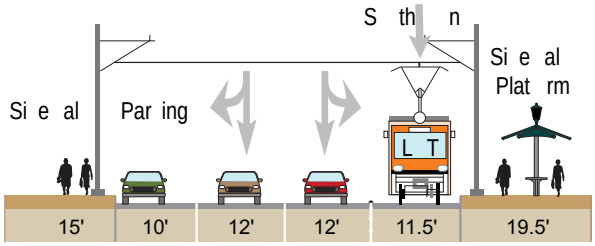
Not to scale. Conceptual designs.

Exhibit 13

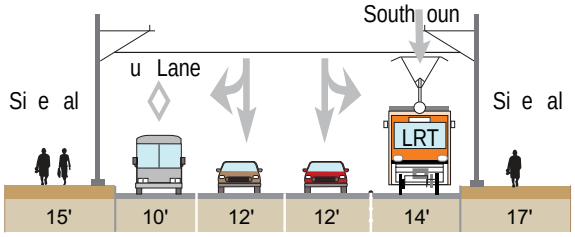
Transit Alignments and Street Cross-Sections (2 of 2)

D. Washington Street

Station block with side platform
Inside single track with one-way traffic
and bus or parking lane (depending on block)

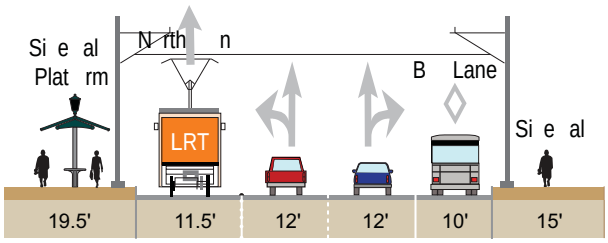


Non-station block
Inside single track with one-way traffic
and bus or parking lane (depending on block)

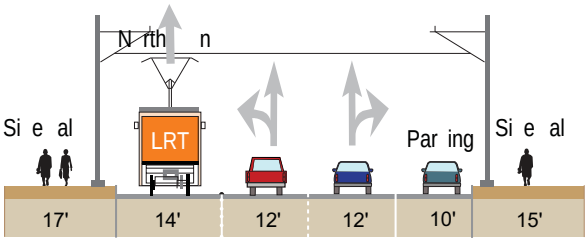


E. Broadway Street

Station block with side platform
Inside single track with one-way traffic
with bus or parking lane (depending on block)

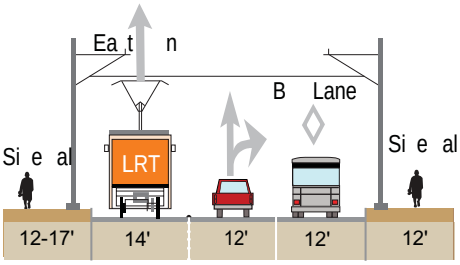


Non-station block
Inside single track with one-way traffic
and bus or parking lane (depending on block)



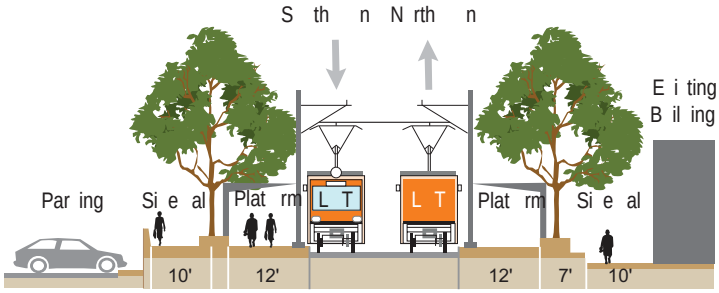
F. 7th Street

Between Washington and Main Streets
Single track with one-way traffic
and bus lane



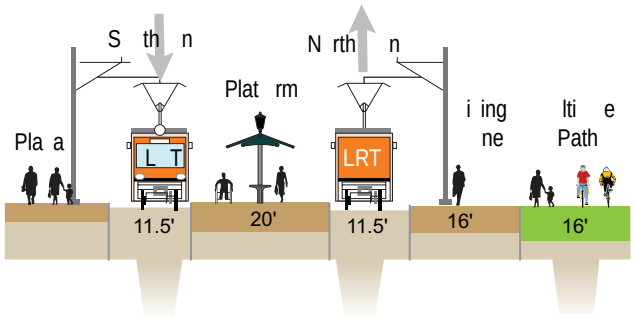
G. Washington Street

Station block between 5th and 6th
Double track with no traffic



H. Hayden Island

At Tomahawk Island Drive
Elevated station at plaza



At 7th Street, the light rail alignment would form a couplet. The single-track northbound guideway would turn east for two blocks, then turn north onto Broadway Street, while the single-track southbound guideway would continue on Washington Street. Seventh Street would be converted to one-way traffic eastbound between Washington and Broadway, with light rail operating on the north side of 7th Street. This couplet would extend north to 17th Street, where the two guideways would join and turn east.

The light rail guideway would run on the east side of Washington Street and the west side of Broadway Street, with one-way traffic southbound on Washington Street and one-way traffic northbound on Broadway Street. On station blocks, the station platform would be on the side of the street at the sidewalk. There would be two stations on the Washington-Broadway couplet, one pair of platforms near Evergreen Street, and one pair near 15th Street.

EAST-WEST LIGHT RAIL ALIGNMENT AND TERMINUS STATION

The southbound light rail transit guideway (on Washington Street) and the northbound light rail transit guideway (on Broadway) would make a 90 degree turn onto 17th Street. Here the two one-way guideways would join into a two-way guideway running east-west down the center of 17th Street for approximately nine blocks. At G Street, the light rail transit guideway on 17th would angle north one block to McLoughlin Boulevard, then cross under I-5 to run down the center of McLoughlin to the western boundary of Clark College. The guideway would end at a station and park and ride structure east of I-5, across from the Marshall Community Center, Luepke Senior Center, and Marshall Park.

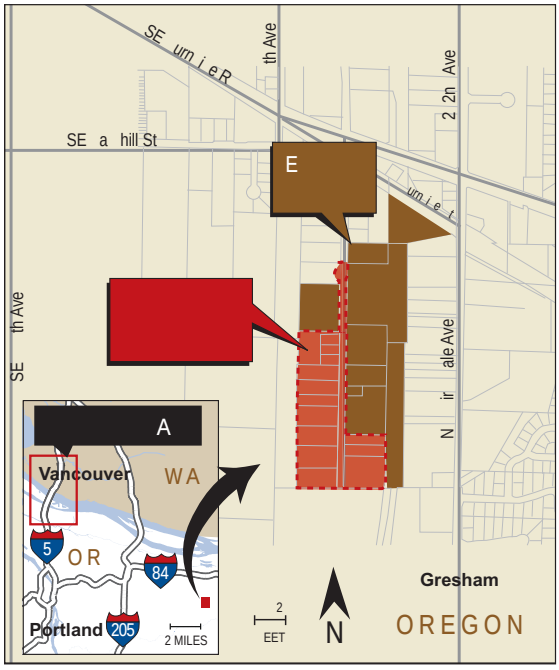
Park and Ride Stations

Three park and ride stations would be built in Vancouver along the light rail alignment at the following locations:

- Bounded by Washington, Columbia, and 5th Streets, and half the block between 3rd and 4th Streets, with space for active uses on the first floor and five floors above ground that provide 570 parking stalls.
- Between Washington and Main Streets next to the stations between 15th and 16th Streets, with space for active uses on the first floor, and four floors above ground that provide 420 parking stalls.
- At Clark College, just north of the terminus station, with space for retail or C-TRAN services on the first floor, and five floors above ground that provide 1,910 parking stalls.

Exhibit 14

Ruby Junction Maintenance Facility Proposed Expansion



Dimensions are approximate.

Ruby Junction Maintenance Facility Expansion

The Ruby Junction Maintenance Facility in Gresham, Oregon, would need to be expanded to accommodate the additional LRVs associated with the CRC project and the Portland Milwaukie Light Rail project (Exhibit 14). Improvements include additional storage for LRVs and other maintenance material, expansion

of LRV maintenance bays, and expanded parking for additional personnel. A new operations command center would also be required and would be located at the TriMet Center Street location in Southeast Portland.

Local Bus Route Changes

As part of the CRC project, several C-TRAN bus routes would be changed in order to better complement the new light rail system. Most of these changes would re-route bus lines to downtown Vancouver, where riders could transfer to light rail. Express routes, other than those listed below, are expected to continue service between Clark County and downtown Portland. Exhibit 15 shows anticipated future changes to C-TRAN bus routes.

Exhibit 15
Proposed C-TRAN Bus Routes Comparison

C-TRAN Bus Route	Route Changes
#4 - Fourth Plain	Route truncated in downtown Vancouver
#41 - Camas / Washougal Limited	Route truncated in downtown Vancouver
#44 - Fourth Plain Limited	Route truncated in downtown Vancouver
#47 - Battle Ground Limited	Route truncated in downtown Vancouver
#105 - I-5 Express	Route truncated in downtown Vancouver
#105S - I-5 Express Shortline	Route eliminated in LPA (The No-Build Alternative runs articulated buses between downtown Portland and downtown Vancouver on this route)

Steel Bridge Improvements

Currently, all light rail lines within the regional TriMet MAX system, including the Yellow Line, cross over the Willamette River via the Steel Bridge. By 2030, the number of LRVs that cross the Steel Bridge during the 4-hour PM peak period would increase from 152 to 176, including the trains that would be added with the CRC project. To accommodate these additional trains, the CRC project would perform minor retrofits to the existing rails and signal and electric power system on the Steel Bridge in order to increase the allowed light rail speed over the bridge from 10 to 15 mph.

Since the publication of the DEIS, a Documented Categorical Exclusion (DCE) from the NEPA process was requested for the work on Steel Bridge. The DCE evaluation determined that there would be minimal environmental impacts from improvements to the bridge trackway and controls. A determination that the work would be excluded from the NEPA process was made by FTA in February 2011. The Steel Bridge improvements were included in the CRC 2008 Federal New Starts application.

Bicycle and Pedestrian Improvements

Many bicycle and pedestrian improvements are included in the CRC project. These include new facilities such as the multi-use pathway across the Columbia River and North Portland Harbor, street improvements around the rebuilt interchanges, and new facilities for bicyclists and pedestrians around the new light rail stations and park and rides. The proposed

improvements are described below from the south end of the project to the north end.

- **North Portland:** Reconfigure the Marine Drive interchange to provide multi-use paths below the interchange, and construct paths to connect to existing routes on either side of the interchange and to the Expo Center light rail station. Construct sidewalks along the southern side of the new local road extension, with crosswalks provided at the intersection of Vancouver Way, Anchor Way, and Expo Road. The pathway from the Expo Center to Hayden Island would be 16 feet wide and would be under the easternmost new bridge over North Portland Harbor (Option A), or on the light rail/multi-use path bridge (Option B).
- **Hayden Island:** From North Portland Harbor, the new multi-use path would continue on the east side of I-5 (Option A), or on the same structure as the new light rail transit alignment located parallel to and west of I-5 (Option B). This elevated path would connect the North Portland Harbor bridge and the Columbia River bridge and could be accessed from North Jantzen Drive, North Hayden Island Drive, and the light rail station.

  To improve east-west connections on Hayden Island, an 8-foot-wide sidewalk would be provided along the water sides of North Jantzen Drive and North Hayden Island Drive, and a 6-foot minimum width sidewalk along the interior sides of North Jantzen Drive, North Hayden Island Drive, and along both sides of North Tomahawk Island Drive.
- **River Crossing:** The new northbound bridge over the Columbia River would also accommodate a 16- to 20-foot-wide multi-use pathway under the highway deck. Current designs for the bridge superstructure would be a composite deck truss using a series of discrete diagonal members instead of solid walls on each side. Ramps would connect the multi-use path to Columbia Way and Columbia Street in Vancouver and to North Hayden Island Drive on Hayden Island.
- **Downtown Vancouver:** From the Columbia River Bridge, the multi-use path would provide access to downtown Vancouver via a ramp and to the Vancouver waterfront via stairs and/or an elevator. This multi-use path would provide connections to Old Apple Tree Park, the Land Bridge, and regional pedestrian and bikeway facilities that exist throughout Vancouver.

  There would be 12- to 17-foot-wide sidewalks along both sides of Washington and Broadway Streets along the new light rail alignments, with ADA-compliant crosswalks at all intersections.
- **Evergreen Boulevard and Community Connector:** Rebuild the I-5 overpass and include bike lanes and sidewalks with clear delineation and signing. Construct a new community connector/overpass with landscaping, pathways and other public space to the south of Evergreen Boulevard.
- **Mill Plain Boulevard:** Improve bicycle and pedestrian safety by providing bike lanes; 12-foot sidewalks; clear delineation and signage; short perpendicular, signalized crossings at the ramp terminals; ramp orientations to encourage high pedestrian visibility; and new connections to F Street and to Marshall Park.

- **17th Street:** Construct 12-foot sidewalks and crosswalks, all meeting ADA accessibility standards. Bicyclists would continue to use McLoughlin Boulevard.
- **Fourth Plain Boulevard:** Increase bicycle and pedestrian safety by adding east and westbound bike lanes, with a 6-foot sidewalk on the south side. Increase access to adjacent neighborhoods and the Clark Park and Ride by constructing a 14-foot multi-use path on the east side of I-5 between Fourth Plain Boulevard and McLoughlin Boulevard.
- **29th and 33rd Street Overpasses:** Build new I-5 overpasses for 29th Street and 33rd Street, with bike lanes, 6-foot minimum width sidewalks, and clear delineation and signing.
- **SR 500 Interchange:** 39th Street would have 6-foot sidewalks and 6-foot bicycle lanes on both the north and south sides from H Street to 15th Avenue.

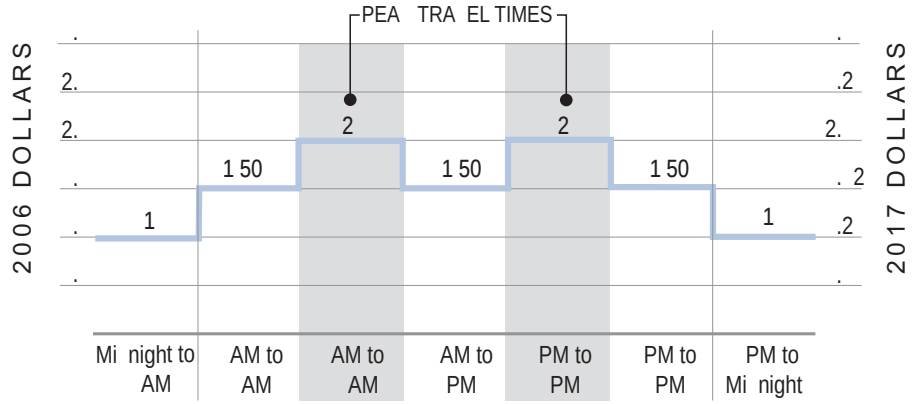
Bridge Toll

Tolling cars and trucks that use the I-5 river crossing is proposed as a method to help fund the CRC project and to encourage the use of alternative modes of transportation and times of day. The authority to toll the I-5 crossing is set by federal and state laws. Federal statutes permit a toll-free bridge on an interstate highway to be converted to a tolled facility following the reconstruction or replacement of the bridge. Prior to imposing tolls on I-5, WSDOT and ODOT would have to enter into a toll agreement with the federal DOT). In 2008, the Washington legislature passed enabling language for tolling of I-5, provided that each facility is later authorized under specific legislation. Once tolling has been authorized by the legislature, the Washington Transportation Commission (WTC) has the authority to set the toll rates. In Oregon, the Oregon Transportation Commission (OTC) has the authority to toll a facility and to set the toll rate. It is anticipated that prior to tolling I-5, ODOT and WSDOT would enter into a bi-state tolling agreement to establish a cooperative process for setting toll rates and to guide the use of toll revenues.

Tolls would be collected using an electronic toll collection system; toll collection booths would not be required. Instead, motorists could obtain a transponder that would register each time the vehicle crossed the bridge. The electronic tolling system would automatically bill the vehicle's owner. Cars without transponders would be tolled by a license-plate recognition system that would bill the address of the owner registered to that license plate, with an additional processing fee.

The LPA proposes to apply a variable toll to vehicles using the I-5 crossing. Tolls would vary by time of day, with higher rates during peak travel periods and lower rates during off-peak periods. Medium and heavy trucks would be charged a higher toll than passenger vehicles. The traffic-related impact analysis in this FEIS is based on toll rates for passenger cars with transponders that would range from $1.00 during the off-peak to $2.00 during the peak travel times (in 2006 dollars) (Exhibit 16). Actual toll rates will be set by the WTC and OTC.

Exhibit 16
Tolls for Passenger Cars (with Transponders)



Transportation System and Demand Management Measures

TERMS & DEFINITIONS
TDM & TSM

Transportation demand management (TDM) measures seek to reduce the number of vehicles using the road system, especially single-occupant vehicles, while providing alternative options to auto travel.

Transportation system management (TSM) measures attempt to improve the efficiency of existing roadways, including a variety of techniques focused on keeping drivers informed and moving as safely, efficiently, and reliably as possible.

Many well-coordinated transportation demand management (TDM) and transportation system management (TSM) programs are already in place in the Portland-Vancouver metropolitan region and are supported by agencies and adopted plans. In some cases, the impetus for the programs is from state-mandated programs: Oregon's Employee Commute Options (ECO) rule and Washington's Commute Trip Reduction (CTR) law.

The physical and operational elements of the CRC project provide the greatest TDM opportunities by promoting other modes to fulfill more of the travel needs in the project corridor. These include:

- A new light rail line in exclusive right-of-way, with connections to express bus and feeder routes operated by C-TRAN and TriMet.
- Modern bicycle and pedestrian facilities that accommodate more bicyclists and pedestrians and improve connectivity, safety, and travel time.
- Park and ride facilities.
- A variable toll on the highway crossing.

In addition to these fundamental elements of the project, facilities and equipment would be implemented that could help existing or expanded TSM programs maximize the capacity and efficiency of the system. These may include:

- Replacement or expanded variable message signs or other traveler information systems in the CRC project area.
- Continued incident response capabilities.
- Queue jumps or bypass lanes for transit vehicles where multi-lane approaches are provided at ramp signals for entrance ramps and where they would fit within the existing right-of-way.
- Expanded traveler information systems with additional traffic monitoring equipment and cameras.
- Active traffic management.

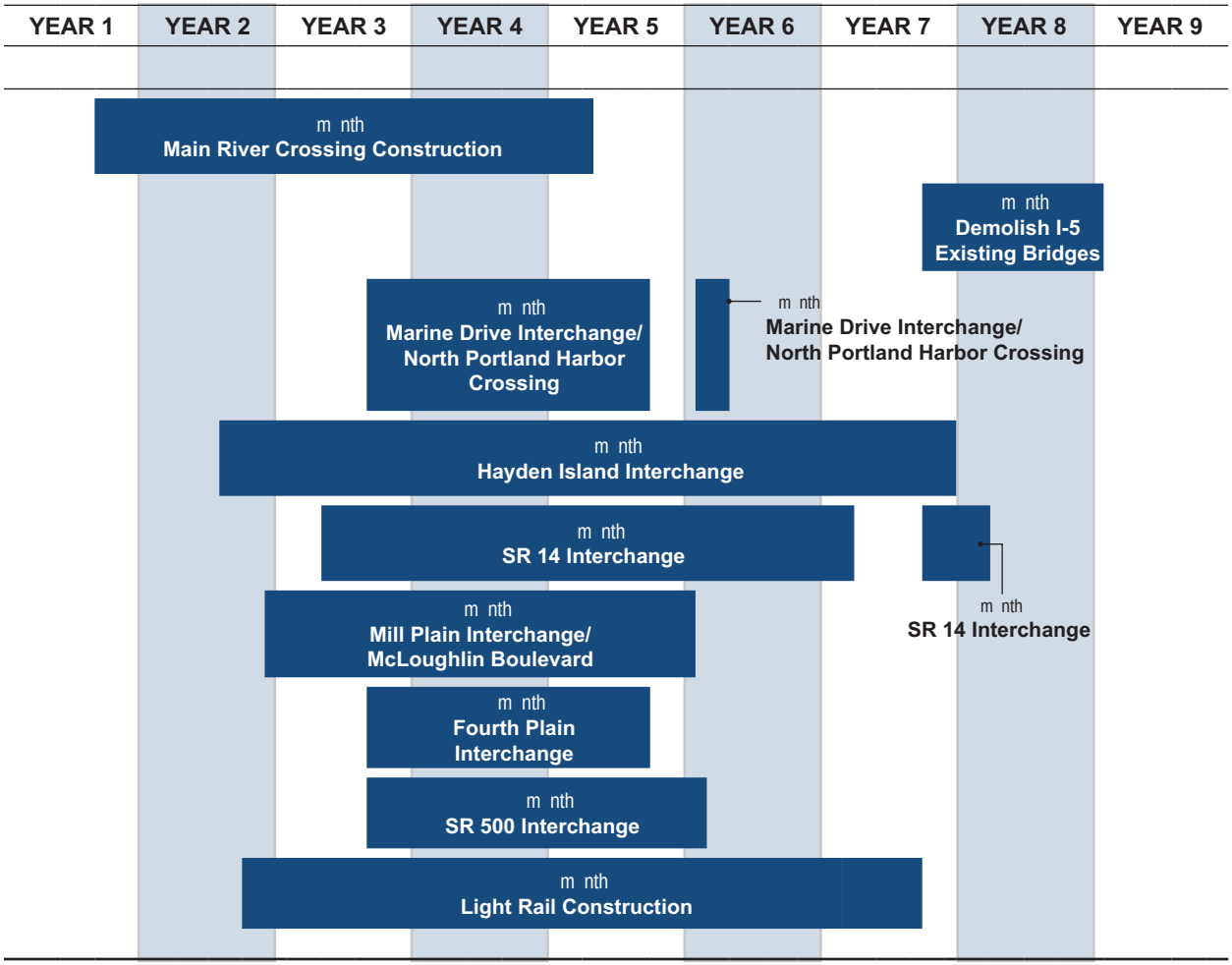
For more information, please see the TDM/TSM Technical Report included as an electronic appendix to this document.

How will the LPA be constructed?

The CRC project encompasses the reconstruction of 5 miles of interstate highway, including seven interchanges, construction of bridges over North Portland Harbor and the main channel of the Columbia River, construction of new pedestrian and bicycle pathways, and extension of light rail from the Expo Center to Clark College. The construction of the river crossing sets the sequencing for other project components.

The precise character of construction impacts depends on design details and methods that are not finalized. It is likely that design details and methods will not be finalized until final design, construction contracting, or construction itself. However, it is possible to identify key aspects of construction that allow this EIS to evaluate potential impacts and identify appropriate mitigation. Chapter 2 explains the anticipated sequencing and duration of construction and the types of activities involved in building the major elements of this project. Exhibit 17 shows the expected duration of the various project construction activities.

Exhibit 17
Construction Sequence and Duration



Constructing the project would entail many different activities, some of which would disrupt traffic. Typical construction methods would require shifting

I-5 traffic onto temporary alignments, narrowing lanes and shoulders to accommodate equipment and workers, shortening merge and exit distances, reducing posted speed limits, and closing or detouring some traffic movements. For I-5, it is anticipated that three southbound and three northbound lanes would be maintained during all weekdays, except when the final changeover occurs between the old bridges and the new bridges. When temporary lane closures are needed to accommodate construction and ensure safety, they would typically occur at night and on weekends. It is expected that all of the current movements at each interchange would remain open during construction, with the exception of some movements at the I-5/SR 14 interchange, as described in Chapter 2. TDM and TSM measures would be implemented during construction, as described in Chapter 2 (Section 2.2.5).

Construction of the light rail guideway in Vancouver streets would need to be sensitive to the area's active urban environment. Maintaining access for motorists, delivery and service vehicles, cyclists, and pedestrians during business hours is a key component of construction plans. Streets would be open to traffic and pedestrians when possible, but would need to close during some construction activities (pedestrian access would always be maintained except for brief disruptions). Rather than partially closing lanes through the entire segment for long periods of time, it is currently assumed there would instead be full traffic closures of short segments to allow construction to be completed in a much shorter time frame in any given block. Crews typically work within a three- to five-block area before moving to the next construction zone. Light rail transit construction on existing streets would be staged and managed so as not to disrupt any single area for an extended period of time.

Construction activities would require at least one large off-site location to stage equipment and materials. In addition, a large casting yard for fabricating elements of the bridges would likely be needed. Potential off-site locations have been evaluated and are shown in Exhibit 1 and described in detail in Chapter 2, Section 2.3.3.

What are the effects of the LPA and how do they compare to the DEIS Alternatives?

This section highlights how the LPA and other alternatives compare in terms of transportation performance and community and environmental effects. Exhibit 18 and Exhibit 19 summarize the key performance and impact differences. Chapter 3 of the FEIS provides more detail on performance and impacts.

Exhibit 18

Summary of Transportation Effects and Cost for Each Alternative

	Locally Preferred Alternative[a]					
Alternative 1: No-Build	**LPA Option A**	**LPA Option B**	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**
Hours of congestion/day						
15 hours	3.5-5.5 hours (3.5-5.5 hours)	Same as Option A	3.5-5.5 hours	3.5-5.5 hours	10.75 hours	10.75 hours
Persons served over the I-5 crossing during PM peak[b]						
28,700 total	41,400 (41,300) total		39,750 total	40,750 total	30,850 total	32,150 total
Via autos						
26,500	35,300 (35,200)	Same as Option A	34,400	34,400	25,700	25,700
Via transit						
2,200	6,100		5,350	6,350	5,150	6,450
Vehicle trips over the I-5 crossing/day						
184,000	178,500 (178,500)	Same as Option A	179,500	179,500	166,500	166,500
Pedestrian and bicycle connections[c]						
No improvement to connections.	Provide continuous grade-separated multi-use path between Marine Drive and downtown Vancouver.	Same as Option A	Provide continuous grade-separated multi-use path between Marine Drive and downtown Vancouver.	Provide continuous grade-separated multi-use path between Marine Drive and downtown Vancouver.	Improvements over the river but has at-grade crossings on Hayden Island.	Improvements but has at-grade crossings on Hayden Island.
Transit mode split in PM peak for all I-5 crossing trips[d]						
8%	15%	Same as Option A	13%	16%	17%	20%
Transit travel time from Mill Plain station to Expo Center via transit						
13 min	6 min	Same as Option A	8 min	7 min	14 min	8 min
Traffic safety						
No improvement.	Reduced congestion and improved highway design would reduce crashes.	Same as Option A	Reduced congestion and improved highway design would reduce crashes.	Reduced congestion and improved highway design would reduce crashes.	Improvement to highway design for safety, but some compromises on the existing I-5 bridges.	Improvement to highway design for safety, but some compromises on the existing I-5 bridges.

	Locally Preferred Alternative[a]					
Alternative 1: No-Build	**LPA Option A**	**LPA Option B**	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**
Transit safety and security						
No improvement.	Light rail stations provide a higher level of visibility and lighting than on-street bus stops. Stations would have additional safety measures incorporated into design.	Same as Option A	Additional buses could increase crashes but dedicated guideway improve separation of modes. Potential security issues would need to be addressed at less visible stations.	Light rail stations provide a higher level of visibility and lighting than on-street bus stops. Stations would have additional safety measures incorporated into design.	High frequency of buses could increase crashes but dedicated guideway improve separation of modes. Potential security issues would need to be addressed at less visible stations.	Light rail stations provide a higher level of visibility and lighting than on-street bus stops. Stations would have additional safety measures incorporated into design.
Effect on river navigation						
No improvement.	Eliminates S-curve maneuver and reduces number of piers.	Same as Option A	Eliminates S-curve maneuver and reduces number of piers.	Eliminates S-curve maneuver and reduces number of piers.	S-curve maneuver worsened with more piers and narrower channel.	S-curve maneuver worsened with more piers and narrower channel.
Capital cost[e]						
$0	$3,396-$3,764 ($3,157-$3,508)	Same as Option A	$3,318 - $3,499	$3,427 - $3,609	$3,192 - $3,348	$3,283 - $3,486

Sources: CRC Traffic Technical Report 2008, 2010; CRC Transit Technical Report 2008, 2010; CRC Cost Risk Assessment 2007.

a Information in parentheses indicates impacts if the LPA Option A or B is constructed with highway phasing.

b Total number of people in cars and on transit vehicles using the I-5 crossing traveling north during the afternoon/evening peak period. For the No-Build Alternative the data reflects the volumes expected to be served based on capacity limitations for the I-5 crossing, and not the expected demand as it was estimated by the regional travel demand model. Transit persons for Alternatives 2, 3, 4 and 5 were factored based on Exhibit 3.1-39 of the DEIS to account for a shorter high-capacity transit extension ending at Clark College.

c Only bicycle and pedestrian improvements that differ between alternatives are described. A substantial number of additional bicycle and pedestrian improvements will be provided as part of the CRC project, including those at each interchange in the project area.

d Percent of people traveling over the I-5 crossing on transit vehicles in the afternoon peak period in the northbound direction. Of the alternatives developed for the DEIS, Alternative 3 is most comparable to the LPA. However, the LPA reflects a shorter light rail transit line and therefore has less extensive geographic coverage for light rail transit service than was assumed for Alternative 3. These factors contribute to the lower transit mode split for the LPA.

e Capital costs are in millions of year-of-expenditure dollars. Cost ranges for all alternatives are based on confidence levels—the low end of the range being 60% confidence that cost would not be exceeded (referred to as the medium cost estimate), and the high end of the range being 90% confidence that cost would not be exceeded (referred to as the high cost estimate). Cost ranges for Alternatives 2, 3, 4, and 5 are also due to the high-capacity transit terminus options and are based on the Clark College MOS.

Exhibit 19

Summary of Community and Environmental Effects for Each Alternative

	Locally Preferred Alternative[a]					
Alternative 1: No Build	**LPA Option A**	**LPA Option B**	**Alternative 2[b]**	**Alternative 3[b]**	**Alternative 4[b]**	**Alternative 5[b]**
Residential displacements						
0	59	Same as Option A	45[d]	52[d]	46[d]	53[d]
Commercial displacements						
0	69	Same as Option A	52[d]	59[d]	53[d]	60[d]

	Locally Preferred Alternative[a]					
Alternative 1: No Build	**LPA Option A**	**LPA Option B**	**Alternative 2[b]**	**Alternative 3[b]**	**Alternative 4[b]**	**Alternative 5[b]**
Number of adverse impacts to historic resources						
0	3	Same as Option A	5-8	5-8	5-8	5-8
Total acres[c] of park and recreation resources acquired						
0	4.0	Same as Option A	4.9 – 6.1	4.9 – 6.1	3.3	3.3
Air Quality[e]						
Carbon monoxide						
25% reduction	26% reduction	Same as Option A	30% reduction	30% reduction	30% reduction	30% reduction
Nitrogen oxides						
74% reduction	74% reduction	Same as Option A	73% reduction	73% reduction	73% reduction	73% reduction
Volatile organic compounds						
55% reduction	56% reduction	Same as Option A	54% reduction	54% reduction	54% reduction	54% reduction
Particulate matter						
92% reduction	92% reduction	Same as Option A	91% reduction	91% reduction	91% reduction	91% reduction
Traffic noise impacts on sensitive receptors before mitigation[f]						
270	325 (312)	Same as Option A	334	334	329	329
Transit noise impacts on sensitive receptors before mitigation[g]						
0	31	39	57	23	72	26
Impacts to fish						
Continued adverse effects from untreated stormwater. Existing piers would continue to provide cover for predatory fish.	Greatest beneficial effects from improvements to stormwater conveyance and treatment. Fewer, larger piers would continue to provide cover for predatory fish. Pile driving during construction would result in small amount of fish mortality. (The highway phasing option has additional stormwater benefits relative to the Full Build).	Same as Option A	Similar to LPA.	Similar to LPA.	Similar stormwater improvements as LPA. Design would keep existing piers and add new ones, resulting in an adverse effect.	Similar stormwater improvements as LPA. Design would keep existing piers and add new ones, resulting in an adverse effect.

	Locally Preferred Alternative[a]					
Alternative 1: No Build	**LPA Option A**	**LPA Option B**	**Alternative 2[b]**	**Alternative 3[b]**	**Alternative 4[b]**	**Alternative 5[b]**
Wetland impacts[h]						
No new impacts	0 acres direct impacts to wetlands; 0.41 acre of direct impacts to wetland buffers.	0 acres direct impacts to wetlands; 0.45 acre of direct impacts to wetland buffers.	0.09 acre of direct impacts to wetlands; 1.11 acres of direct impacts to wetland buffers.	0.04 acre of direct impacts to wetlands; 0.56 acre of direct impacts to wetland buffers.	0.13 acre of direct impacts to wetlands; 1.31 acres of direct impacts to wetland buffers.	0.08 acre of direct impacts to wetlands; 0.76 acre of direct impacts to wetland buffers.
Total Suspended Solids entering waterways (lbs/year)						
168,103	14,062 (13,578)	14,124 (13,640)	Similar to LPA[i]	Similar to LPA[i]	Similar to LPA[i]	Similar to LPA[i]
Dissolved copper entering waterways (lbs/year)						
9	5	Same as Option A	Similar to LPA[i]	Similar to LPA[i]	Similar to LPA[i]	Similar to LPA[i]
Dissolved zinc entering waterways[i] (lbs/year)						
68	22	Same as Option A	Similar to LPA[i]	Similar to LPA[i]	Similar to LPA[i]	Similar to LPA[i]
CO_2e emissions (tons/day)[j]						
389	368	Same as Option A	Similar to LPA[j]	Similar to LPA[j]	Similar to LPA[j]	Similar to LPA[j]

Sources: CRC Acquisitions Technical Report 2008, 2010; CRC Historic Resources Technical Report 2008, 2010; Air Quality Technical Report 2008, 2010; CRC Noise and Vibration Technical Report 2008, 2010; CRC Ecosystems Technical Report 2008, 2010; CRC Wetlands Technical Report 2008, 2010; CRC Water Quality Technical Report 2008, 2010; CRC Energy Technical Report 2008, 2010.

a Information in parentheses indicates impacts if the LPA Option A or B is constructed with highway phasing.

b Effects presented for Alternatives 2, 3, 4, and 5 were taken from the DEIS, assuming the Clark College MOS and, where applicable, the stacked highway/transit bridge design.

c Does not include 1.1 acres of property permanently acquired from an off-leash area associated with East Delta Park, but located in ODOT right-of-way.

d The numbers of residential and commercial displacements were updated to reflect new information, including: the results of a survey of potentially displaced businesses and residences, displacements caused by the bus rapid transit or light rail maintenance facility expansion, and refined assumptions for construction methods in North Portland Harbor.

e Reductions in regional emissions are largely due to expected improvements in vehicle emissions by 2030, and are not the result of the CRC project and therefore are common amongst all 2030 alternatives. Difference in air quality estimates between the LPA, No-Build Alternative and Alternatives 2, 3, 4, and 5 are primarily the result of changes in traffic level assumptions that occurred after the DEIS was published. If Alternatives 2, 3, 4, and 5 were reevaluated with the same traffic level assumptions as the LPA, all alternatives would perform similarly.

f Noise impacts are expressed as the total number of impacts on sensitive receptors as defined by FHWA guidelines. This means that, for example, a 30-unit apartment complex that is impacted by traffic noise would register as 30 impacts on sensitive receptors. The number of highway noise impacts listed for the LPA are higher than they would be otherwise because they assume the removal, with no replacement, of the existing noise walls along I-5 in Vancouver. In the DEIS analysis of the build alternatives (Alternative 2 through Alternative 5), retention of the existing highway noise walls was assumed in the future traffic noise model analysis. The number of highway noise impacts listed for the LPA and LPA with highway phasing are higher than they would be otherwise because they assume the removal, with no replacement, of the existing noise walls. If retention of the existing noise walls were assumed for the LPA analysis, the number of impacts from the LPA would be reduced to slightly higher than shown above for the No-Build.

g The number of transit noise impacts reported for Alternative 2 through Alternative 5 are taken from the DEIS, assuming the Clark College MOS transit terminus option and McLoughlin Boulevard alignment. The LPA assumes a 17th Street alignment that was not evaluated in the DEIS.

h Acres of wetlands directly impacted for Alternatives 2, 3, 4, and 5 were revised following publication of the DEIS, based on additional research and discussion with regulatory agencies.

i The pollutant loading estimates for Alternatives 2 through 5, as reported in Section 3.16 of the DEIS, were not updated for the FEIS. The conceptual stormwater treatment design used in the DEIS to analyze Alternatives 2, 3, 4, and 5 was updated for the LPA analysis for this FEIS. Since publication of the DEIS, more precise understandings of the project footprint and stormwater basins have been developed. If Alternatives 2, 3, 4 and 5 were reanalyzed, all the build alternatives, including the LPA, would perform similarly.

j Changes in the FEIS methodology between the DEIS and FEIS affect the carbon dioxide equivalent emissions. A comparison of the DEIS and FEIS methodologies indicates that these changes, if applied to the DEIS alternatives, would not change their overall ranking in terms of carbon dioxide equivalent emissions. The alternatives that would replace the existing Columbia River bridges (Alternatives 2 and 3) would result in lower carbon dioxide equivalent emissions than the alternatives that supplemented the existing Columbia River bridges (Alternatives 4 and 5).

What mitigation or compensation is proposed for unavoidable adverse impacts?

This section summarizes the mitigation measures proposed for the community and environmental effects that would occur as a result of the LPA. Exhibit 20 highlights the mitigation or compensation measures proposed for the effects described in Exhibit 19. Chapter 3 and Appendix M of the FEIS provide more detail on proposed mitigation or compensation measures.

Exhibit 20

Summary of Community and Environmental Effects and Proposed Mitigation or Compensation for the LPA

	Alternative 1: No Build	Locally Preferred Alternative[a]		Mitigation or Compensation
		LPA Option A	LPA Option B	
Residential displacements				
	0	59	Same as Option A	*Purchase property at fair market value and provide relocation assistance per the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Uniform Act).*
Commercial displacements				
	0	69	Same as Option A	*Purchase property at fair market value and provide relocation assistance per the Uniform Act.*
Number of adverse impacts to historic resources				
	0	3	Same as Option A	*Promote the relocation of displaced historic resources, perform suitable architectural documentation, and provide related enhancements. Consult with official with jurisdiction immediately adjacent to historic resources regarding the project design.*
Air Quality				*No mitigation proposed. There would be no violations of air quality standards and emissions would be reduced compared to No-Build.*
Carbon monoxide	25% reduction	26% reduction	Same as Option A	
Nitrogen oxides	74% reduction	74% reduction		
Volatile organic compounds	55% reduction	56% reduction		
Particulate matter	92% reduction	92% reduction		
Traffic noise impacts on sensitive receptors before mitigation				
	270	325 (312)	Same as Option A	*Use sound walls along I-5 where they meet the feasibility and cost-effectiveness criteria. Some impacts not mitigated.*
Traffic noise impacts on sensitive receptors after mitigation				
	270	110	Same as Option A	
Transit noise impacts on sensitive receptors before mitigation				
	0	31	39	*Use sound barriers, track lubricators, special trackwork, and residential sound insulation to mitigate noise at all receptors.*
Transit noise impacts on sensitive receptors after mitigation				
	0	0	Same as Option A	

	Alternative 1: No Build	Locally Preferred Alternative[a]		Mitigation or Compensation
		LPA Option A	LPA Option B	
Impacts to fish	Continued adverse effects from untreated stormwater. Existing piers would continue to provide cover for predatory fish.	Greatest beneficial effects from improvements to stormwater conveyance and treatment. Fewer, but larger, piers would continue to provide cover for predatory fish. Pile driving during construction would result in small amount of fish mortality. (The highway phasing option has additional stormwater benefits relative to the Full Build).	Same as Option A	*Minimize pile driving, but where unavoidable (1) minimize impacts by employing a bubble curtain or other hydroacoustic attenuation and (2) time noise producing activities to minimize impacts. Implement best management practices (BMPs) to minimize the potential for impacts to aquatic habitat during construction. Provide aquatic habitat conservation efforts. Pier diameter reduction may be possible for final design of I-5 bridge.*
Wetland impacts	No new impacts	0.41 acre of direct impacts to wetland buffers. 0 acres direct impacts to wetlands.	0.45 acre of direct impacts to wetland buffers. 0 acres direct impacts to wetlands.	*Replace wetland buffers with a suitable mitigation site that would result in no net loss of functions or values.*
Total Suspended Solids entering waterways (lbs/year)	168,103	14,062 (13,578)	14,124 (13,640)	*Project's storm water treatment would improve water quality significantly over No-Build. No additional mitigation proposed.*
Dissolved copper entering waterways (lbs/year)	9	5	Same as Option A	
Dissolved zinc entering waterways (lbs/year)	68	22	Same as Option A	
CO_2e emissions (tons/day)	389	368	Same as Option A	*No mitigation proposed, as CO_2e emissions are reduced compared to No-Build.*

Sources: CRC Acquisitions Technical Report 2008, 2010; CRC Historic Resources Technical Report 2008, 2010; Air Quality Technical Report 2008, 2010; CRC Noise and Vibration Technical Report 2008, 2010; CRC Ecosystems Technical Report 2008, 2010; CRC Wetlands Technical Report 2008, 2010; CRC Water Quality Technical Report 2008, 2010; CRC Energy Technical Report 2008, 2010.

a Information in parentheses indicates impacts if the LPA Option A or B is constructed with highway phasing.

Exhibit 20 summarizes the mitigation or compensation for long-term effects. The project will also include a variety of mitigation measures for temporary construction-related effects, including:

- Providing clearly signed and safe detour routes to keep automobile, bicycle, pedestrian, and truck traffic moving throughout the project area.
- Developing an outreach program to inform members of the community and businesses of construction activities and closures.
- Minimizing impacts to businesses by maintaining access during business hours or providing clear detours when access closures are necessary, providing temporary advertising signage, and identifying local businesses to provide project services.
- Implementing TDM strategies such as increased express bus and vanpool service, and encouraging carpooling, to minimize traffic congestion.
- As appropriate, developing and implementing functional and reasonable alternative construction techniques to minimize impacts to community livability and mobility through the project area.

Additionally, the project will comply with all environmental laws and obtain necessary permits that will outline protections for local air quality, water quality, fish and wildlife, and community livability (e.g., noise levels, light and glare, dust, etc.) during construction. Proposed mitigation for impacted Section 4(f) resources—historic, archaeological, and park and recreation resources—can be found in the Final Section 4(f) Evaluation, included as Chapter 5 of the FEIS.

How will the project address sustainability in design and construction?

In their joint letter to the Columbia River Crossing Task Force on June 19, 2008, the governors of Washington and Oregon asserted that:

> We firmly believe this can and should be one of the most sustainable transportation projects in the country; one that incorporates high capacity transit, strategies that reduce vehicle miles traveled, tolling, electronic safety technologies, and world class bike and pedestrian facilities. We also believe that we must use construction materials and methods that would minimize environmental impacts.

As described previously, the CRC project includes many of the above elements of a sustainable transportation project, including the provision of light rail, new and improved bicycle and pedestrian facilities, a toll on the river crossing, and improvements to mobility and safety throughout the project area. These transportation improvements would likely promote transit-oriented development around new light rail stations, and additional density of jobs and housing near the I-5 corridor, supporting the region-wide desire for sustainable land-use patterns, and compared to No-Build conditions, would support environmental sustainability by improving water quality and reducing greenhouse gas emissions. In addition to promoting sustainability though its

design and function, the project would also be constructed by employing a variety of innovative techniques, including the use of environmentally friendly construction materials, to minimize the long-term impact of project construction on the natural environment and adjacent communities. For more information, please see the CRC Sustainability Strategy, included as an appendix to the FEIS.

How were comments on the Draft EIS addressed?

Following the publication of the DEIS on May 2, 2008, the project actively solicited public and stakeholder feedback on the DEIS during a 60-day comment period. Public comment was submitted via several methods, including email, postal mail, and public meetings that included two open houses. During this time, the project received over 1,600 written public comments. A variety of actions were taken in response to agency and public comments, including refinements to alternatives, additional analysis, and corrections that are included in the FEIS.

Refinements to the LPA are described in Chapter 2 of the FEIS and reflect the selection of two bridges, instead of three, over the Columbia River; modifications to the design of interchanges, local streets, and bicycle and pedestrian facilities; the selection of the light rail alignment over Hayden Island and through downtown Vancouver to the Clark College terminus; and the adoption of cost-cutting measures and inclusion of additional cost-cutting options. Changes in analysis, including updated modeling and inputs, are described in each section of Chapter 3. The project team prepared written responses to all comments received during the DEIS comment period; these are summarized in Chapter 6 and included as an electronic appendix.

The analysis and conclusions in this FEIS are based on in-depth technical reports prepared as part of the CRC project. These technical reports, along with other supporting materials, are provided as appendices to the FEIS, and are included on the disc attached to each hard copy of the FEIS and in the electronic file structure posted on the CRC project Web site.

What are the next steps?

Following publication of this FEIS, FTA and FHWA will document the selection of an alternative in the Record of Decision (ROD). FTA and FHWA may select the LPA, as described in this FEIS, in the ROD. Alternatively, they may select any of the DEIS alternatives, or the No-Build Alternative, in the ROD. If a build alternative is selected, the ROD will include the project commitments for mitigating adverse impacts and incorporating these measures into the project design. The ROD is anticipated to be issued by FTA and FHWA in 2012.

If a build alternative is selected in the ROD, the project would move into Final Design and could begin acquiring property. Depending on when the ROD is completed, project construction could begin as soon as 2013.

How can the public learn more about and be involved in the project?

There is no formal public hearing process for the FEIS. However, you are invited to review the FEIS and submit comments between September 23, 2011 and October 23, 2011. Comments received during this time will be reviewed and considered. Questions and comments can be submitted by several methods.

Internet: The project Web site ***(www.columbiarivercrossing.org)*** provides more information, including project background and the process that has led to the development of the FEIS. The Web site also has information on upcoming public events, project milestones, and instructions on how to obtain a full copy of the FEIS.

Email: Email comments and questions about the project in general, or about this FEIS specifically, to ***feedback@columbiarivercrossing.org***

Postal mail: Columbia River Crossing
c/o Heather Wills
700 Washington Street, Suite 300
Vancouver, WA 98660

Fax: 360-737-0294

Attend a public drop-in session: Public drop-in sessions will be held in Portland and Vancouver. Please refer to the dates and locations listed below.

Wednesday, October 12, 2011
2:00 to 4:00 p.m. and 6:00 to 8:00 p.m.
Vancouver Community Library (Columbia Room)
901 C Street
Vancouver, WA 98660

Thursday, October 13, 2011
2:00 to 4:00 p.m. and 6:00 to 8:00 p.m.
Jantzen Beach SuperCenter (Park Room)
1405 Jantzen Beach Center
Portland, OR 97217

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