

# COLUMBIA RIVER CROSSING PROJECT SUSTAINABILITY STRATEGY

August 2011

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# ACRONYMS

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AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
BMP	Best Management Practice
CEJG	Community and Environmental Justice Group
CMP	Congestion Management Program
CPTED	Crime Prevention Through Environmental Design
CRC	Columbia River Crossing
DEIS	Draft Environmental Impact Statement
DOT	Department of Transportation
EJ	Environmental Justice
EMS	Emergency Management System
ESA	Environmental Site Assessment
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FWG	Freight Working Group
GHG	Greenhouse Gas
GMA	Growth Management Act
HiNooN	Hayden Island Neighborhood Network
IAMP	Interchange Area Management Plan
LEED	Leadership in Energy and Environmental Design
LPA	Locally Preferred Alternative
LRT	Light Rail Transit
MDSG	Marine Drive Stakeholders Group
MOVES	Motor Vehicle Emission Simulator
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
ODOT	Oregon Department of Transportation
OIPP	Oregon Innovative Partnerships Program
PBAC	Pedestrian Bicycle Advisory Committee

PMAG	Performance Measures Advisory Group
PSC	Project Sponsors Council
PWG	Portland Working Group
RCW	Revised Code of Washington
ROD	Record of Decision
RTC	Southwest Washington Regional Transportation Council
RTP	Regional Transportation Plan
SOV	Single-Occupancy Vehicle
TDM	Transportation Demand Management
TMA	Transportation Management Assessment
TOD	Transit-Oriented Development
TSM	Transportation System Management
TSMO	Transportation System Management and Operational
UDAG	Urban Design Advisory Group
USDOT	U.S. Department of Transportation
VMS	variable message sign
VMT	vehicle miles traveled
VWG	Vancouver Working Group
WSDOT	Washington State Department of Transportation

# 1 Introduction

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## 1.1 What is the Columbia River Crossing Project Sustainability Strategy?

The lead agencies and project partners prepared this document to explain how the Columbia River Crossing (CRC) project is connected to regional and state sustainability goals. This document provides a framework and activities to incorporate sustainability into the project. This document is a supplement to the Final Environmental Impact Statement (FEIS). Certain project details are not included in this document, and it is recommended that the reader review the FEIS or other project documents available on the CRC project website ([www.columbiarivercrossing.org](http://www.columbiarivercrossing.org)) to gain greater understanding of the overall project components.

In their joint letter to the CRC project 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 we must use construction materials and methods that would minimize environmental impacts.*

The CRC Sustainability Strategy (strategy) explains how this project will meet the challenge presented by the two governors and shared by many local leaders: to become one of the most sustainable transportation projects in the country.

This strategy is the blueprint for an enduring project that will serve generations of users, join surrounding communities, and integrate with the natural environment. The strategy outlines the project partners' plan to meet eleven sustainability principles.

This strategy is not intended to be prescriptive, but rather flexible and adaptable to future innovations. It is intended to accomplish multiple objectives:

- Articulate shared sustainability principles (policies, goals, and objectives) of the stakeholder agencies that are relevant to the project;
- Utilize an integrated, holistic “systems approach” to view the dynamic relationships of project components and their effects, rather than considering the various parts of this project in isolation; and
- Promote sustainable project components (infrastructure, facilities, etc.) that are currently under development and/or will be incorporated into the FEIS, design, and operational phases of the project.

## 1.2 What is the Columbia River Crossing Project?

The CRC project is a bridge, transit, and highway infrastructure modernization project for five miles of I-5 from State Route 500 in Vancouver, Washington, to approximately Columbia Boulevard in Portland, Oregon. The CRC project will replace the I-5 bridge over the Columbia River and extend light rail to Vancouver. The bridge will provide a 20-foot covered pathway for pedestrians and bicycles over the Columbia River. The purpose of the project is to address the transportation problems on I-5 in the project area including: growing travel demand and congestion; impaired freight movement; limited public transportation operation, connectivity, and reliability; decreasing safety and increasing vulnerability to collisions; substandard pedestrian and bicycle facilities; and seismic vulnerability. Please refer to the FEIS for further details of existing conditions, the proposed project, the project's purpose and need, and the potential impacts of the project.

The CRC project is a collaborative, multi-modal, bi-state project with two lead federal agencies under the U.S. Department of Transportation (USDOT): the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). The Washington State Department of Transportation (WSDOT) and Oregon Department of Transportation (ODOT) are joint sponsors of the CRC project. CRC project regional project partners include: Southwest Washington Regional Transportation Council (RTC), Metro, C-TRAN, TriMet, City of Vancouver, and City of Portland. CRC project staff coordinates with state and local agencies in both Oregon and Washington, and also collaborates with federal agencies and tribal governments. The CRC project is one of many projects that incorporate the most up-to-date sustainable practices and technologies that federal, state, and local agencies have been building upon for many years. Additional details regarding how the CRC project helps meet regional and local goals related to sustainability are provided in Section 3.

## 1.3 What is sustainable transportation?

How we plan, design, implement, operate, and maintain our transportation infrastructure is vital to the success of our economy, our citizens' quality of life, our contribution to climate change, and our impact on natural resources.

While definitions differ, sustainable transportation may be appropriately described as a holistic, comprehensive, and integrated accounting approach to transportation project development and transportation system planning, management, and operation. This definition can also be framed as a "triple bottom line" approach that promotes a healthy and balanced **environment, society, and economy**. These concepts have been adopted by both WSDOT and ODOT in their definitions of sustainability, as shown below in Section 1.4.

A sustainable transportation system strives to achieve the following goals:

- Meet the needs of the community it serves and mitigate expected negative impacts;
- Protect natural resources and ecosystems;
- Ensure reliable and efficient choices for all people to get from one place to another;
- Maintain the full functional lifespan of roads, bridges, and other infrastructure;



- Ensure efficient freight movement, support our local industries, and connect our communities; and
- Use taxpayer dollars wisely and efficiently while balancing the environment, society, and economy.

### 1.4 How do CRC project sponsors and partners support sustainability?

Two similar definitions (provided, as follows, from the States of Washington and Oregon) serve as working definitions of sustainability for the purpose of developing the CRC Sustainability Strategy:

Washington	Oregon
<p>Sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (From the 1987 United Nations publication, Our Common Future, known as the Brundtland Report).</p> <p>Sustainability is a holistic approach to living and problem solving that addresses social equity, environmental health, and economic prosperity. To be sustainable, the economy must support a high quality of life for all people in a way that protects our health, our limited natural resources, and our environment.</p>	<p>Sustainability is “using, developing, and protecting resources in a manner that enables people to meet current needs and provides that future generations can also meet future needs, from the joint perspective of environmental, economic, and community objectives.”</p> <p>Sustainability is a uniquely broad and long-term concept that addresses quality of life and efficiency concerns. It takes into account both local and global views, applying a timeframe that considers costs and benefits over lifetimes rather than one- or two-year cycles.</p>

Source: <http://www.ofm.wa.gov/sustainability/>

Source: Oregon Sustainability Act of 2001 (ORS 184.421)

The CRC project has the following federal, state, and local project partners: FTA, FHWA, WSDOT, ODOT, RTC, Metro, C-TRAN, TriMet, the City of Portland, and the City of Vancouver. Metro has adopted the State of Oregon’s definition of sustainability, as defined in ORS 184.421. Each of the other project partners has sustainability goals for its individual organization. Many agencies have numerous channels of practicing, implementing, and supporting sustainability within their influence. Please refer to the references section provided at the end of this document for other CRC project partners’ specific policies and plans related to sustainability. These policies and plans provided the basis for the sustainability activities developed as part of this document, which are described in further detail in Section 3.

After completing the CRC Project Draft Environmental Impact Statement (DEIS) and public comment period in 2008, the two state project sponsors and the regional partners selected a multi-modal locally preferred alternative (LPA).

In their LPA resolutions (July 2008), partner jurisdictions provided important guidance for planning and engineering work on the CRC project. Partner agencies addressed multiple topics that are covered in this CRC project Sustainability Strategy. The resolutions include policy direction for the project design phase and beyond. The full resolutions document is available as Appendix F of the FEIS and on the CRC project website at:

[http://www.columbiarivercrossing.org/FileLibrary/GeneralProjectDocs/LPA\\_Resolutions.pdf](http://www.columbiarivercrossing.org/FileLibrary/GeneralProjectDocs/LPA_Resolutions.pdf)

The following excerpts from the LPA resolutions prepared by the RTC, the cities of Vancouver and Portland, and C-TRAN explicitly address sustainability:

- “The design of the highway interchanges, bridge, and transit facilities should reflect the principles of sustainability, cost efficiency and context sensitivity.” (RTC Resolution 07-08-10)
- “The City of Vancouver Council endorses the principles of sustainability within the City of Vancouver, and therefore the Columbia River Crossing project should implement principles of sustainability into project planning, design and construction in order to improve the natural and social environment and the regional economy and to minimize overall environmental impact and effects related to climate change.” (policy statement d. from City of Vancouver Resolution number M-3663)
- “The CRC project shall provide the highest model of sustainability design and construction applications for a bridge of its proposed size and scale, including a comprehensive stormwater strategy and minimal impacts on fish, wildlife and watershed health.” (LPA 6 from City of Portland Resolution number 36618)
- “Highway, bridge and HCT design and construction should reflect principles of sustainability, cost efficiency, context sensitivity, and avoid and minimize adverse impacts.” (C-TRAN Resolution number BR-08-019)

The CRC project staff is leading preliminary design with support from multiple advisory working groups and technical committees.

Recommendations are incorporated into the project proposal detailed in the FEIS. The FHWA and the FTA will issue a decision on the project in the form of a Record of Decision (ROD). It is anticipated that the ROD will clear the proposed action for subsequent final design and construction. Partners and stakeholders will continue to be actively engaged in later phases of project implementation.

## **2 How will the Columbia River Crossing Project be Sustainable?**

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### **2.1 What role does the project play in sustainable transportation?**

This document explains the various elements of the proposed project that support and help to implement local, regional, and state sustainability goals. Readers should also note that the environmental features of the proposed improvements are compared to existing conditions throughout the FEIS. Table 2-1 is a summary of various short-term and long-term future benefits associated with the proposed CRC project that are aligned with our region's goals of sustainability and responsible growth as paraphrased from the CRC project partner agencies' applicable plans and policies.

**Table 2-1. CRC Project Components and Related Regional Plans, Policies, and Goals**

CRC Project Components	Washington Transportation Plan	Washington State GMA	WSDOT Sustainability Plan	RTC MTP	C-TRAN20 Year Transit Development Plan	City of Vancouver Sustainability Plan	Vancouver City Center Vision	City of Vancouver Transit Overlay District	Oregon Transportation Plan	ODOT Sustainable Transportation Goals	ODOT Stormwater Standards	Metro RTP	Metro 2040 Growth Concept	TriMet Sustainability Policies	City of Portland 2009 Climate Action Plan	City of Portland LRT Station Zone	City of Portland Watershed Mgmt Plan	City of Portland Grey to Green
<b>Safe travel</b>																		
Traffic flow improvements that will reduce the number of crashes on and approaching the bridge	x		x	x		x			x	x		x	x	x	x			
Additional auxiliary lanes and shoulders to allow slower or stopped vehicles a safe place to pull over	x			x					x			x						
Designed to reduce earthquake risk																		
Wider path for pedestrians and bicyclists	x		x	x		x			x	x		x	x	x	x			
<b>Regional land use and community livability</b>																		
Improved access and mobility that supports planned development and regional economic investment in the urban centers of Portland and Vancouver	x	x	x	x		x	x		x	x		x	x	x	x			
Promote healthy living by providing access to active transportation options and better air quality			x			x				x		x	x		x			
Improved transit system and access for non-auto trips	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x		
<b>Regional economic support and growth</b>																		
Reduced overall long-term cost of the bridge through cost-offsetting measures such as tolling	x			x					x	x		x	x					
Increased job opportunities and regional economic growth through construction of the bridge, and improved reliability of travel between the States of	x			x			x		x	x		x	x					

CRC Project Components	Washington Transportation Plan	Washington State GMA	WSDOT Sustainability Plan	RTC MTP	C-TRAN20 Year Transit Development Plan	City of Vancouver Sustainability Plan	Vancouver City Center Vision	City of Vancouver Transit Overlay District	Oregon Transportation Plan	ODOT Sustainable Transportation Goals	ODOT Stormwater Standards	Metro RTP	Metro 2040 Growth Concept	TriMet Sustainability Policies	City of Portland 2009 Climate Action Plan	City of Portland LRT Station Zone	City of Portland Watershed Mgmt Plan	City of Portland Grey to Green
Washington and Oregon, including freight mobility and marine navigation																		
<b>Environmental stewardship</b>																		
Reduced greenhouse gas (GHG) emissions, traffic congestion, and gridlock through improved traffic flow, including the elimination of the bridge lift	x		x	x		x			x	x		x	x	x	x			
Reduced GHG emissions associated with the bridge compared to future emissions projections of the existing bridge and reduced dependence on foreign oil resources by reducing overall vehicle traffic through tolling and provision of non-auto travel options	x		x	x		x			x	x		x	x	x	x			
Improved water quality resulting from increased stormwater treatment			x			x					x		x				x	x
Increased carbon sequestration, improved air quality, and reduced urban heat island effect resulting from increased vegetative/canopy cover			x			x	x		x	x		x	x		x		x	
Improved fish habitat			x			x		x		x	x	x	x				x	x
Integration of alternative energy sources			x							x			x		x			

Notes: Regional Transportation Plan (RTP), Growth Management Area (GMA), Metropolitan Transportation Plan (MTP), Light Rail Transit (LRT)

As shown above in Table 2-1, many proposed CRC project components work to balance the needs of the environment, society, and economy. Taking a balanced and integrated approach to project planning will help the project sponsors achieve the sustainability goals.

## 2.2 Overview of sustainability principles, goals, and activities

The CRC Sustainability Strategy was developed from a framework comprised of aspirational principles, and more strategic goals that lead to more specific tactical activities for implementation during subsequent project phases. The principles, goals, and activities framework provides the overarching guidance for implementing sustainable components and practices into the CRC project design, construction, and operations and maintenance. This framework is provided in Table 2-2 on the following pages, and a more detailed description of proposed activities to support the principles and goals are provided in Chapter 3.

For the purpose of the CRC Sustainability Strategy, principles are considered to be fundamental and unchanging tenets. The CRC Sustainability Principles describe the “rules” or criteria of the process for developing a sustainable project and therefore are descriptive, not prescriptive. Sustainability principles are derived from the Vision and Values Statement<sup>1</sup> and reflect current direction in stakeholder sustainability policies.

Goals are more focused statements of outcomes to be achieved in support of each principle. (Goals and principles are defined and described in further detail in Section 5).

Sustainability activities (activities) describe how and when a particular goal or principle is accomplished. Activities provide an appropriate level of detail to sufficiently guide ongoing project development and implementation, while providing flexibility to adapt to changing system conditions.

For the CRC Sustainability Strategy, draft activities were developed based on information gathered from the policies and plans of existing stakeholder agencies, CRC project technical reports, sustainability literature and publications, and working group recommendations (as described in further detail in Section 3).

The activities were tailored to fit the CRC project, and are shown below in Table 2-2 as either already incorporated as project commitments in the LPA described in the FEIS (unshaded cells), or as recommended to apply to the LPA through subsequent project phases (blue-shaded cells).

Additional details of each activity shown in the table below are provided in Section 3. In addition to the activities outlined in Table 2-2, the project will comply with applicable regulations, policies, and permitting requirements from federal, state, and local agencies as the project proceeds to construction. These requirements range from the terms and conditions listed in the Biological Opinion issued for the project to construction requirements mandated by the City of Portland. The project will ensure compliance with applicable permits and clearances from the following agencies: US Fish and Wildlife Service, US Army Corps of Engineers, Oregon Department of State Lands, Oregon and Washington State Historic Preservation Offices, City of

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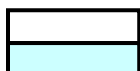
<sup>1</sup> *The CRC Task Force Vision and Values Statement was developed and vetted by a 39-member stakeholder committee with the purpose of developing criteria and performance measures to evaluate the I-5 Bridge Influence Area alternatives. This statement was adopted on October 12, 2005.*

Vancouver, and the City of Portland (please refer to the FEIS for a list of permitting requirements). The list is organized by permitting/agreement requirement and agency. Some of the permits/agreements have already been obtained; for permits in hand, the terms and conditions of the permits will be checked and verified as the project moves forward through design and construction.

**Table 2-2. CRC Project Sustainability Principles, Goals, and Activities**

CRC Project Sustainability Principles and Goals		CRC Project Activities
1. Support enduring quality of life and community resources	1.1 Foster regional cooperation and planning	1.1.1 Maintain interjurisdictional coordination and community outreach through project design and construction.
		1.1.2 Maintain coordinated engagement of regional and local land use and transportation planners based in Washington and Oregon through the design, construction, and operation.
	1.2 Support growth management planning in both states	1.2.1 Support RTC and Metro regional policies and plans, and Cities of Vancouver and Portland policies and plans in the project area through design and operation of the project.
		1.2.2 Support planned land uses and developments in Vancouver and Portland through design and construction of the project.
	1.3 Support a healthy community	1.3.1 Maximize physically active forms of travel, including walking and bicycling, by designing and prioritizing implementation of non-motorized and transit project elements.
		1.3.2 Encourage walking and bicycling to basic services and activities in the project area by removing barriers and enhancing system connectivity where practical.
		1.3.3 Substantially minimize the need to generate and use hazardous materials for construction, and operations and maintenance by developing and implementing a Construction and Demolition Waste Management Plan (Best Management Practices [BMPs], spill plan, disposal plan, etc.).
		1.3.4 Reduce urban "heat island" effect of the project components by preserving trees where practical and working with community members to incorporate street trees and other design features that improve water quality, increase carbon sequestration, and build community values.
	1.4 Improve community cohesion and avoid neighborhood disruption	1.4.1 Enhance community cohesion by designing the project to increase connectivity across existing barriers in the project area.
		1.4.2 Continue to inform and garner input from citizens most affected by project impacts by refining solutions through design and construction of the project.
		1.4.3 Minimize disruption to neighborhoods through development of compatible construction methods, scheduling, and traffic routing.
	1.5 Support a vibrant land use mix and promote sustainable development	1.5.1 Minimize conversion of existing and planned residential, commercial, and industrial land to transportation right-of-way by limiting overall project design "footprint" to the extent practical.
		1.5.2 Support compatibility between planned land uses and transportation facilities (function, design, and capacity) in the project area through project design and construction.
	1.6 Minimize impacts of noise, vibration, light, dust, and glare	1.6.1 Minimize noise, vibration, and dust impacts during construction by implementing construction BMPs and a traffic management plan.
		1.6.2 Minimize noise impacts from large vehicles by designating project area truck and bus routes within major through routes and commercial corridors and away from local neighborhood streets.
		1.6.3 Minimize noise impacts from new and modified facilities near noise-sensitive receptors through innovative and cost-effective design features and construction practices.
		1.6.4 Minimize stray light and glare for facility users and adjacent land by incorporating context-sensitive, innovative, and cost-effective design features and lighting systems.
	1.7 Support aesthetic quality that achieves a regional landmark	1.7.1 Protect and enhance scenic views and viewshed by incorporating design features that minimize obstruction of scenic views.
1.7.2 Promote the unique contextual character and sense of place by incorporating distinctive natural and built design features.		
1.8 Protect parks, historic and cultural resources, and green spaces	1.8.1 Avoid fragmentation and degradation of parks, open spaces, trails, and greenways by carefully locating new and modified transportation and utility project components.	
	1.8.2 Maintain character of unique areas by preserving, replacing, or enhancing vegetation associated with parks and green spaces, and historic properties and districts.	

**KEY:**



Activities addressed through LPA

Activities that are not LPA commitments, but are recommended for subsequent project phases



CRC Project Sustainability Principles and Goals		CRC Project Activities
2. Strive for fair distribution of benefits and impacts	2.1 Support fair distribution of benefits and adverse effects of the project for the region, communities, and neighborhoods adjacent to the project area	2.1.1 Provide access for elderly and disabled people by designing and conveniently locating transit stations, bus stops, and pedestrian amenities.
		2.1.2 Maximize efficiency of operation, users' ease, and access for disadvantaged communities by integrating technology to create a seamless, coordinated, and single point of entry for communications and customer information.
		2.1.3 Encourage and support transit ridership and other travel options for disadvantaged people during construction by implementing a robust communications and outreach program.
		2.1.4 Continue to inform and garner input from affected vulnerable communities (including children, elders, and people with disabilities) and Environmental Justice target communities (minority and/or low-income populations) by refining solutions through design and construction of the project.
3. Improve transportation reliability, and accessibility for all types of travel and reduce reliance on single-occupancy vehicles (SOVs)	3.1 Enhance mobility, reliability, and accessibility for all users now and in the future	3.1.1 Accommodate future mobility and access needs of all users through design.
		3.1.2 Adapt to changing needs by developing transit system capacity, routes, and service with optimal reliability and flexibility.
		3.1.3 Use active management in the corridor to monitor key performance measures and implement and adjust mobility solutions such as operational and small-scale physical improvements, and demand management strategies.
		3.1.4 Maintain travel time reliability by adjusting tolling.
	3.2 Preserve and maximize transportation system efficiency and reduce reliance on SOVs	3.2.1 Improve reliability, mobility, and safety of the multi-modal transportation network through the use of coordinated transportation system management and operational (TSM) strategies.
		3.2.2 Reduce reliance on SOVs by utilizing Transportation Demand Management (TDM) strategies coordinated on a regional level.
	3.3 Increase modal choice for users of the crossing, including transit, bicycle, and pedestrian modes	3.3.1 Maximize travel mode choices by incorporating appropriate transit, bicycle, and pedestrian facilities and integrating linkages between modes in the project area.
		3.3.2 Address non-motorized system gaps and deficiencies in the project area through project element design and construction prioritization.
4. Enhance safety for users of all types of travel	4.1 Enhance safety for vehicles, pedestrians, bicyclists, river users, and air traffic at the crossing	4.1.1 Continue to enhance safety for river traffic by maintaining navigation channel geometrics.
		4.1.2 Continue to support air traffic safety by complying with Federal Aviation Administration (FAA) navigable airspace regulations.
		4.1.3 Enhance safety for bicyclists and pedestrians by developing and implementing a project-specific Safety and Security Management Plan.
		4.1.4 Maintain life-line connections in the I-5 corridor across the Columbia River through design and construction staging.
		4.1.5 Incorporate an enhanced incident management system.
5. Support a sound regional economy and job growth	5.1 Maximize project investment in local and regional economies	5.1.1 Preserve and expand existing sustainable and disadvantaged businesses, and attract new businesses and industries by designing the project for sufficient long-term capacity.
		5.1.2 Preserve and expand existing sustainable and disadvantaged businesses, and attract new businesses and industries by maintaining multi
		5.1.3 Support the local and regional economy and encourage new jobs by procuring local and regional design services, construction contractors, and equipment.
	5.2 Move freight efficiently and reliably through the I-5 bridge influence area, and accommodate river and navigational needs	5.2.1 Maintain or enhance multi-modal freight system interconnections (trucking, rail, marine cargo, air cargo, and pipelines).
		5.2.2 Continue to maintain freight mobility and minimize delay and out-of-direction travel for freight traffic through construction staging.

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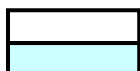


Activities addressed through LPA

Activities that are not LPA commitments, but are recommended for subsequent project phases

CRC Project Sustainability Principles and Goals		CRC Project Activities
6. Support cost-effectiveness in design, construction, maintenance, and operation including consideration of sustainable funding sources and life cycle costs where appropriate	6.1 Maximize cost-effectiveness in design, construction, maintenance, and operation	6.1.1 Extend the useful life of existing roads, bridges, structures, transit facilities, and other transportation assets by developing and applying operation, maintenance, and preservation strategies that would be more cost-effective than substantial expansion or retrofit actions, while supporting other project principles.
		6.1.2 Minimize costs by identifying, protecting, and/or acquiring needed right-of-way as early as possible.
		6.1.3 Account for life-cycle costs to the greatest extent practical by developing effective measures and prioritizing least-cost solutions benefiting the project.
	6.2 Secure adequate and reliable funding for the project	6.2.1 Maximize leverage of short-term capital intensive investments, long-term project operation investments, and federal funding eligibility by developing a sustainable financing and revenue plan.
7. Enhance and protect natural resources, fish, and wildlife habitat	7.1 Reduce barriers to fish and wildlife passage	7.1.1 Enhance fish and wildlife habitat by designing and prioritizing implementation of project elements that remove blockages or barriers limiting fish or wildlife passage.
		7.1.2 Avoid fragmentation and degradation of significant habitat, floodplain hydrology, and wildlife corridors by sensitively locating new and modified transportation and utility project components.
		7.1.3 Maximize passage for fish and other aquatic species by appropriately locating and minimizing the number and size of new bridge support structures, where practical.
		7.1.4 Enhance aquatic and other species passage by removing or retrofitting culverts that block or restrict passage (i.e., oversized or natural bottom culverts).
	7.2 Strive toward an increase in suitable high quality wetland, aquatic, and upland habitat	7.2.1 Protect and enhance habitat by developing and implementing a comprehensive habitat mitigation plan.
		7.2.2 Enhance urban ecological habitat by increasing native vegetative cover through design and construction of the project.
8. Enhance water quality and minimize water consumption	8.1 Improve water quality and manage/treat 100% of stormwater runoff from project area (or equivalent)	8.1.1 Manage transportation-related stormwater run-off, impervious surface, and other project impacts by completing and implementing a stormwater management plan to guide project design, construction, and operations and maintenance.
		8.1.2 Maximize management of stormwater by restoring existing unused impervious paved areas to natural, permeable, and vegetated conditions during the design phase to the maximum extent practical.
		8.1.3 Enhance water quality by investigating opportunities to create stormwater management facilities that provide multiple beneficial functions during the design phase to the maximum extent practical.
	8.2 Minimize water consumption required for project	8.2.1 Minimize landscaping irrigation needs and potable water consumption by designing planted areas and facilities to capture stormwater and using native, drought tolerant plants.
		8.2.2 Minimize potable water consumption by continuing to investigate ways to incorporate gray water into the design and operations and maintenance of the project, where practical and cost-effective.

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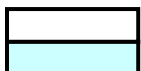


Activities addressed through LPA

Activities that are not LPA commitments, but are recommended for subsequent project phases

CRC Project Sustainability Principles and Goals		CRC Project Activities
9. Minimize air quality impacts, greenhouse gas (GHG) emissions, and effects of climate change	9.1 Protect and enhance air quality and minimize GHG emissions	9.1.1 Increase use of low- or zero-emission modes of travel such as transit, bicycles, and walking through design, construction, and operations and maintenance of the project.
		9.1.2 Maximize use of low- or zero-emission modes of travel such as biodiesel freight, telecommuting, zero-emissions vehicles, transit, bicycling and walking, carpooling, and vanpooling, through design, construction, and operations and maintenance of the project.
		9.1.3 Minimize long-term air quality impacts by collecting and reporting air quality data and using this data to inform toll pricing, or implementation of emissions reductions technologies.
		9.1.4 Contribute to meeting current and future state and regional GHG emissions reduction targets by incorporating or accommodating technologies to monitor and report air quality, GHG emissions, and air toxics within the project area.
	9.2 Design, construct, maintain, and operate project to resiliently adapt to climate change	9.2.1 Continue to reduce vulnerability and resilience (e.g., to water level rise and extreme storm events) through project operations and maintenance by integrating adaptive climate change features and performance mechanisms into the design.
		9.2.2 Evaluate climate change analysis methodologies and related projections to assess probable outcomes for the CRC project area over the next 50 to 100 years, consider opportunities for adaptive management and participation in the carbon market.
10. Minimize raw materials consumption	10.1 Minimize extraction and consumption of raw materials	10.1.1 Use high quality, durable materials. Reduce life cycle consumption of resources.
		10.1.2 Use incentives and disincentives to reward quality at lowest life cycle cost.
	10.2 Maximize reuse and recycling of materials	10.2.1 Incentives to contractors to reduce, reuse, and recycle through specifications based on true performance.
		10.2.2 Remove restrictions on viable materials and methods to encourage incorporating locally available reused and recycled materials.
11. Minimize energy consumption and support renewable energy	11.1 Minimize energy consumption and transportation demand during construction, operation, and maintenance of the project	11.1.1 Minimize energy consumption and increase energy efficiency through efficient, cost-effective project design and implementation.
		11.1.2 Provide opportunities to incorporate innovative approaches to traffic operations and support use of efficient vehicle technologies.
		11.1.3 Minimize energy consumption through operations and maintenance of the project by monitoring and adjusting toll pricing.
	11.2 Use renewable sources to the maximum extent practical	11.2.1 Maximize use of the most cost-effective renewable energy applications into the project design by selecting the least-cost proposal upon performing a life-cycle analysis.
		11.2.2 Maximize opportunities to increase use of renewable energy sources by designing the project to accommodate integration of future emerging technologies.

KEY:



Activities addressed through LPA

Activities that are not LPA commitments, but are recommended for subsequent project phases

## 3 CRC Project Sustainability Activities

As mentioned, the purpose of the sustainability activities is to drill down from the principle and the more focused goal level to recommend actions at a level of detail to guide ongoing project design, development, implementation and operations and maintenance. Because sustainability is broad in nature, encompassing elements of community, environment, economy, energy, etc., many of the activities discussed in the following section overlap. Thus, while a specific activity may be discussed under one particular principle, it may relate to or support many of the other principles and goals. However, to avoid redundancy, each activity is only discussed once, under one principle.

The following sections (3.1 – 3.11) are organized by the 11 principles and related goals, and describe sustainability activities that the CRC project will address through the LPA. In addition, some activities that are not incorporated as commitments in the LPA at this stage of project development are described in further detail in this section (these are the activities that are shaded blue in Table 2-2). Activities that are not currently in the LPA are recommended for future consideration because they would support sustainability-oriented plans and policies of the project partners. These activities will be initiated by the PSC and directed to appropriate entities, as described in the following sections.

### 3.1 Quality of Life

The CRC project strategy addresses the project’s potential future contributions to improving quality of life in the region. This principle has eight goals that further define the desired outcomes. Below is a description of the project-related activities that support enhanced quality of life.

#### Principle 1. Support enduring quality of life and community resources

<b>1.1 Foster regional cooperation and planning</b>	1.1.1 Maintain interjurisdictional coordination and community outreach through project design and construction.
	1.1.2 Maintain coordinated engagement of regional and local land use and transportation planners based in Washington and Oregon through the design, construction, and operation.
<b>1.2 Support growth management planning in both states</b>	1.2.1 Support RTC and Metro regional policies and plans, and Cities of Vancouver and Portland policies and plans in the project area through design and operation of the project.
	1.2.2 Support planned land uses and developments in Vancouver and Portland through design and construction of the project.

#### 3.1.1 Within the LPA: How are Goals 1.1 and 1.2 addressed?

Goal 1.1 and Goal 1.2 are addressed by the following CRC Project Commitments of the LPA:

- Early and continuous public and agency involvement.
- Joint planning efforts between federal, state, regional, and local agencies.

The CRC project is located in two states and in an urban area where citizens and leaders emphasize quality of life values through policies and plans of Washington, Oregon, and the Portland-Vancouver metropolitan area. The CRC project is being developed in collaboration with regional and local partners, and in a manner that is consistent with their growth management, land use, and transportation policies and plans.

In addition to engaging state and regional agencies, the CRC project made a substantial effort to encourage participation and collaboration between public agencies, community stakeholders, and interest group representatives since the early planning and exploration of alternatives, and continuing through the current environmental and preliminary engineering phase of project development. Neighborhood advocates, commuters, business owners, freight transport managers, biologists, cyclists, and planners are just some of the representative groups that are weighing in on the future CRC project and that will continue to have opportunities to influence project decisions. CRC Advisory Groups include: Structure Project Sponsors Council, Technical Groups, Integrated Project Sponsors Council Staff, Portland Working Group, Vancouver Advisory Committee, Vancouver Transit Advisory Committee, Pedestrian and Bicycle Advisory Committee, Freight Working Group, and Urban Design Advisory Group.

Through the design refinement and construction phases, the project will continue outreach and involvement of the community and project partners to address specific land use issues, and will coordinate design and construction to support and be compatible with local development activities.

For example, as the design develops, regional partners including the Integrated Project Sponsors (IPS) group, and members of the surrounding community; adjacent neighborhoods, businesses, and the general public will be invited to participate in public charrettes (workshops seeking public input on specific design solutions) for the transit station and park-and-ride areas. Each station area and park-and-ride facility would be the subject of a design process incorporating CRC project Urban Design Advisory Group (UDAG) guidelines, design guidelines from both the City of Vancouver and the City of Portland, C-TRAN plans, and input from the attendees. The final design of the Hayden Island interchange will address the City of Portland's Hayden Island Plan, utilize the UDAG design guidelines, and incorporate the results of the local design charrette or charrettes that will be conducted during the final design phase. Eventual annexation of West Hayden Island into the City of Portland is planned. As a consequence, the City of Portland's design standards and specifications apply to West Hayden Island.

### **3.1.2 Beyond the LPA: What are some other considerations related to Goals 1.1 and 1.2?**

Additional considerations are outside of the LPA, but may be considered during future project development. Generally, they include land use and development for areas beyond the project right-of-way and outside WSDOT and ODOT jurisdiction. Relative to Goal 1.2, the CRC Performance Measures Advisory Group (PMAG) recommended monitoring actual vs. forecast growth patterns in Clark County and North Portland, and to monitor land use changes around freight-oriented interchanges. The City of Vancouver and Clark County will need to adhere to and implement growth management plans and zoning to contain unplanned suburban sprawl, which has been raised as a concern related to the project.

Additionally, the development review processes in Vancouver and Portland will continue to be central to realizing the local community goals and to ensure that critical approved land use

changes do not create adverse effects to the transportation system. The City of Vancouver could develop new transit-oriented development (TOD) goals and update the implementing regulations to specifically address light rail station areas. The City of Portland will be responsible for adopting a light rail transit zoning overlay on Hayden Island, and approving development that is consistent with the 2009 Hayden Island Plan (as described in further detail in subsequent sections).

The City of Vancouver has adopted goals and policies that are supportive of affordable housing and a mix of housing types, and the city will be charged with implementing these goals. For example, the Vancouver Housing Authority will need to continue to work to maintain affordable units in the city through voucher programs and the development of new affordable housing units.



Photo credit: David Evans and Associates, Inc.

*Current planning efforts occurring in the community of Hayden Island, in response to the future CRC project, incorporate many smart growth activities and sustainable development measures, benefit property values, and enhance resident livability.*

<b>1.3 Support a healthy community</b>	<b>1.3.1</b> Maximize physically active forms of travel, including walking and bicycling, by designing and prioritizing implementation of non-motorized and transit project elements.
	<b>1.3.2</b> Encourage walking and bicycling to basic services and activities in the project area by removing barriers and enhancing system connectivity where practical.
	<b>1.3.3</b> Substantially minimize the need to generate and use hazardous materials for construction, and operations and maintenance by developing and implementing a Construction and Demolition Waste Management Plan (Best Management Practices [BMPs], spill plan, disposal plan, etc.).
	<b>1.3.4</b> Reduce urban “heat island” effect of the project components by preserving trees where practical and working with community members to incorporate street trees and other design features that improve water quality, increase carbon sequestration, and build community values.

**3.1.3 Within the LPA: How is Goal 1.3 addressed?**

Between Vancouver and Portland, I-5 is one of the most traveled commute routes in the United States and, during peak travel periods, is severely congested. In addition to the extended periods of congestion and traffic delay, the existing Interstate bridge corridor poses limitations to efficient and convenient mobility, particularly for pedestrians and cyclists. In response, the CRC

project will provide significant benefits, including creation of viable transportation options that support healthy lifestyles. Goal 1.3 is achieved in part by the project and in part by current and future actions of the project partners. Activities 1.3.1–1.3.4 will be achieved by the following elements of the LPA:

- Increasing multi-modal facilities, including non-motorized facilities to encourage biking and walking by providing a designated bike lane and sidewalks, improving bicycle and pedestrian access, and integrating light rail transit to help decrease commuter traffic congestion across I-5.
- Improving environmental quality by reducing project-related air and water pollution, and restoring a brown field site.

### 3.1.4 Beyond the LPA: What are some other considerations related to this goal?

In contrast, activity 1.3.5 is not currently addressed through the LPA because the project’s contribution to localized “urban heat island effects” has not been studied in the FEIS. However, it is recommended that measures such as heat reflecting pavement and landscaping be incorporated into the final design as a way to reduce the project’s contributions to urban heat island effects. Additional innovative measures to maximize natural shading, permeable paving, and other heat reducing structural components and cooling strategies may be considered in order to offset the project’s potential contributions to the urban heat island effect. Such measures may also overlap with sustainable stormwater, open space enhancement, and neighborhood cohesion activities.



*Photo credit: Flickr Creative Commons – Copyright waived.*

*Large tree species used to shade paved streets and parking areas reduce the effects of urban heat gain. Other benefits of healthy urban street trees include decreased energy demand for air conditioning in hot weather and the fact that airborne particulates are captured by vegetation, producing cleaner urban air.*

<b>1.4 Improve community cohesion and avoid neighborhood disruption</b>	1.4.1 Enhance community cohesion by designing the project to increase connectivity across existing barriers in the project area.
	1.4.2 Continue to inform and garner input from citizens most affected by project impacts by refining solutions through design and construction of the project.
	1.4.3 Minimize disruption to neighborhoods through development of compatible construction methods, scheduling, and traffic routing.

### 3.1.5 Within the LPA: How is Goal 1.4 addressed?

Goal 1.4 will be achieved in part by the project and in part by current and future actions of the project partners. The CRC project is a unique and important opportunity for the cities of Portland and Vancouver to stimulate and enhance the connectivity that already exists between them. Activities 1.4.1–1.4.2 will be supported through the following commitments of the LPA:

- Seeking to enhance connections between neighborhoods, improving travel by autos, while also improving the options available and travel experience for cyclists, pedestrians, and transit riders in between the two cities. Examples include increased connectivity provided by three east-west streets across I-5 on Hayden Island (Hayden Island Drive, Tomahawk Island Drive, and Jantzen Drive), plus new connectivity provided via a local street bridge from Hayden Island to North Portland and new circulation provided between the Bridgeton and Expo areas.
- Coordinating with local road construction projects to provide the best detour options.
- Maintaining access to important emergency services and to residences and businesses during construction.
- Providing informational wayfinding signage along roads and pedestrian/bike ways both during the construction phase for any detour routing, and after the corridor is operational to provide directional orientation where appropriate.
- Acquiring right-of-way and relocating residents and businesses displaced by the project in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and, where possible, relocating displaced residents and businesses within the same neighborhood.

### 3.1.6 Beyond the LPA: What are some other considerations related to this goal?

Efforts to minimize disruption of the surrounding neighborhoods will be a priority during the design stages and while the project is under construction. Considerations that are beyond the LPA that support activity 1.4.3 may include:

- Designing transit stations with consistent structural and aesthetic treatments, to tie these facilities together.
- Incorporating UDAG guidelines, design guidelines from both cities, and input from C-TRAN, adjacent neighborhoods and businesses, and the general public into the design process for each park-and-ride facility.





Photo credit: exploration-architecture.com

*London’s Green Bridge innovatively links two park spaces with contiguous greenspace through the use of a bridge passing over a busy highway. Also, to help support ongoing maintenance costs of the landscaping, the overpass abutments were designed to incorporate retail shops, thus providing rental income.*

<p><b>1.5 Support a vibrant land use mix and promote sustainable development</b></p>	<p><b>1.5.1</b> Minimize conversion of existing and planned residential, commercial, and industrial land to transportation right-of-way by limiting overall project design "footprint" to the extent practical.</p>
	<p><b>1.5.2</b> Support compatibility between planned land uses and transportation facilities (function, design, and capacity) in the project area through project design and construction.</p>

**3.1.7 Within the LPA: How is Goal 1.5 addressed?**

The CRC project may be the most significant infrastructure project in the Portland-Vancouver metro area in a generation. Transportation infrastructure projects can improve how people get from place to place, but the project may also bring change for many of the 16 neighborhoods near the project area—some of which are expected to grow in the coming decades. Each neighborhood has a unique character formed by its people and places. For that reason, it is important for the transportation structures to minimize conversion of other land uses into transportation right-of-way and to conduct any such conversion only with careful consideration and sensitive displacement strategies.

The project will directly contribute to sustainable development and will help to implement locally approved land uses. As such, Goal 1.5 will be supported through the following elements of the LPA:

- **Minimizing the project footprint:** The CRC project has been developed to minimize the overall physical scale of the project.
- **Enhancing existing transportation facilities:** Where the project will affect neighborhoods, emphasis will be placed on enhancing existing transportation opportunities and efficiencies already present in each community, while maximizing the ability of the new facilities to create beneficial connectivity options for citizens. For example, improved local street connectivity will be provided around Hayden Island, around the Bridgeton and Expo areas, and between Hayden Island and North Portland.
- **Including light rail:** The extension of light rail into Vancouver is one example of the measures the project is taking to improve affected neighborhoods, since proximity to light

rail has been shown to increase property values, provide a catalyst for small business viability, and enhance quality of life. The LRT stations will be designed to support plans for increased development densities and mixed land uses including, for example, supporting redevelopment plans of the Jantzen Beach SuperCenter.

- Improving access to the waterfront.
- Satisfying regional land use regulations and policies by facilitating planned TOD.

**3.1.8 Beyond the LPA: What are some other considerations related to this goal?**

Subsequent project development phases will consider strategies to reduce property impacts and support and improve dynamic neighborhoods. The following strategies are beyond the LPA, but may be considered during future project phases:

- Supporting mixed compatible uses: The CRC project will consider opportunities to support a mix of compatible uses through shared use agreements with project partners and private development interests for park-and-rides.
- Implementing Interchange Area Management Plans (IAMPs) to protect public investment and extend the service life of I-5 interchanges.<sup>2</sup>

Other beneficial measures in support of these strategies will require leadership and commitment from local agencies and developers to foster the implementation of future sustainable development and supportive infrastructure in the project vicinity.

<b>1.6 Minimize impacts of noise, vibration, light, dust, and glare</b>	<b>1.6.1</b> Minimize noise, vibration, and dust impacts during construction by implementing construction BMPs and a traffic management plan.
	<b>1.6.2</b> Minimize noise impacts from large vehicles by designating project area truck and bus routes within major through routes and commercial corridors and away from local neighborhood streets.
	<b>1.6.3</b> Minimize noise impacts from new and modified facilities near noise-sensitive receptors through innovative and cost-effective design features and construction practices.
	<b>1.6.4</b> Minimize stray light and glare for facility users and adjacent land by incorporating context-sensitive, innovative, and cost-effective design features and lighting systems.

**3.1.9 Within the LPA: How is Goal 1.6 addressed?**

The LPA includes several actions that will avoid or minimize negative impacts during project construction. Activity 1.6.1 will be supported through the following elements of the LPA:

- Implementing BMPs to mitigate short-term construction noise and vibration by complying with EPA noise standards. The design will seek to minimize operational noise impacts by designating routes within the corridor where noise is more easily abated by sound walls, and large vehicle routes will be designated to avoid inappropriate use of neighborhood surface streets. The project will also minimize noise and vibration during construction by using construction equipment engine mufflers and by installing temporary acoustic barriers.

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<sup>2</sup> Land Use Technical Report.

- Implementing BMPs to mitigate for short-term construction dust including completing an Erosion/Sediment Control Plan which may include sediment fencing, compost blanketing, temporary and permanent planting, and sprinkling with water exposed dust producing areas.
- Implementing stringent construction activity schedules and monitoring by scheduling construction activities during daylight hours or during summer months when daylight hours are the longest to minimize the need for artificial light (also providing energy efficiency benefits) or limiting particularly noisy operations to certain hours during the day<sup>3</sup> and by shielding construction site lighting to mitigate short-term/construction light impacts.<sup>4</sup>
- Implementing appropriate design features to mitigate long-term noise and vibration by using sound walls; residential insulation; ballast mats, resilient fasteners, or tire-degraded aggregate; and trackside lubricant.<sup>5</sup>
- Implementing BMPs to mitigate long-term light impacts by shielding new transit stations and facility lighting,<sup>6</sup> and by shielding transit station lighting and highway facility lighting from nearby residences and the night sky.

As discussed above, the project corridor passes through the Portland-Vancouver metro area within an urban context. Disruption from traffic, large vehicle, and transit noise, as well as impacts to residents from overhead lighting and night-sky light pollution, will be minimized to the extent practical through the innovative construction techniques and sensitive design solutions listed above.

### 3.1.10 Beyond the LPA: What are some other considerations related to this goal?

Additionally, WSDOT and ODOT will continue to work to evaluate potential highway project noise during the design stages and encourage input from residents regarding noise abatement solutions. The following design measures and construction practices to mitigate noise impacts may be considered through subsequent project phases; however, they are currently considered beyond the CRC project commitments of the LPA:

- Minimizing long-term noise impacts through the use of innovative noise-reducing pavement materials, as were recently installed along segments of I-405 and SR 520 in Washington, may be considered to the extent practical and cost-effective. Minimizing long-term lighting impacts: As bridges in Portland demonstrate, nighttime lighting schemes can add vivid drama to views of the cityscape. On the other hand, poorly designed lighting can become a hazard by causing glare that reduces visibility or a nuisance by shining on adjacent properties. Excess lighting can also reduce our ability to view the night sky—frequently referred to as light pollution. Lighting along the bridge and connecting roads and pathways will be included as necessary for user safety and comfort, and measures such as designing roadway

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<sup>3</sup> *Noise and Vibration Technical Report.*

<sup>4</sup> *Visual and Aesthetics Technical Report.*

<sup>5</sup> *Noise and Vibration Technical Report.*

<sup>6</sup> *Visual and Aesthetics Technical Report*

or accent lighting to limit light or glare that could affect visibility and air navigation will also be explored through the design process.

- Exploring Crime Prevention through Environmental Design (CPTED) concepts through the project design. CPTED is an inter-disciplinary approach to deferring criminal activities in the project area through design of built features including lighting, structures, and landscaping. For the CRC, this approach could be particularly applicable to LRT station areas and non-motorized facilities, including the proposed path under the bridge deck.

<b>1.7 Support aesthetic quality that achieves a regional landmark</b>	1.7.1 Protect and enhance scenic views and viewshed by incorporating design features that minimize obstruction of scenic views.
	1.7.2 Promote the unique contextual character and sense of place by incorporating distinctive natural and built design features.

**3.1.11 Within the LPA: How is Goal 1.7 addressed?**

Well-designed bridges draw viewers’ attention like few other transportation elements. The FHWA currently sets federal standards by which all proposed new transportation projects must be judged to ensure they avoid resulting in adverse impacts to existing quality viewsheds. WSDOT and ODOT both utilize FHWA standards in evaluating visual quality impacts from transportation improvements.

Goal 1.7 is supported through the following elements of the LPA:

- Establishing project design guidelines that will incorporate much of the UDAG recommendations. Refer to FEIS Section 3.9 Visual and Aesthetic Qualities for more information on UDAG recommendations.
- Incorporating aesthetically pleasing design details (e.g., complementing the architectural scale, materials, and colors of significant structures nearby; incorporating trees; and using features and themes on walls, ramps, and surfaces [UDAG, 2009]) along pedestrian and transit routes of the bridge.
- Minimizing short-term visual intrusiveness by locating and stockpiling materials in less visually sensitive areas.
- Minimizing long-term visual impacts by incorporating visual screening as appropriate (e.g., walls, street trees, etc.); decreasing impacts to historic resources, cultural resources, public parks, and open spaces; replanting vegetation and landscaping; minimizing the structural bulk of new structures; and complying with existing urban or community design guidelines.<sup>7</sup>

The CRC project will function as a public gateway for both northbound and southbound travelers. Passing through the corridor recognizes the moment of entering or departing each state. Entering Washington or Oregon on the bridge by car, rail, or on foot or bike will each provide opportunities for different expansive views of the Columbia River and the Portland-Vancouver metro area. The structure itself will also add a new major element to views of the Columbia

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<sup>7</sup> *Visual and Aesthetics Technical Report.*

River from the shores of Vancouver and North Portland, with the potential to become the area's next iconic infrastructure element.

### **3.1.12 Beyond the LPA: What are some other considerations related to this goal?**

Subsequent project stages will incorporate strategies to maximize opportunities to enhance views to and from the project while seeking to avoid undesirable impacts to existing views.

Considerations that are beyond the LPA that support Goal 1.7 may include:

- Enhancing view opportunities to view the Columbia River via pedestrian view overlooks that could be integrated into the multi-use path design.
- Designing each transit station with consistent structural and aesthetic treatments to tie these facilities together. The Cities of Vancouver and Portland, TriMet, and C-TRAN have standards for street furniture and for facilities of this type. These standards would be met, and other considerations could be incorporated to complement surrounding community characteristics where appropriate.
- Including public art and architectural detailing, with particular care given where roadway structures (i.e., ramps, support structures, and walls) interface with the existing urban fabric. Neighbors and stakeholders could be given the opportunity to provide input on the art components. For example, architectural or iconic elements of the existing bridge may be incorporated into the new design as art installations. Opportunities to enhance the user's visual and perceptive experience could be maximized to the extent practical and to the extent that they are within budget.
- Planting trees to showcase the regional character of the corridor and improve the riparian areas. This approach could also support a planting scheme that uses very little potable water, as discussed under Principle 8, Water.
- Using public charrettes during the final design phases of the project to refine the plans for each park-and-ride. The public and technical process would inform decisions on façade treatments, landscaping, lighting, and the mix of uses to respond appropriately to each unique community, while maintaining overall project cohesion.
- Taking into account suggestions from the Pedestrian Bicycle Advisory Committee (PBAC) such as comments regarding view enhancement. These suggestions include minimizing the elevation of the bridge structure over the surface of the water for optimum view experiences while also minimizing steep path climbing for nonmotorist travelers and providing architectural detailing and prioritized design considerations for the pedestrian realms.
- Considering suggestions from the UDAG, including ensuring compatibility of bridge approaches and structural components with adjacent neighborhoods (design visible portions of bridge with input from neighborhood); preserving elements of historic bridgeheads; and exploring public art opportunities (such as pylons, piers, and other structures).

<b>1.8 Protect parks, historic and cultural resources, and green spaces</b>	<b>1.8.1</b> Avoid fragmentation and degradation of parks, open spaces, trails, and greenways by carefully locating new and modified transportation and utility project components.
	<b>1.8.2</b> Maintain character of unique areas by preserving, replacing, or enhancing vegetation associated with parks and green spaces, and historic properties and districts.

### 3.1.13 Within the LPA: How is Goal 1.8 addressed?

The eighth and final goal under quality of life is fully incorporated into the LPA and is strongly aligned with locally approved land use plans, through the following considerations:

- Providing a landscaped buffer for areas between the new Clark College park-and-ride and the sports fields, as well as a pedestrian connection from the parking area to the fields.
- Complying with Washington Department of Archaeology and Historic Preservation and State Historic Preservation Office).<sup>8</sup>
- Minimizing visual impacts to historic and cultural resources, public parks, and open spaces (also addresses Goal 1.7).
- Replanting trees and vegetation—in most cases trees will be replanted in the same or similar location as the trees removed (also addresses Goal 1.7).
- Recovering data and including excavations, interpretive panels or other interpretive materials, photo documentation, and/or other measures as necessary.<sup>9</sup>

The CRC project is situated within in a rich and diverse landscape, including significant natural water features and wildlife corridors; public parks and open space supporting active and passive recreation; irreplaceable historic and cultural resources, including those nationally recognized on the federal register; and an impressive network of urban bike and hiking trails. Therefore, the project will seek to minimize impacts or fragmentation of quality existing places while enhancing the local character of such places and improving access to these places for neighbors and visitors. The following measures, which are LPA commitments, will be considered to preserve public natural and cultural resources:

- Offset loss of permanently acquired parkland in Vancouver with development of a park like Evergreen Community Connector.
- Enhance or improve under-bridge areas to provide connectivity and usable public open space. On the Oregon side, this space may be considered for a point of public water access.
- Assist in the redevelopment of the vacated state right-of-way beneath the existing I-5 bridge landings in Vancouver into a new western portion of Waterfront Park.
- Replace parkland acquired by land of equivalent market value and recreational utility.

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<sup>8</sup> *Archaeology Technical Report.*

<sup>9</sup> *Archaeology Technical Report.*

- Collaborate with the National Park Service on screening and landscaping plan for the Village area (see above regarding Evergreen Community Connector).

### 3.1.14 Beyond the LPA: What are some other considerations related to this goal?

Considerations that are beyond the LPA that support Goal 1.8 may include:

- The UDAG made the following suggestions for strategies to minimize impacts to natural and cultural resources:
  - Support the reconfiguration of the under-bridge areas as destination public open space.
  - Provide visual and physical connections between under-bridge structures.
  - Investigate different under-bridge designs—options for regrading and redesign of the river bank under the highway, including options for retention of fragments of the old bridges.
- The Marine Drive Stakeholders Group (MDSG) offered similar recommendations, including designing the interchange to preserve the opportunity for open space and public water access, most likely requiring combined efforts of ODOT and the City of Portland.



Photo credit: <http://www.flickr.com/photos/pavati/5002550327/>

*Public input and quality design made Cathedral Park, beneath the east side of Portland's St. John's Bridge, one of the most impressive and beloved parks in the area.*

## 3.2 Equity

The CRC Sustainability Strategy considers the project’s known and potential contributions to social equity. Below is a description of the activities that relate to this category.

### Principle 2. Strive for fair distribution of benefits and impacts

<b>2.1 Support fair distribution of benefits and adverse effects of the project for the region, communities, and neighborhoods adjacent to the project area</b>	<b>2.1.1</b> Provide access for elderly and disabled people by designing and conveniently locating transit stations, bus stops, and pedestrian amenities.
	<b>2.1.2</b> Maximize efficiency of operation, users' ease, and access for disadvantaged communities by integrating technology to create a seamless, coordinated, and single point of entry for communications and customer information.
	<b>2.1.3</b> Encourage and support transit ridership and other travel options for disadvantaged people during construction by implementing a robust communications and outreach program.
	<b>2.1.4</b> Continue to inform and garner input from affected vulnerable communities (including people children, elders, and people with disabilities) and Environmental Justice (minority and/or low income populations) target communities by refining solutions through design and construction of the project.

#### 3.2.1 Within the LPA: How is Goal 2.1 addressed?

The LPA will mitigate adverse community impacts through design and throughout construction. The project intent is to better serve EJ and other disadvantaged populations through effective outreach and communication, equitable involvement of disadvantaged businesses in design and construction, sensitive and compatible design and construction practices, and establishment of programs to enhance safe, convenient, and affordable access to transportation and activities.

The FEIS explains in detail the project’s compliance with laws and policies regarding Environmental Justice (EJ) (refer to the FEIS for specific regulatory requirements or policies relating to EJ). The CRC project will substantially enhance connectivity and access for transit users, and the project is not anticipated to result in disproportionately high and adverse effects to traditionally underserved and disadvantaged populations, including EJ populations, and other potentially disadvantaged groups such as the elderly and people with disabilities. Goal 2.1 is supported through the following elements of the LPA:

- Utilizing the project website and other media to communicate information and obtaining feedback about construction activities, impacts, and mitigation throughout neighborhoods, including focused outreach to limited-English-proficiency populations. Goal 2.1 is also supported by taking a proactive role to involve affected communities, including traditionally underserved populations, in the project development and maintaining a commitment to address their needs through the life the project, and engaging specific group advocates as the project progresses to elicit feedback and address concerns about effects of the project.
- Enhancing accessibility for potentially disadvantaged groups. For example, the proposed local bridge between Hayden Island and North Portland is particularly attractive for people who are averse to using the current access that requires using the I-5 interchange.
- Maintaining convenient and accessible transit service to the extent possible throughout the construction phase.



- Reducing noise, dust, and vehicle emissions, and providing sufficient signage and other notifications of changes to travel patterns during construction (see Goal 1.6).<sup>10</sup>
- Relocating disadvantaged communities near community resources within their neighborhood as much as possible.
- Relocating residents displaced by the project in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended).

### 3.2.2 Beyond the LPA: What are some other considerations related to this goal?

In addition to measures initiated by the project, strategies that support activity 2.1.4 but that are beyond the commitments of the LPA include the following:

- Implementing programs to increase transit levels of service for low-income/disabled populations, including rideshare and vanpool opportunities.
- Using educational programs (in English and selected non-English languages) to explain toll and transponder options and capitalizing on existing public service providers to share information.
- Assisting low-income residents who could not otherwise obtain transponder accounts<sup>11</sup> by subsidizing or providing transponders to families below the poverty line.
- Adopting goals and policies that are supportive of affordable housing and a mix of housing types (through the City of Portland and City of Vancouver and/or the Vancouver Housing Authority).

## 3.3 Transportation System

The CRC project is being developed to support the region's sustainable multi-modal transportation system that contributes to vibrant communities, strengthens local and regional economies, and supports a healthy environment that endures for generations.

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<sup>10</sup> *Environmental Justice Technical Report.*

<sup>11</sup> *Environmental Justice Technical Report.*

### Principle 3. Improve transportation reliability, and accessibility for all types of travel and reduce reliance on single-occupancy vehicles (SOVs)

<b>3.1 Enhance mobility, reliability, and accessibility for all users now and in the future</b>	<b>3.1.1</b> Accommodate future mobility and access needs of all users through design.
	<b>3.1.2</b> Adapt to changing needs by developing transit system capacity, routes, and service with optimal reliability and flexibility.
	<b>3.1.3</b> Use active management in the corridor to monitor key performance measures, implement and adjust mobility solutions such as operational and small-scale physical improvements, and demand management strategies.
	<b>3.1.4</b> Maintain travel time reliability by adjusting tolling.
<b>3.2 Preserve and maximize transportation system efficiency and reduce reliance on SOVs</b>	<b>3.2.1</b> Improve reliability, mobility, and safety of the multi-modal transportation network through the use of coordinated transportation system management and operational (TSM) strategies.
	<b>3.2.2</b> Reduce reliance on SOVs by utilizing Transportation Demand Management (TDM) strategies coordinated on a regional level.
<b>3.3 Increase modal choice for users of the crossing, including transit, bicycle, and pedestrian modes</b>	<b>3.3.1</b> Maximize travel mode choices by incorporating appropriate transit, bicycle, and pedestrian facilities and integrating linkages between modes in the project area.
	<b>3.3.2</b> Address non-motorized system gaps and deficiencies in the project area through project element design and construction prioritization.

#### 3.3.1 Within the LPA: How are Goals 3.1 through 3.3 addressed?

The project will be designed, constructed, and operated to balance the current and future needs of users without causing undue strain on the system and induced adverse effects to the region.

Goals 3.1 through 3.3 are supported through the following elements of the LPA:

- Expanding high-capacity transit into southwest Washington including the construction of park-and-ride facilities with provisions for bicycles.
- Replacing the existing, substandard, shared-use facility on the existing bridges with a “world class” facility for bicyclists and pedestrians.
- Reducing infrastructure barriers and improving connectivity for cyclists and pedestrians by integrating transit centers, open spaces, trails, and neighborhoods.
- Replacing and enhancing waterfront trail connections on both sides of the Columbia River and stitching together other bicycle and pedestrian network gaps throughout the project area.
- Improving local circulation for motorists and non-motorized modes around I-5 on both sides of the Columbia River.
- Incorporating facilities and equipment to help TSM programs maximize capacity and manage traffic congestion (e.g., incorporating ramp meters, incorporating an electronic traffic control and communications system, integrated with the local signal system, to improve arterial and highway operations in the project area through coordinated and optimized signal timing).
- Implementing a construction-phase transportation demand management (TDM) program to offset possible loss of capacity during construction that utilizes expanded transportation options (e.g., carpooling, transit, telecommuting, flexible work schedules), individualized marketing programs, and employer outreach.
- Incorporating applicable recommendations from the Mobility Council and PMAG, including Columbia Crossing Mobility Operations Plan for consideration by ODOT, WSDOT, TriMet,

C-TRAN, and others. Refer to FEIS Section 2.2.5 for more information on the Mobility Council and the PMAG, including TDM/TSM project commitments.

### **3.3.2 Beyond the LPA: What are some other considerations related to this goal?**

During the project design process, the CRC project will focus efforts to advance transportation system enhancement and management recommendations that have emerged from various groups that have worked to refine the project. The following project activities are not commitments of the LPA, but may be considered through subsequent project phases:

- Establishing local street and multi-use path connections where they are needed and do not exist and where not required by zoning code regulations.
- Further developing recommendations from the TDM Working Group for a robust post-construction TDM program integrated with regional efforts.
- Expanding traveler information systems that take advantage of new facilities and equipment implemented with the CRC project;
- Implementing tolls with further evaluation of tolling strategies, including evaluation of time-of-day pricing and occupancy-of-vehicle pricing;
- Replacing or expanding variable message signs (VMSs) or other traveler information systems in the CRC project area;
- Expanding and improving incident response capabilities;
- Implementing queue jumps or bypass lanes for transit vehicles and other designated vehicles where multi-lane approaches are provided at ramp signals for entrance ramps; and
- Expanding traveler information systems with additional traffic monitoring equipment and cameras.
- Incorporating recommendations of the project's UDAG and MDSG including, for example:
  - Establishing new trail connections to Apple Tree Park and the Land Bridge;
  - Aligning the Hayden Island transit station with, and providing direct access to, Tomahawk Drive—with the planned east-west corridor;
  - Improving sidewalks on the Fourth Plain overpass and providing access adjacent to the cemetery (a sidewalk will not be provided on the north side of the bridge—a safer route is provided on the south side—and a local access is provided between the cemetery and the freeway ramp);
  - Improving waterfront trails, including continuing the waterfront trail through the area affected by construction, and improving pedestrian and bicycle access along the south bank of the North Portland Harbor, connecting Bridgeton to the 40-Mile Loop (proposed trails are more direct and wider through the interchange area); and
  - Interconnecting open spaces under the interchange, including a new connection between Delta Park and the Expo Center transit station and to open spaces to the southwest and along the North Portland Harbor.

Through the design process, the CRC project and regional partners will continue to refine an optimum design for the Marine Drive Interchange, and circulation through and on both sides of the Marine Drive Interchange to address the MDSG’s suggestions for:

- A new connection to the 40-Mile Loop on the west side of interchange that intersects the light rail alignment at grade and minimizes impacts to existing businesses.

Improvements for local street, bike, and pedestrian circulation east of the interchange, including considerations for enhanced multi-modal access to East Delta Park, to the Bridgeton and Kenton neighborhoods, to local businesses, and for local bus service.

### 3.4 Safety

Safety is an element that is tied to how we develop our communities, economies, and environments. As a society, we are constantly working to improve overall safety, security, and protection. As such, safety is a fundamental component of the CRC project and other planned infrastructure and must be evaluated from both a broad and detailed context, whether it’s overall highway safety, at-grade crossings for pedestrians, or the amount of illumination at facilities and stations.

#### Principle 4. Enhance safety and security for users of all types of travel

<b>4.1 Enhance safety for vehicles, pedestrians, bicyclists, river users, and air traffic at the crossing</b>	4.1.1 Continue to enhance safety for river traffic by maintaining navigation channel geometrics.
	4.1.2 Continue to support air traffic safety by complying with Federal Aviation Administration (FAA) navigable airspace regulations.
	4.1.3 Enhance safety for bicyclists and pedestrians by developing and implementing a project-specific Safety and Security Management Plan.
	4.1.4 Maintain life-line connections in the I-5 corridor across the Columbia River through design and construction staging.
	4.1.5 Incorporate an enhanced incident management system.

#### 3.4.1 Within the LPA: How is Goal 4.1 addressed?

WSDOT and ODOT prioritize safety as a key metric for all planned transportation projects and continuously focus on practices and activities to enhance safety for all users of our transportation system. Safety is also a fundamental driver of the CRC project, and an important consideration for the stakeholders participating in current and planned design measures, construction practices, and operations and maintenance policies and procedures. Maintaining and improving safety for the CRC project will be addressed through the following elements of the LPA in support of activities 4.1.1–4.1.4:

- Accommodating cargo ship movements through navigation channel geometrics maintenance during design.
- Coordinating with the Federal Aviation Administration (FAA) to comply with navigable airspace regulations during design and construction and implementing mitigation measures as applicable; e.g., through obstruction marking and lighting to make construction equipment visible to aircraft.

- Consistent with the CRC Bicycle/Pedestrian Maintenance and Security Program (refer to FEIS Section 2.2.3 and Appendix Q for more information), developing a project-specific Safety and Security Management Plan during design through coordination and review with transit agencies, the cities of Vancouver and Portland, Clark and Multnomah counties, the Ports of Vancouver and Portland, WSDOT, ODOT and all associated police and fire departments with specific elements to address both safety and security including:
  - Developing clearly defined separations of space, either through design signage or protective barriers for each type of transportation user (auto, rail, cyclist, and pedestrian) on the crossing to avoid accidental conflicts during operations and maintenance;
  - Maintaining safe connections, with temporary enclosures, for bicyclists and pedestrians traveling on trails and between facilities;
  - Improving overall safety for bicyclists, pedestrians, and motorists through the implementation of the following during design, construction, and operations and maintenance: providing sufficient pathway lighting, reducing/eliminating at-grade crossings with vehicles and transit where practical, providing security cameras and phones, complying with AASHTO design criteria to minimize turns and provide for comfortable turning on access/egress ramps, constructing with non-skid surfaces for traction, and protecting from bird droppings, debris, kick-up, splatter, vehicle exhaust, and headlight glare protection as much as possible.
- Maintaining life-line connections and/or critical access routes in the I-5 corridor across the Columbia River for all travel modes including bicyclists, pedestrians, and motorists, through coordination with emergency service providers during construction, operations and maintenance, and in case of an earthquake.
- Vehicle traffic facility provisions that separate movements to minimize weaving and interaction between vehicles accessing, egressing and traveling through the crossing.
- Multi-use paths to provide safe movements for non-motorized travel.
- Incorporation of High Capacity Transit that will be implemented to TriMet and C-Tran design standards with state of the art safe and secure transit stations.

### **3.4.2 Beyond the LPA: What are some other considerations related to this goal?**

In addition to the safety enhancement features of the LPA, WSDOT, ODOT, and other project stakeholders will evaluate any unanticipated safety concerns, and they will be mitigated to the greatest extent practical. Additionally, in the long-term, a high-level, aggressive incident management system and traffic operations system should be developed both as a way to reduce greenhouse gas emissions and to benefit highway operations.

## **3.5 Economy**

The CRC Sustainability Strategy addresses the project's contributions to the economy of the region. A sustainable economy is robust and diverse, and supports preservation and growth of viable jobs and essential services regionally and locally.

**Principle 5. Support a sound regional economy and job growth**

<b>5.1 Maximize project investment in local and regional economies</b>	<b>5.1.1</b> Preserve and expand existing sustainable and disadvantaged businesses, and attract new businesses and industries by designing the project for sufficient long-term capacity.
	<b>5.1.2</b> Preserve and expand existing sustainable and disadvantaged businesses, and attract new businesses and industries by maintaining multi-modal access to businesses during construction.
	<b>5.1.3</b> Support the local and regional economy and encourage new jobs by procuring local and regional design services, construction contractors, and equipment.

**3.5.1 Within the LPA: How is Goal 5.1 addressed?**

I-5 is an economic lifeline for international and domestic commerce in the United States, and serves as a vital connection to support and sustain the economies of both Washington and Oregon, and the Portland-Vancouver region. The CRC project will bolster state, regional, and local economies in the short term through provision of jobs directly and indirectly tied to project design and construction. Moreover, the CRC project will create economic stimulation in the long-term through jobs preserved and created as a result of the project and planned development in the surrounding communities. Goal 5.1 is supported through the following elements of the LPA:

- Developing a circulation plan to reduce points of impact from road closures.
- Reducing to the greatest extent practical, the amount of land or the number of properties that will need to be acquired for right-of-way

To minimize economic impacts, all properties—residential and commercial—displaced by the project will be purchased at fair market value and the sellers provided with relocation assistance. Because of the displacement of the grocery store on Hayden Island, the planned TOD may be a market force catalyst to assist in attracting another grocer to the area to meet the community’s needs. The CRC project, with the participation of regional partners, may consider additional incentives to attract a new grocery store to Hayden Island and to pursue an alternative location for bottle recycling nearby. The project sponsors and regional planning partners may host local business workshops to provide opportunities for answering business owners’ questions and for hearing their concerns.

While the project will result in long-term and widespread economic benefits, the subsequent phases of the project will achieve maximum economic leverage by emphasizing opportunities to enhance the local economy. Small, disadvantaged, emerging and local business participation will be encouraged. Local design and construction services and supply sources may be considered first for ongoing work related to the project where appropriate, as encouraged by ODOT’s CS3 and OTIA III Bridge Delivery programs.

**3.5.2 Beyond the LPA: What are some other considerations related to this goal?**

In addition, the following actions, while not commitments of the LPA, may be considered to encourage local sourcing of labor and materials:

- Offering training before the project start date to prepare local small firms, especially minority and women owned firms, and workers.
- Including high apprenticeship and on-the-job training requirements in construction contracts.

- Providing incentives to prime architecture, engineering, and construction contractors to mentor disadvantaged and emerging small businesses, and use apprentices.
- Developing lists of local businesses that can provide supplies and services to designers and contractors, ranging from restaurants and motels to printers and welders, and by including contract provisions that encourage use of local suppliers.
- Requiring architecture, engineering, and construction contractors to track elements of the above that can be easily measured, and report regularly to document the impacts the project is having on the local economy.

<b>5.2 Move freight efficiently and reliably through the I-5 bridge influence area, and accommodate river and navigational needs</b>	<b>5.2.1</b> Maintain or enhance multi-modal freight system interconnections (trucking, rail, marine cargo, air cargo, and pipelines).
	<b>5.2.2</b> Continue to maintain freight mobility and minimize delay and out-of-direction travel for freight traffic through construction staging.

**3.5.3 Within the LPA: How is Goal 5.2 addressed?**

The CRC project is being developed to serve the long-term needs of freight traveling through the project on I-5, and to enhance other intermodal freight connections in and near the project area. The project development process has incorporated extensive involvement by representatives of the Port of Vancouver and the Port of Portland, and by other freight industry leaders representing truck, rail, marine, and air cargo perspectives. Goal 5.2 is supported through the following elements of the LPA:

- Maintaining and enhancing connections through I-5 interchanges to intermodal freight terminals and other destinations.
- Providing freight connections from Martin Luther King Jr. Boulevard to Vancouver Way and Union Court, and separating industrial traffic from neighborhood and park access routes.
- Developing an acceptable circulation plan through and around the Marine Drive Interchange.
- Improved access to markets through increased availability and reliability of vehicle, transit, and safe/secure non-motorized travel provisions.
- Traffic handling, routing and promoting effective congestion management will include constructing transportation infrastructure that is consistent with the City of Portland’s transportation plan for the Hayden Island/St. John's freight and mobility program.
- Improving marine navigational safety and eliminating river traffic delays on the Columbia River through the bridge crossing area.

**3.5.4 Beyond the LPA: What are some other considerations related to this goal?**

CRC project construction plans will include staging and traffic control plans to maintain freight mobility and access through project construction. Project partners and the Coast Guard will review plans through the project permitting process. The CRC project will also work with project partners to consider how to address impacts to local businesses and river navigation during

construction. The following activities are not commitments of the LPA and will be considered in future project phases:

- Continuing public involvement and education programs to provide information to businesses, tug operators, pilots, and the general public.
- Providing signs to identify the location of access points to businesses.
- Providing business planning assistance, including business-oriented workshops, marketing consulting, and potential low-interest loans for businesses, and promotions to generate patronage.
- Providing advance communications of closures or restrictions on river travel.
- Temporarily procuring additional tugs that may be needed to aid in temporary navigation.

### 3.6 Cost-Effectiveness

The CRC Sustainability Strategy considers several elements related to cost-effectiveness. Sustainable development must be accounted for through a life-cycle lens, and implemented and used in a manner that does not impose undue costs upon society and the environment, and does not diminish the local and regional economic capacity to support it.

**Principle 6. Support cost-effectiveness in design, construction, maintenance, and operation, including the consideration of sustainable funding sources and life-cycle costs where appropriate**

<b>6.1 Maximize cost-effectiveness in design, construction, maintenance, and operation</b>	<b>6.1.1</b> Extend the useful life of existing roads, bridges, structures, transit facilities, and other transportation assets by developing and applying operation, maintenance, and preservation strategies that would be more cost-effective than substantial expansion or retrofit actions, while supporting other project principles.
	<b>6.1.2</b> Minimize costs by identifying, protecting, and/or acquiring needed right-of-way as early as possible.
	<b>6.1.3</b> Account for life-cycle costs to the greatest extent practical by developing effective measures and prioritizing least-cost solutions benefiting the project.
<b>6.2 Secure adequate and reliable funding for the project</b>	<b>6.2.1</b> Maximize leverage of short-term capital intensive investments, long-term project operation investments, and federal funding eligibility by developing a sustainable financing and revenue plan.

#### 3.6.1 Within the LPA: How are Goals 6.1 and 6.2 addressed?

Fiscal prudence and financial responsibility are integral to the policies and procedures of WSDOT and ODOT, and limiting project costs is an underlying mandate for the development of the CRC project.

Goal 6.1 is supported through the following elements of the LPA:

- Incorporating project cost effective components into the project. For example, LRT will allow transit riders to travel at a fraction of the operating costs of buses.
- Developing a sustainable Finance Plan that will identify capital and operations and funding needs, and fully account for project costs and benefits.
- Designing, constructing, and using the project to function through a useful service life of 100 years or more while putting forth an extensive, diligent, and collaborative effort with project partners, transit providers, and other agency partners.



- Working with regional transit providers and agencies to reduce capital expenditure needs by preserving the function of the transportation facilities through project design, construction, and operations and maintenance.

Multiple funding sources are needed to pay for project construction, including new sources of dedicated revenue to operate and maintain the highway, transit, and non-motorized facility components over the intended service life of the CRC project.

**3.6.2 Beyond the LPA: What are some other considerations related to this goal?**

Applying a life-cycle approach to designing and implementing the project would support Goal 6.1. While this approach is not an LPA commitment, it is recommended to be incorporated into the future project phases to reduce overall project costs, stimulate local economies, reduce GHG emissions, increase reuse and recycling of materials, and decrease overall environmental and community impacts.

- Activities in support of Goal 6.2 that are not incorporated as LPA commitments include the following: Chartering a tolling authority composed of public agencies and private partners to manage pricing adjustments, and the collection and distribution of electronic tolling revenues.
- Leveraging private investment, including potential participation by third-party entities that could help offset the costs of incorporating future renewable energy components (e.g., using renewable energy sources to power light rail facilities and/or incorporating renewable energy facilities in the transportation corridor right-of-way).

**3.7 Natural Resources**

The CRC Sustainability Strategy considers the project’s contributions to the protection of natural resources of the region. Natural resource and regulatory agencies have been and continue to be active participants in the development of the CRC project.

**Principle 7. Protect and enhance natural resources, fish and wildlife habitat**

<b>7.1 Reduce barriers to fish and wildlife passage</b>	<b>7.1.1</b> Enhance fish and wildlife habitat by designing and prioritizing implementation of project elements that remove blockages or barriers limiting fish or wildlife passage.
	<b>7.1.2</b> Avoid fragmentation and degradation of significant habitat, floodplain hydrology, and wildlife corridors by sensitively locating new and modified transportation and utility project components.
	<b>7.1.3</b> Maximize passage for fish and other aquatic species by appropriately locating and minimizing the number and size of new bridge support structures, where practical.
	<b>7.1.4</b> Enhance aquatic and other species passage by removing or retrofitting culverts that block or restrict passage (i.e., oversized or natural bottom culverts).
<b>7.2 Strive toward an increase in suitable high quality wetland, aquatic, and upland habitat</b>	<b>7.2.1</b> Protect and enhance habitat by developing and implementing a comprehensive habitat mitigation plan.
	<b>7.2.2</b> Enhance urban ecological habitat by increasing native vegetative cover through design and construction of the project.

### 3.7.1 Within the LPA: How are Goals 7.1 and 7.2 addressed?

The CRC project crosses one of the most significant water features in the United States—the Columbia River—which provides essential habitat for important fish and wildlife species. These include various federally and state listed anadromous fish, and protected wildlife species that use the river as a corridor to access breeding grounds, food, and refuge. As such, with the installation of a new I-5 bridge and new facilities connecting into the highway, it is critical to preserve and enhance fish and wildlife passage in the project area.

The FEIS describes the measures to reduce project-related environmental impacts. The LPA was selected among other alternatives because it will substantially avoid impacts to resources of concern. The LPA incorporates the following elements that support activities 7.1.1 through 7.2.1:

- Developing a Biological Assessment that is focused on enhancing high quality habitats and suitability for strategy species in the Columbia Basin.
- Developing a comprehensive mitigation plan that describes CRC project commitments and jurisdictional requirements including creation of new or enhancement of existing habitats within the same watershed for unavoidable permanent impacts.<sup>12</sup>

Improving wildlife access and mobility across roadway facility boundaries and reducing vehicle wildlife collisions through location of structures to allow wildlife passage beneath the highway and ramps, and reducing obstructions to wildlife passage and to help link wildlife movement between in-water, riparian, and upland habitats.

- Avoiding or minimizing impacts to protected resources, including shorelines, wetlands, stream banks, and their buffers, which are often most important to juvenile salmonids (e.g., Coho, Chinook, and bull trout) and their habitat, through project footprint design and during construction and operations and maintenance. Specific activities include:
  - Timing in-water work outside of critical species breeding and migrating seasons;
  - Increasing native vegetative cover by avoiding and protecting significant contiguous stands of wetland, aquatic, and upland habitat through design;
  - Revegetating riparian areas;
  - Limiting use of riprap;
  - Avoiding wetland impacts to Vanport wetlands and Delta Park area;
  - Promoting aquatic habitat conservation efforts and mitigating effects to aquatic habitat through shallow water habitat restoration and;
  - Installing bank protection measures, reducing bank slope to a maximum 3:1 rise to run where possible, and erosion and sediment control measures.<sup>13</sup>
- Minimizing the number of new bridge support structures (piers) and choosing locations for them that will minimize impacts to aquatic habitat and species, including discouraging predator use of piers, treating stormwater and complying with water quality standards (see

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<sup>12</sup> *Wetlands and Jurisdictional Waters Technical Report.*

<sup>13</sup> *Ecosystems Technical Report.*

Goals 8.1 through 8.3), and using cofferdams during shallow pier construction or confined bubble curtains to decrease turbidity.

- Implementing construction BMPs during in-water pile installation to minimize adverse impacts to aquatic species from underwater “noise.” Designing structural elements to minimize locations for bird nesting or roosting to reduce temporary/construction-related impacts to birds and bats.

Using appropriate native species, where required by zoning and where appropriate elsewhere, for seed mixes and plantings to re-establish and expand native vegetation into reclaimed areas and other areas identified in construction documents (includes plans and specifications) through design.

### **3.7.2 Beyond the LPA: What are some other considerations related to this goal?**

Not included in the LPA but in support of the BA and Comprehensive Mitigation Plan, the following design features and construction practices will be considered for advancement through subsequent project phases:

- Removing blocked and undersized culverts and retrofitting natural bottomed and oversized culverts during project construction, where appropriate.
- Implementing features in stormwater ponds to discourage bird use, if water quality is not adequate for wildlife use.
- Keeping artificial lighting of river channel and riparian areas to a minimum to reduce nocturnal disturbance to birds, mammals, and aquatic species. Designing and implementing a landscaping/planting plan that results in a long-term net increase in pervious surface and native tree canopy cover, and that minimizes landscape maintenance needs within the project area.
- Reusing uncontaminated topsoil removed for grading during construction.
- Providing passive educational opportunities for users, such as along trails or at greenstreet facilities, through design and operations and maintenance of the project.

It is recommended that, in addition to the above avoidance measures to minimize project impacts, project partners and regulatory agencies work together to implement mitigation and enhancement opportunities that support the open space and habitat conservation policies of the Cities of Portland and Vancouver and that maximize the quantity and quality of habitat function in the project area.

## **3.8 Water**

The CRC Sustainability Strategy considers the project’s contributions to clean water management.

**Principle 8. Improve water quality and minimize water consumption**

<p><b>8.1 Improve water quality and manage/treat 100% of stormwater runoff from project area (or equivalent)</b></p>	<p><b>8.1.1</b> Manage transportation-related stormwater run-off, impervious surface, and other project impacts by completing and implementing a stormwater management plan to guide project design, construction, and operations and maintenance.</p>
	<p><b>8.1.2</b> Maximize management of stormwater by restoring existing unused impervious paved areas to natural, permeable, and vegetated conditions during the design phase to the maximum extent practical.</p>
	<p><b>8.1.3</b> Improve water quality by investigating opportunities to create stormwater management facilities that provide multiple beneficial functions during the design phase to the maximum extent practical.</p>

**3.8.1 Within the LPA: How is Goal 8.1 addressed?**

WSDOT and ODOT have both demonstrated commitment to cost-effectively implementing and maintaining projects that prevent adverse changes to the states’ hydrologic systems, and meet applicable state and federal water quality regulations. To that end, both Departments of Transportation (DOTs) also have management plans in place that include design guidelines and BMPs for managing roadway runoff. These management plans will be appropriately applied to the CRC project.

Goal 8.1 is supported through the following elements of the LPA:

- Implementing a Stormwater Management Plan that provides guidance for each stage of the project.
- To the extent feasible, pre-treating stormwater within the project area before it is released for infiltration or enters a waterway. Water quality facilities will be sized to handle in excess of 90% of the average annual runoff. One of the most significant benefits to stormwater will be capturing and treating runoff from the bridge, rather than flowing directly into the river and other surface waters under the current conditions. The CRC will also minimize unnecessary impervious surface that contributes to polluted runoff.
- Construction plans to control construction-related risks to water quality from erosion, sedimentation, or accidental spills will specifically address spill prevention and management, in-water construction work, and could include specific water quality targets with penalties if these are not met, will be approved by the appropriate agencies before construction begins.

ODOT has a “Best Management Practices Selection Tool” that is used to select stormwater treatment devices that can reduce the flow of sediments, particulates, and dissolved metals into waterways. Based on this tool, the project team included the following stormwater treatment devices in the conceptual stormwater management design:

- Bioretention ponds are infiltration ponds that use an engineered (amended) soil mix to remove pollutants as runoff infiltrates through this material and into underlying soils.
- Constructed treatment wetlands are shallow, permanent, vegetated ponds that function like natural wetlands. They remove pollutants through such means as sedimentation, sorption, microbial activity, and uptake by plants.
- Soil-amended biofiltration swales are channels with mild slopes and shallow depths of flow. The channels are dry between storm events and are typically grassed. They treat runoff by filtration and sorption as runoff flows through the vegetated surface and amended soils.

- Soil-amended filter strips are intended to treat sheet runoff from an adjacent roadway surface. Similar to biofiltration swales, filter strips treat runoff by filtration and sorption as runoff flows through the vegetated surface and amended soils.
- Bioslopes, like filter strips, are intended to treat sheet runoff from an adjacent roadway surface. Bioslopes are also known as ecology embankments. The percolating runoff flows through a special mixture of materials, which promotes the adsorption of pollutants.

**3.8.2 Beyond the LPA: What are some other considerations related to this goal?**

The CRC project will contribute to the improvement of water quality in the region and reduce adverse impacts to the hydrologic system. In addition to the specific improvements to the I-5 corridor, this multi-modal investment will be integrated with a series of local transit and road improvements—further upgrading the storm water systems. While beyond the commitments of the LPA, including “greenstreet” and low-impact development solutions to the maximum extent practical where the project components interface with the neighborhood-scale infrastructure (i.e., local streets and parking areas) is recommended to be considered for inclusion as the project moves forward.

<b>8.2 Minimize water consumption required for project</b>	<b>8.2.1</b> Minimize landscaping irrigation needs and potable water consumption by designing planted areas and facilities to capture stormwater and using native, drought tolerant plants.
	<b>8.2.2</b> Minimize potable water consumption by continuing to investigate ways to incorporate gray water into the design and operations and maintenance of the project, where practical and cost-effective.

**3.8.3 Within the LPA: How is Goal 8.2 addressed?**

As the population of Portland and Southwest Washington surrounding the CRC project grows, so does the demand for potable water and the related need to more carefully consider protection of this vital resource. Goal 8.2 is supported through the LPA commitments to a landscaping plan that would strive to maximize the use of appropriate native plants that would not require irrigation.

**3.8.4 Beyond the LPA: What are some other considerations related to this goal?**

In addition, although these elements are beyond the LPA, Goal 8.2 is supported by considering innovative and cost-effective green-building elements to reduce water consumption at transit stations and maintenance facilities (e.g., considering greenstreet stormwater solutions, capturing stormwater for reuse, and innovative gray water reuse where appropriate).



Photo credit: Photo by Kevin Perry, Bureau of Environmental Services, City of Portland

*The City of Portland’s Grey to Green initiative was established to provide funding for on-the-ground sustainable stormwater management actions, including the construction of greenstreet facilities in Portland.*

### 3.9 Air Quality, Greenhouse Gases, and Climate Change

The CRC Sustainability Strategy considers the project’s contributions to air quality in the region as well as its relationship to climate change.

#### Principle 9. Minimize air quality impacts and reduce future GHG emissions

<b>9.1 Protect and enhance air quality and minimize GHG emissions</b>	<b>9.1.1</b> Maximize use of transit, bicycles, and walking through project design and construction, and by managing vehicle miles traveled (VMT) through congestion pricing (tolling) and other TDM measures.
	<b>9.1.2</b> Increase use of other low- or zero-emission modes of travel such as biodiesel freight, telecommuting, zero-emissions vehicles, transit, bicycling and walking, carpooling, and vanpooling, through design, construction, and operations and maintenance of the project.
	<b>9.1.3</b> Minimize long-term air quality impacts by collecting and reporting air quality data and using this data to inform toll pricing, or implementation of emissions reductions technologies.
	<b>9.1.4</b> Contribute to meeting current and future state and regional GHG emissions reduction targets by incorporating or accommodating technologies to monitor and report air quality, GHG emissions, and air toxics within the project area.
<b>9.2 Design, construct, maintain, and operate project to resiliently adapt to climate change</b>	<b>9.2.1</b> Continue to reduce vulnerability and resilience (e.g., to water level rise and extreme storm events) through project operations and maintenance by integrating adaptive climate change features and performance mechanisms into the design.
	<b>9.2.2</b> Evaluate climate change analysis methodologies and related projections to assess probable outcomes for the CRC project area over the next 50 to 100 years, consider opportunities for adaptive management and participation in the carbon market.

#### 3.9.1 Within the LPA: How are Goals 9.1 and 9.2 addressed?

The CRC project is part of a major highway corridor connecting Mexico to British Columbia, and more locally, the cities of Vancouver and Portland. Federal and state air quality laws and

regulations; supportive policies and plans in Washington, Oregon, and in the Portland-Vancouver region; and the leaders charged with implementing these directives are focused on improving air quality and striving to attain GHG reduction goals. For example, policy makers on the West Coast have proposed an initiative referred to as the “EV Road Map” (<http://www.evroadmap.com>) that allows for motorists to swap or charge electric vehicle batteries, or fill their tanks at conveniently located biodiesel, ethanol, hydrogen, and compressed natural gas stations.

Working with Metro, the CRC project utilized the EPA Motor Vehicle Emission Simulator (MOVES) model to estimate emissions for on-road and non-road mobile sources to predict how the CRC project would affect emissions. The analysis described in the FEIS revealed that under all alternatives (i.e., with or without the project) GHG emissions will be higher by 2030 due to the projected addition of over one million people in this region. However, compared to the no build alternative, the LPA will reduce future GHG emissions. Additional analysis using EPA MOVES 2010 will be conducted to compute total GHG emissions reduced by the tolling alternative compared to the no-toll alternative.

The LPA will support Goal 9.1 by improving access to and expanding choices for alternative, non-emitting modes of transportation such as walking, bicycling, and light rail transit, by managing vehicle miles traveled (VMT) through congestion pricing (tolling) and other TDM measures, and in the long-term, developing a high-level aggressive incident management system and traffic operations system (see Principle 4). The LPA will also support Goal 9.1 by offsetting carbon emissions by planting trees. The LPA will support Goal 9.2 through the bridge design which will accommodate potential climate-change induced rise in the Columbia River’s high water levels. The north shore of Hayden Island, for example, is particularly vulnerable to a rise in water levels. The project design will need to account for and accommodate the implications of this expected change for the surrounding land uses and infrastructure.

### **3.9.2 Beyond the LPA: What are some other considerations related to this goal?**

The following activities in support of Goals 9.1 and 9.2, while not part of the LPA commitments, are recommended to be considered for future project phases:

- Encouraging and promoting use of transit, ridesharing and other TDM measures for surrounding businesses with employees that commute across the bridge daily.
- Encouraging use of low- or zero-emissions vehicles by promoting and providing convenient plug-in stops or ethanol and biodiesel fueling stations in or near the project area.
- Incorporating innovative remote traffic sensing technologies that would allow for real-time measurement of GHG emissions that can be used to inform the public and the project tolling authority on potential price adjustments based on congestion and associated air quality impacts.
- Adjusting toll and parking pricing based on congestion volumes.
- Requiring construction contractors to use alternative fuels.
- Operating the facility on green energy.

Other potentially effective measures, recognized as outside of the immediate scope of the CRC project, may be considered as appropriate for subsequent project phases. These potential actions would require participation by regional partners and coordination with climate change experts to:

- Evaluate climate change analysis methodologies and related projections (population migration patterns, natural resource depletions, social behavioral changes, etc.) applicable to the project as a way to “backcast” probable outcomes for the CRC project area over the next 50 to 100 years.
- Develop applicable CRC project GHG reduction performance measures that support state and regional climate action policies and plans to be applied during construction, and ongoing maintenance and operation of the project.
- Evaluate how climate change could impact the project area and recommend appropriate actions to adapt to climate change over time.
- Explore and evaluate potential carbon market options that could be leveraged from project-induced GHG reductions such as offsets, trading, or other policy approaches to addressing climate change, as applicable.

### 3.10 Minimize Use of Raw Materials

WSDOT and ODOT lead the nation in building sustainably, by following the three “R” rule: reduce, reuse and recycle. If you reduce, then you don’t have to consume resources in the first place. Reusing means to return a material to the same use for which it was first produced. Recycling takes one material and converts it into a new use, different from its original state.

Both DOTs have programs that actively implement these techniques and result in substantial increases in pavement life at the lowest life-cycle cost based on life-cycle analysis done for all materials. The goal is to use construction materials that are designed to last, reducing the need for frequent replacement, and reducing the resources consumed overall. More information on WSDOT and ODOT sustainability efforts that are focused on construction materials and practices can be found at:

<http://www.wsdot.wa.gov/biz/mats/Folios/SustainabilityHighwayMaterials.pdf>

[http://www.oregon.gov/ODOT/SUS/docs/Roadway\\_Materials.pdf](http://www.oregon.gov/ODOT/SUS/docs/Roadway_Materials.pdf)

#### Principle 10. Recycle/Reduce/Reuse raw materials Build Sustainably

<b>10.1 Build to last</b>	<b>10.1.1</b> Use high quality, durable materials. Reduce life cycle consumption of resources.
	<b>10.1.2</b> Use incentives and disincentives to reward quality at lowest life cycle cost.
<b>10.2 Maximize reuse and recycling of materials</b>	<b>10.2.1</b> Incentives to contractors to reduce, reuse, and recycle through specifications based on true performance.
	<b>10.2.2</b> Remove restrictions on viable materials and methods to encourage incorporating locally available reused and recycled materials.

#### 3.10.1 Within the LPA: How are Goals 10.1 and 10.2 addressed?

The CRC project will contribute to sustainable material use in the region. In addition to a new interstate bridge with seven interchanges, the CRC project consists of a five-mile corridor that includes various surface road improvements, neighborhood developments, light rail stations, and



rest stop facilities, requiring a broad range of materials and construction activities. As such, materials-oriented sustainability strategies that are aligned with the CRC project approach include the following:

- Build with high quality and an eye to reducing consumption on a life cycle basis.
- Writing specifications to allow former waste products to be productively reused or recycled into the project where feasible.
- Minimizing quantity of materials hauled to landfill.

The Final EIS commitments include development of a contaminated media management plan for hazardous materials and/or contaminated materials discovered. The plan will include how to handle the disposal of structures containing hazardous materials that are removed as well as mitigation steps to manage and/or remediate the hazardous materials or contamination.

Both DOTs allow innovative approaches. This sustainability strategy anticipates numerous project-level opportunities for innovation. For example from ODOT, as part of the OTIA III Bridge Program, contractors are required to estimate the types and quantities of materials within their work that are anticipated to be feasible for on-site processing, source separation for reuse, or recycling. Additionally, contractors are required to qualify all materials generated during the work, whether diverted from disposal through reuse, recycling, or disposed in landfills. Based on contractor reporting, in 2009, 44,800 tons of asphalt pavement; 21,500 tons of clean fill; 40,200 tons of concrete; 2,700 tons of metal; and 400 tons of wood were captured reused and recycled.

An example from WSDOT, the agency has reduced consumption of new portland cement by allowing 5% limestone to be added during production. WSDOT recycles by replacing portland cement with flyash, microsilica or ground granulated blast furnace slag, all former waste products from heavy industry. Statewide, WSDOT reuses all of the old asphalt pavement in producing new asphalt pavement, as reported by the asphalt industry.

### **3.10.2 Beyond the LPA: What are some other considerations related to this goal?**

Materials will be a very important consideration through design and contracting and during construction. Meeting these sustainable materials goals will require the participation of the CRC project and regional partners to coordinate between the CRC project design team and technical experts in the construction field. The project team will continue its outreach with construction materials specialists from WSDOT and ODOT, contractors, and other qualified construction industry representatives who are recognized for innovative materials sourcing and use. Emerging applications of innovative technologies and the results of national and regional research should be tracked by the project partners and discussed with the project team.

## **3.11 Energy**

The CRC Sustainability Strategy considers the project's contributions to alternative energy use in the region.

### Principle 11. Minimize energy consumption and support renewable energy

11.1 Minimize energy consumption and transportation demand during construction, operation, and maintenance of the project	11.1.1 Minimize energy consumption and increase energy efficiency through efficient, cost-effective project design and implementation.
	11.1.2 Provide opportunities to incorporate innovative approaches to traffic operations and support use of efficient vehicle technologies.
	11.1.3 Minimize energy consumption through operations and maintenance of the project by monitoring and adjusting toll pricing.
11.2 Use renewable sources to the maximum extent practical	11.2.1 Maximize use of the most cost-effective renewable energy applications into the project design by selecting the least-cost proposal upon performing a life-cycle analysis.
	11.2.2 Maximize opportunities to increase use of renewable energy sources by designing the project to accommodate integration of future emerging technologies.

WSDOT and ODOT are working to conserve energy and enhance efficiency in transportation construction and operations. Design-stage evaluation models analyze the project's use of energy and choice of materials for efficiency and sustainability.

#### 3.11.1 Within the LPA: How are Goals 11.1 and 11.2 addressed?

The scope and scale of the CRC project provides an opportunity to design, construct, and operate and maintain the project using less energy than the no build alternative. Energy consumption related to the project is integrated into other aspects of the project that are also addressed in this strategy, including Air Quality, GHGs, and Materials. For the purpose of this strategy, energy is generally characterized by petroleum and electricity and includes supply sources, rates of energy use, and transportation demand forecasts. Operational energy use includes the amount and type of fuel used to operate vehicles in the project area. Construction energy consists of the manufacturing, transport, and installation of construction materials. Refer to FEIS Section 3.12 for more information about energy impacts and benefits associated with the CRC.

In addition to conserving energy, the CRC project LPA commitments incorporate renewable energy facilities into its current and future design. While some of these facilities are appropriate to incorporate into completed design, others may be installed at a later time when funding is available or as technology develops.

The CRC project incorporates the following LPA commitments in support of Principle 11 and its supporting goals:

- Fast and reliable high-capacity transit service.
- Tolling vehicles crossing the bridge.
- Improving bike and pedestrian facilities and connections.
- Improving highway operations with auxiliary lanes and better functioning interchanges, thus reducing congestion and improving fuel efficiency.
- Eliminating bridge lifts and reducing collision frequency, thus reducing congestion and improving fuel efficiency.
- Minimizing idling of trucks and other construction equipment, using only as necessary for safety and operations reasons.
- Maintaining construction equipment so it runs at optimum (fuel) efficiency.

- Using emission-control technologies on construction equipment.
- Using clean burning fuels such as ultra-low sulfur diesel and/or biodiesel or EPA-approved fuel additives in construction equipment or using electric-powered construction equipment to reduce emissions.

### **3.11.2 Beyond the LPA: What are some other considerations related to these goals?**

Additionally, the following measures that are beyond the LPA commitments are recommended for consideration:

- Incorporate electronic infrastructure to allow monitoring and adjustment of toll pricing. Routing truck traffic through areas with minimal delays and stops and during off-peak travel times to maximize fuel efficiency.
- Continuing to identify opportunities for traffic signal optimization on project area roadways in conjunction with local partners.
- Supporting the use of zero- and low-emission vehicles by providing electric car recharge stations at park-and-ride facilities.
- Encouraging local businesses to implement commuting programs that incentivize the use of public transit and carpooling.

The CRC project may consider the following design features and construction practices that are beyond the LPA commitments for use through subsequent project phases:

- Designing and constructing all eligible auxiliary structures, such as park-and-rides and light rail stations using a sustainable approach with potential for earning Leadership in Energy and Environmental Design (LEED) certification.
- Evaluating, during project design, specific elements and methods that most cost-effectively minimize energy consumption and increase system efficiency and service life.
- Using emerging technologies and future renewable energy sources, including:
  - Short- or long-term renewable energy equipment (e.g., through alignment of building roof slopes designed with optimal solar exposure, features to accommodate future solar installations, or considering structure height requirements for potential future wind turbine application).
  - Other future retrofit renewable energy features (e.g., providing excess wrapped and capped rebar, and conduit links along the sides of structures to accommodate future solar equipment).



*Photo credit: [http://www.oregon.gov/ODOT/HWY/OIPP/inn\\_solarhighway.shtml](http://www.oregon.gov/ODOT/HWY/OIPP/inn_solarhighway.shtml)*

*ODOT partnered with private entities to finance and install an array of solar panels at the I-5/I-205 interchange south of Portland. The energy collected powers lighting at the interchange, and surplus energy is fed back into the electrical system.*

## 4 How was the Columbia River Crossing Sustainability Strategy developed?

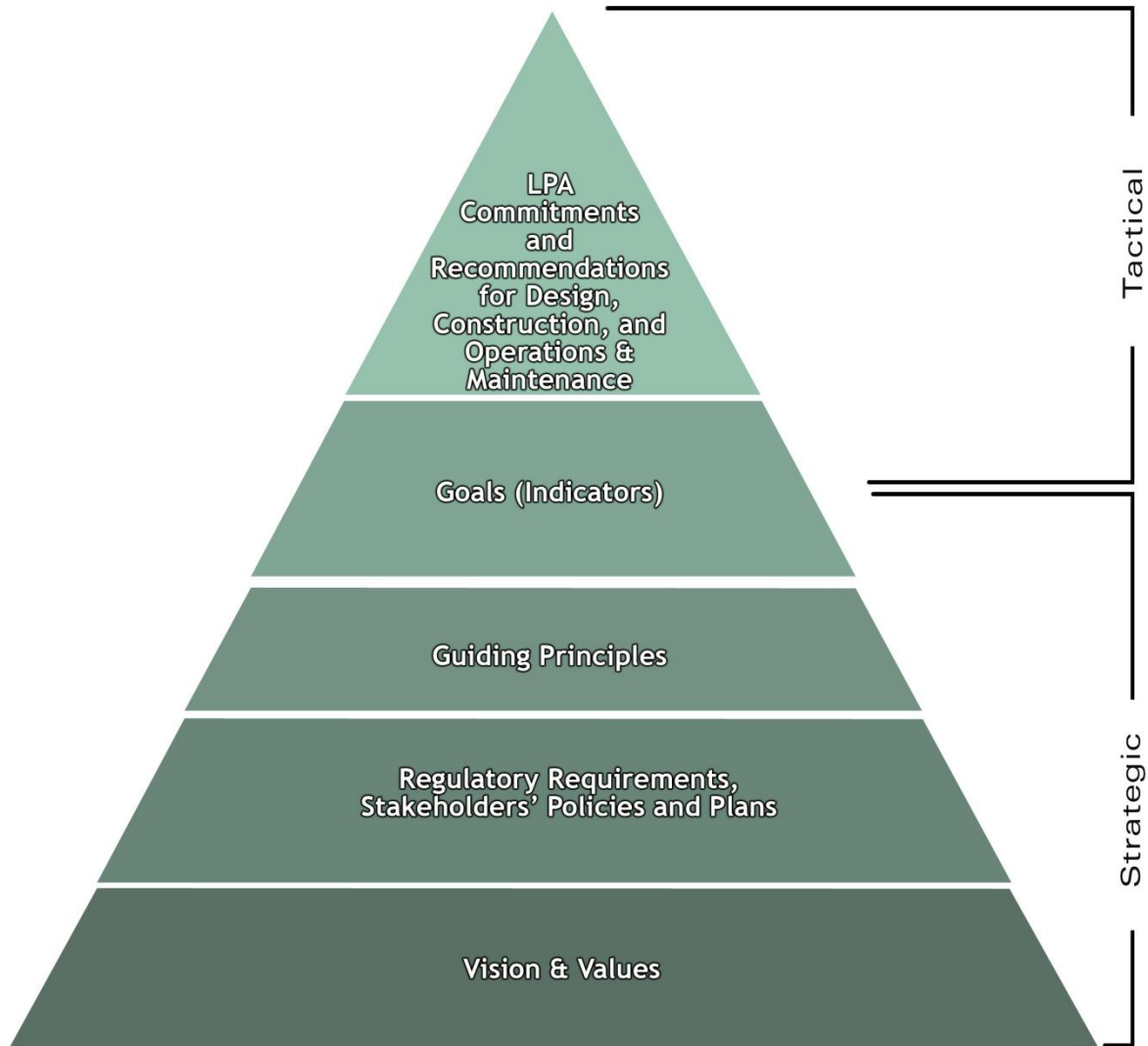
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CRC staff, with input from the Sustainability Technical Committee, created a framework for identifying and highlighting sustainable practices already included in or likely to become part of the CRC project design refinement, management, and operations. The framework is contained in a tabular matrix format (see Table 2-2) and illustrated by the pyramid diagram in Figure 4-1. The CRC project staff and Technical Committee created the framework after completing the following tasks:

- Considered and applied the CRC Task Force Vision and Values Statement to derive sustainability principles;
- Reviewed applicable federal, state, and local regulations and documented specific requirements for compliance in relation to each project principle;
- Reviewed applicable state and local nonbinding plans, policies, and guidelines and documented specific language related to the project principles that are within the scope of the CRC project (e.g., implementing land use changes and decreasing childhood obesity in local jurisdictions are considered beyond of the scope of the project);
- Considered and incorporated applicable regulatory requirements and federal, state, and local nonbinding plans, policies, and guidelines; and
- Considered and incorporated other ongoing CRC project development efforts that compliment the CRC Sustainability Strategy.

Figure 4-1. CRC Strategy Development

Columbia River  
**CROSSING**  December 2009  
**Sustainability Strategy Development**



The CRC Sustainability Technical Committee was formed to advise CRC project staff on the draft Sustainability Strategy development.

This committee is composed of staff representatives of the sponsoring state agencies, and regional and local agencies (Cities of Vancouver and Portland, RTC, Metro, C-TRAN, and TriMet) who have a sustainability-focused role at their respective agencies. CRC Sustainability Technical Committee members provided technical and policy input to help develop a shared understanding of project principles and goals outlined in the CRC Sustainability Strategy (see Section 2, CRC Sustainability Framework, for more information).

The effort was also informed by the CRC project staff who serve on or facilitate other CRC advisory working groups that have been established before or during development of the CRC Sustainability Strategy.

CRC advisory working groups and committees include:

- Community and Environmental Justice Group (CEJG): Piedmont Neighborhood Association, Hayden Island Manufactured Homes Association, Jantzen Beach Moorage, Inc., Kenton Neighborhood Association Board, Vancouver Housing Authority, Clark County Resident, Arnada Neighborhood Association, Bridgeton Neighborhood Association;
- Freight Working Group (FWG): Redmond Heavy Hauling, Georgia Pacific, Port of Vancouver, G&M Trucking, Columbia Corridor Association, United Road Service, Boise Building Supply, City of Portland, Jet Delivery Systems, Swanson Bark, Metro, ESCO Corporation, Port of Portland;
- Marine Drive Stakeholder Group: CRC FWG, Portland Freight Committee, Columbia Corridor Association, Portland Development Commission, East Columbia Neighborhood Association, TriMet, Harsch Investment, Diversified Marine, CRC PBAC, Kenton Neighborhood Association, Oregon Trucking Association, Audubon Society of Portland, ODOT, Portland Office of Transportation, CRC UDAG, Metropolitan Exposition Recreation Commission, Bridgeton Neighborhood Association, Port of Portland, Portland Bureau of Planning;
- Pedestrian and Bicycle Advisory Committee (PBAC): City of Portland, Community Choices, WSDOT, ODOT, Arnada Neighborhood Association, National Park Service, C-TRAN, City of Portland, Vancouver-Clark Parks & Recreation Department, Clark County Bicycle Advisory Committee, Portland Pedestrian Advisory Committee, Bicycle Transportation Alliance, Bridgeton Neighborhood Association, City of Vancouver;
- Performance Measures Advisory Group (PMAG): ODOT, WSDOT, TriMet, C-TRAN, City of Portland, City of Vancouver, Metro, RTC, Port of Portland, Port of Vancouver;
- Portland Working Group (PWG): Hayden Island Neighborhood Network (HiNooN), Hayden Island Mobile Home Community, Columbia Crossings, Safeway Corporation, Jantzen Beach SuperCenter, Kenton Neighborhood Association, Member-at-Large, Pedestrian Advocate, Friends of Portland International Raceway, Jantzen Beach Moorage, Inc., Bridgeton Neighborhood Association, Waterside Condo;
- Transportation Demand Management (TDM) Technical Committee: ODOT, WSDOT, TriMet, C-TRAN, City of Portland, City of Vancouver, Metro, RTC;

- Urban Design Advisory Group (UDAG): Vancouver Mayor, Portland Mayor, Vancouver Design Review Committee, Architects Barrentine Bates Lee, Ed Carpenter, Artist, Vancouver Parks Commission, Lango Hansen Landscape Architects, P.C., Cowlitz Indian Tribe, Jantzen Beach Moorage Association, Inc., Aviation Advisory Committee, Downtown Redevelopment Authority, Works Partnership Architecture, HOLST Architecture, Vancouver Planning Commission, Bridgeton Neighborhood Association, Salmon Creek Neighborhood;
- Vancouver Transit Advisory Committee (VTAC): American Institute of Architects, Vancouver, Lincoln Neighborhood Association, Property owners, C-TRAN commuter, Arnada Neighborhood Association, Vancouver Downtown Association, Vancouver Housing Authority, Hough Neighborhood Association, Vancouver School District, Property owner, Vancouver-Clark Parks and Recreation, Central Park Neighborhood Association, CRC Urban Design Advisory Group, Esther Short Neighborhood Association, CRC Urban Design Advisory Group, Vancouver resident, Architect, C-TRAN Citizens Advisory Committee, CRC Urban Design Advisory Group, Marshall Community Center, Vancouver resident, 17th Street property owner, Clark College; and
- Vancouver Working Group (VWG): Albina Fuel, American Institute of Architects, Killian Pacific, Commuter, Java House, Esther Short Neighborhood Association, Vancouver Downtown Association, Vancouver Library, Arnada Neighborhood Association, Community Representative, Hough Neighborhood Association, Vancouver Housing Authority, Vancouver School District, Lincoln Neighborhood Association, Clark County Department of Community Services, Clark College, Central Park Neighborhood Association, East Vancouver Resident, Property Owner, Umpqua Bank/Uptown Business Association, C-TRAN Citizens Advisory Committee, Community Choices.

The CRC website ([www.columbiarivercrossing.org](http://www.columbiarivercrossing.org)) provides information about these working groups and committees.



## 5 Conclusion

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The CRC project is developing amidst dramatic global, national, and regional environmental, social, and economic changes. State, regional, and local CRC leaders and stakeholders are committed to implementing and operating the project as a national model of sustainable transportation infrastructure that will endure to serve future generations.

Due to the large and complex scope of the CRC, the local community, regional economy, and environment will experience overall benefits and impacts that cannot be reasonably avoided while adequately addressing the project purpose and diverse goals. While progressive regulatory requirements in Oregon and Washington help guide project stakeholders through the development of projects, project stakeholders continue to work to improve overall community, economic, and environmental well-being through project design, construction, and operations and maintenance of the CRC.

To more fully understand the breadth of project impacts, the project sponsors including WSDOT and ODOT will work with project partners to continuously evaluate how project components advanced through design and construction are aligned with sustainability principles and goals. Where project components will result in unpreventable adverse impacts project sponsors will continue to work with local and regional experts to develop cost-effective and innovative strategies that are intended to result in a net benefit to affected resources and people.

This Sustainability Strategy document is a first step toward realizing our local and regional sustainability goals direction, and subsequent efforts and activities will build upon the strategies and considerations it provides.

