

Laura Dawson-Bodner

From: Richard Benner
Sent: Monday, August 15, 2011 9:25 AM
To: Laura Dawson-Bodner
Subject: FW: Notice of Adoption of a Land Use Final Order Amendment for the Columbia River Crossing Segment of the South/North Light Rail Project

For the LUFO record

-----Original Message-----

From: Ken Ray
Sent: Friday, August 12, 2011 3:58 PM
To: Ken Ray
Cc: Dylan Rivera
Subject: Notice of Adoption of a Land Use Final Order Amendment for the Columbia River Crossing Segment of the South/North Light Rail Project

NOTICE OF ADOPTION OF A LAND USE FINAL ORDER AMENDMENT FOR THE COLUMBIA RIVER CROSSING SEGMENT OF THE SOUTH/NORTH LIGHT RAIL PROJECT

This constitutes Metro's official notice of adoption of a Land Use Final Order (LUFO) Amendment for the Columbia River Crossing Segment of the South/North Light Rail Project, following a public hearing on August 11, 2011. This order was reduced to writing and signed by Council President Tom Hughes on August 11, 2011.

In 1996, the Oregon Legislature passed legislation authorizing the Metro Council to approve Land Use Final Orders (LUFO) to address multi-jurisdictional light rail projects in the South/North corridor and associated highway improvements consolidated in environmental statements addressing South/North light rail projects. The 1998 LUFO for the South/North Project established the initial light rail alignment extending from Clackamas Town Center to the Oregon/Washington state line. This 2011 LUFO represents the fourth time the Metro Council has amended the original LUFO. Earlier amendments include Interstate MAX (1999), I-205 and downtown Portland (2004), and Portland to Milwaukie (2008).

This 2011 LUFO Amendment modifies the 1998 LUFO by realigning the light rail route between the Expo Center and the Oregon/Washington state line and relocating the Hayden Island station location. It also authorizes a number of highway improvements between N Victory Boulevard and the state line, including new northbound and southbound Interstate 5 Columbia River bridges and removal of the existing bridges; widening of I-5 northbound and southbound to include three travel lanes and two auxiliary lanes; newly designed interchanges at Marine Drive and Hayden Island and improvements to the Victory Boulevard interchange; a new multi-modal bridge across North Portland Harbor connecting Hayden Island with the Expo Center; realignment, widening or modification of N Marine Drive, NE Martin Luther King Boulevard, N Vancouver Way, NE Union Court, N Janzen Avenue, N Jantzen Drive, N Hayden Island Drive and N Tomahawk Island Drive; and new roadway connections between NE Martin Luther King Boulevard and both N Vancouver Way and NE Union Court, N Jantzen Avenue and N Hayden Island Drive, and N Expo Road and N Force Avenue.

The 2011 LUFO Amendment was adopted in writing by the Metro Council on August 11, 2011, through Resolution No. 11-4280, entitled "For the Purpose of Amending the 1998 Land Use Final Order for the South/North Light Rail Project and adopting a Land Use Final Order for the Expo Center/Hayden Island Segment of the Project including the I-5 Columbia River Crossing Bridge and Associated Highway Improvements."

Copies of Metro's 2011 Land Use Final Order Amendment for the Columbia River Crossing Segment of the South/North Light Rail Project may be obtained at www.oregonmetro.gov/columbiarivercrossing or, between 8:00 a.m. and 5:00 p.m. Monday through Friday, at the Metro Regional Center, 600 NE Grand Avenue, Portland, Oregon 97232, or by calling that office at 503-797-1756.

Appeals from decisions contained in the 2011 Land Use Final Order Amendment for the Columbia River Crossing Segment of the South/North Light Rail Project must be initiated within 14 days following the adoption of Resolution No. 11-4280 through personal delivery to the Land Use Board of Appeals, State Court Administrator and Metro's Council President of a notice of intent to appeal that conforms with the requirements of Section 9 of Oregon Laws 1996 Special Session, Chapter 12 (House Bill 3478).

Sincerely,

Tom Hughes
Metro Council President

**NOTICE OF ADOPTION OF A
LAND USE FINAL ORDER AMENDMENT FOR THE
COLUMBIA RIVER CROSSING SEGMENT OF THE SOUTH/NORTH LIGHT RAIL PROJECT**

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This 2011 LUFO Amendment modifies the 1998 LUFO by realigning the light rail route between the Expo Center and the Oregon/Washington state line and relocating the Hayden Island station location. It also authorizes a number of highway improvements between N Victory Boulevard and the state line, including new northbound and southbound Interstate 5 Columbia River bridges and removal of the existing bridges; widening of I-5 northbound and southbound to include three travel lanes and two auxiliary lanes; newly designed interchanges at Marine Drive and Hayden Island and improvements to the Victory Boulevard interchange; a new multi-modal bridge across North Portland Harbor connecting Hayden Island with the Expo Center; realignment, widening or modification of N Marine Drive, NE Martin Luther King Boulevard, N Vancouver Way, NE Union Court, N Janzen Avenue, N Jantzen Drive, N Hayden Island Drive and N Tomahawk Island Drive; and new roadway connections between NE Martin Luther King Boulevard and both N Vancouver Way and NE Union Court, N Jantzen Avenue and N Hayden Island Drive, and N Expo Road and N Force Avenue.

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Sincerely,

Tom Hughes
Metro Council President

JOE ROWE
6325 N ALBINA STE 14
PORTLAND OR 97217

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PORTLAND OR 97212

CHRIS GIRARD
PLAID PANTRIES INC
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BEAVERTON OR 97005

KAY WILLIFORD
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PORTLAND OR 97211-1275

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COALITION FOR A LIVABLE FUTURE
107 SE WASHINGTON ST STE 239
PORTLAND OR 97214

Laura Dawson-Bodner

From: Ken Ray
Sent: Monday, August 15, 2011 9:34 AM
To: Laura Dawson-Bodner
Subject: RE: Media distribution list for CRC LUFO
Attachments: media_contact_list - CRC LUFO notice - 8-12-11.xls

Attached is the media contact list for the LUFO notice.

-----Original Message-----

From: Richard Benner
Sent: Monday, August 15, 2011 9:26 AM
To: Ken Ray; Dylan Rivera; Laura Dawson-Bodner
Subject: RE: Media distribution list for CRC LUFO

Thanks, Ken.

Laura,
Please add the list to the record

-----Original Message-----

From: Ken Ray
Sent: Friday, August 12, 2011 4:01 PM
To: Dylan Rivera; Richard Benner
Subject: Media distribution list for CRC LUFO

Dylan and Dick --

Attached is the list of news media outlets to which I sent the legal notice on the LUFO for CRC.

Ken

PR MAILING LIST
UPDATED
6/28/2005

Category	UPD	sub c	First Name	Last Name	up	Title	Organization	Email	Work Phone	cell or home	misc/info	type	Street	City	State	Zipcode
newsroom			Terry	Petty		News Editor	Associated Press	apportland@ap.org	503-228-2169			wire	121 SV	Portl	OR	97204
newsroom						newsroom	Business Journal	portland@bizjournals.com				newspaper				
newsroom			John	Baker		Editor	Canby Herald	jbaker@eaglenewspapers.com	503-266-6831			newspaper	214 N	Canby	OR	97013
newsroom						newsroom	Capital Press	newsroom@capitalpress.com				newspaper				
newsroom						News Room	Columbian	metrodesk@columbian.com				newspaper	PO Bo	Vanc	WA	98666
newsroom						Newsroom	Daily Journal of Commerce	newsroom@djc.oregon.com	503-226-1311			newspaper	PO Bo	Portl	OR	97296
newsroom						News Desk	KATU	thedesk@katu.com	503-231-4264			television	PO Bo	Portl	OR	97207
newsroom						News Desk	KEX	news@1190kex.com	503-222-1929			radio	4949 S	Portl	OR	97201
newsroom						News Desk	KGW	newsdesk@kgw.com	503-226-5111			television	1501 S	Portl	OR	97201
newsroom						News	KINK	kinknews@kink.fm	503-517-6000		News	radio	1211 S	Portl	OR	97204
newsroom						News Desk	KOIN	koindesk@koin.com	503-464-0614			television	222 SV	Portl	OR	97201
newsroom						Newsroom	KOPB	news@opb.org				radio				
newsroom						Newsroom	KPAM	news@kpam.com	503-417-8783			radio	888 SV	Portl	OR	97204
newsroom						assignment Desk	KPTV	fox12news@kptv.com	503-548-6550			television				
newsroom						News	KUIK	amradio@kuik.com	503-640-1360			radio	PO Bo	Hillst	OR	97123
newsroom			Rebecca	Marshall		News Director	KXL	rebecca.marshall@kxd.com	503-517-6280			radio	1211 S	Portland	OR	97204
newsroom						Main News Desk	Oregonian	newsroom@oregonian.com	503-221-8327			newspaper	1320 S	Portl	OR	97201
newsroom						newsroom	Portland Mercury	news@portlandmercury.com								
newsroom			Mike	Leightner		News Editor	Portland Observer	mleighton@portlandobserver.com	503-288-0033			newspaper - african heritage				
newsroom						news desk	Portland Tribune	tribnews@portlandtribune.com								
newsroom			Helen	Silvis		Editor	Skanner Newspaper	news@theskanner.com	503-285-5555				P.O. B	Portl	OR	97228
newsroom			Michelle	Te		Editor	Wilsonville Spokesman	mte@eaglenewspapers.com	503-682-3935	canby office 266-6831			PO Bo	Wilst	OR	97070
newsroom						KOPB radio newsroom	KOPB	opbnews@opb.org								

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE 1998	)	RESOLUTION NO. 11-4280
LAND USE FINAL ORDER FOR THE)	
SOUTH/NORTH LIGHT RAIL PROJECT AND	)	INTRODUCED BY COUNCILOR REX
ADOPTING A LAND USE FINAL ORDER FOR	)	BURKHOLDER
THE EXPO CENTER/HAYDEN ISLAND)	
SEGMENT OF THE PROJECT INCLUDING THE)	
I-5 COLUMBIA RIVER CROSSING BRIDGE)	
AND ASSOCIATED HIGHWAY)	
IMPROVEMENTS		

WHEREAS, the Oregon Legislature enacted Oregon Laws 1996, Chapter 12 (the Act), establishing procedures for developing the South/North Light Rail Project through adoption by the Metro Council of a Land Use Final Order (LUFO); and

WHEREAS, in accordance with section 4 of the Act, the Oregon Land Conservation and Development Commission adopted criteria to govern Council review of an application for a LUFO for the South/North Light Rail Project, or any segment of it, on May 30, 1996; and

WHEREAS, the Metro Council endorsed a Locally Preferred Alternative (LPA) for the I-5 Columbia River Crossing Project by Resolution No. 08-3960B (For the Purposes of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions), adopted July 17, 2008, that includes extension of South/North Light Rail from the Expo Center to Vancouver, Washington; and

WHEREAS, among the conditions of Council endorsement of the LPA was a list of concerns and considerations, contained in Exhibit A to Resolution No. 08-3960B, to be addressed before the Council would approve a land use final order for the project; and

WHEREAS, by Resolution No. 11-4264 (For the Purpose of Concluding that the Concerns and Considerations Raised about the Columbia River Crossing Project in Exhibit A to Resolution No. 08-3960B Have Been Addressed Satisfactorily), adopted June 9, 2011, the Council accepted the responses to the concerns and considerations, based upon the assessment set forth in Exhibit B to Resolution No. 11-4264, and the acknowledgement that further refinements and decisions, involving the Council, would be made to address the concerns and considerations during later design, engineering and financial phases of project development, with involvement of the Council and the local community and its elected representatives; and

WHEREAS, Metro's Regional Transportation Plan (RTP) calls for extension of light rail from the Expo Center to Vancouver, Washington, as part of the I-5 Columbia River Crossing Project and places the project on the RTP's Financially Constrained Roadway Network; and

WHEREAS, section 6.3.2.1 of the RTP required reconsideration of the I-5 Columbia River Crossing Project and amendment of the RTP if the number and design of auxiliary lanes on the I-5 Columbia River Bridge or approaches to the bridge are inconsistent with the description of the project in the RTP; and

WHEREAS, in accordance with section 6 of the Act, on June 23, 2011, the LUFO Steering Committee recommended that TriMet submit to Metro an application for, and the Metro Council adopt, an amendment to the 1998 South/North Light Rail LUFO to approve the light rail route, a station and highway improvements within the Expo Center/Hayden Island Segment of the South/North Light Rail Project; and

WHEREAS, in accordance with section 6 of the Act, in a letter from Matt Garrett, Director, the Oregon Department of Transportation (ODOT) recommended that TriMet submit to Metro an application for, and the Metro Council adopt, an amendment to the 1998 South/North Light Rail LUFO to approve the light rail route, a station and highway improvements within the Expo Center/Hayden Island Segment of the South/North Light Rail Project; and

WHEREAS, in accordance with section 6 of the Act, on July 13, 2011, TriMet filed an application for a LUFO for the Expo Center/Hayden Island segment of the South/North Light Rail Project with the light rail route, station and highway improvements recommended by both the LUFO Steering Committee and ODOT; and

WHEREAS, the light rail route, station and highway improvements are in the form of boundaries within which the light rail route, station and highway improvements will be located, as required by section 6 of the Act; and

WHEREAS, the number and design of auxiliary lanes on the I-5 Columbia River Bridge and the approaches to the bridge project proposed in the TriMet LUFO application are consistent with the I-5 Columbia River Crossing Project described in the RTP; and

WHEREAS, Metro published a notice in *The Oregonian*, containing all the information required by section 7 of the Act, on July 14, 2011, of a public hearing before the Metro Council to consider TriMet's LUFO application on August 11, 2011;

WHEREAS, Metro provided additional public notice of the August 11, 2011, public hearing by mailing postcards to all persons who own property within 250 feet of the proposed light rail alignment and stations and by posting notice at Metro's website, both on July 14, 2011; and

WHEREAS, Metro sent notice of the public hearing on July 15, 2011, to ODOT, Clackamas and Multnomah counties and the cities of Portland, Milwaukie, Gladstone, Gresham and Oregon City; and

WHEREAS, the Council finds and determines that *The Oregonian* is a newspaper of general circulation in the region and the above-described notices are reasonably calculated to give notice to persons who may be affected substantially by a decision to approve TriMet's LUFO application; and

WHEREAS, on July 14, 2011, Metro made available for public inspection a staff report addressing compliance of TriMet's application with the requirements of the Act; and

WHEREAS, the Council held a public hearing on the TriMet LUFO application on August 11, 2011; and

WHEREAS, the Council President made a statement at the beginning of the hearing containing the information required by section 7 of the Act; and

WHEREAS; the Council considered TriMet's application, the recommendations of the LUFO Steering Committee and ODOT, the staff report, the Findings of Fact and Conclusions of Law and all public testimony presented on the application; now, therefore,

BE IT RESOLVED THAT the Metro Council:

1. Hereby amends the 1998 Land Use Final Order (LUFO) for the South/North Light Rail Project, and adopts the LUFO for the Columbia River Crossing Light Rail Project, Expo Center/Hayden Island Segment of the South/North Light Rail Project, attached and incorporated into this resolution as Exhibit A, including the locations of the light rail route, station and highway improvements extending from the Expo Center to the Oregon-Washington line, and as shown in Exhibit A to be identical to the TriMet LUFO application.
2. Adopts the Findings of Fact and Conclusions of Law, attached and incorporated into this resolution as Exhibit B, as the Council's written findings demonstrating how the application and Council's decision comply with the applicable criteria.

ADOPTED by the Metro Council this 11th day of August, 2011.

Tom Hughes

Tom Hughes, Council President

Approved as to form:

Alison Kean Campbell

Alison Kean Campbell, Acting Metro Attorney

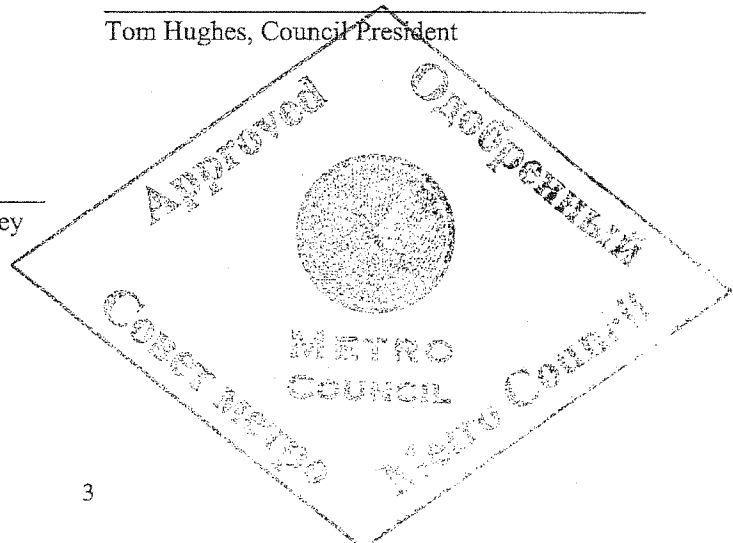


Exhibit A to Resolution No. 11-4280

2011 South/North Land Use Final Order Amendment

**Columbia River Crossing Project
Expo Center/Hayden Island Segment**

Adopted by the Metro Council

August 11, 2011

1. Introduction

This document constitutes a Land Use Final Order (LUFO) for the South/North Project in accordance with Oregon Laws 1996, Chapter 12 (House Bill 3478). This 2011 South/North LUFO Amendment is the fifth in a series of LUFOs adopted by the Metro Council that established or amended the light rail route, light rail stations, light rail park-and-ride lots and maintenance facilities, and the highway improvements for the South/North Project, including their locations. The four previously adopted LUFOs are as follows:

- On July 23, 1998, the Metro Council adopted Resolution No. 98-2673 (the 1998 LUFO), establishing the initial light rail route, stations, lots and maintenance facilities and the highway improvements, including their locations, for the South/North Project.
- On October 28, 1999, the Metro Council adopted Resolution No. 99-2853A (the 1999 LUFO), amending the 1998 LUFO to reflect revisions for that portion of the South/North Project extending from the Steel Bridge northward to the Portland Metropolitan Exposition Center (Expo Center), primarily along Interstate Avenue. The 1999 LUFO modified the northern light rail alignment; established, relocated or expanded light rail station locations along that alignment; and authorized park-and-ride lots at Portland International Raceway (PIR) and the Expo Center along the light rail route.
- On January 15, 2004, the Metro Council adopted Resolution No. 03-3372 (the 2004 LUFO), further amending the previous South/North LUFO resolutions to (1) establish the light rail route, stations and park-and-ride lots, including their locations, along the Interstate-205 right-of-way from the Gateway Transit Center to Clackamas Regional Center; (2) modify the route along the downtown Portland Transit Mall to extend light rail transit (LRT) to Portland State University (PSU) and establish, adjust or relocate station locations; (3) modify the 1998 LUFO for the segment from Portland to Milwaukie by revising the alignment and adding study areas; (4) remove the 1998 LUFO designations from Milwaukie to Clackamas Regional Center; and (5) complete technical amendments to the 1999 LUFO alignment to reflect the final built configuration at certain stations consistent with the Full Funding Agreement Grant approved by the Federal Transit Administration.
- On July 25, 2008, the Metro Council adopted Resolution No. 08-3964 (the 2008 LUFO), amending the 1998 and 2004 South/North LUFOs as they relate to the segment of the South/North Project extending from Portland State University (PSU) in downtown Portland through SE Portland and downtown Milwaukie to SE Park Avenue in unincorporated Clackamas County. The 2008 LUFO realigned the light rail route between PSU and SE 7th Avenue; established the route from SE Tacoma Street to SE Park Avenue; relocated light rail stations or authorized new stations along the light rail route; and established the park-and-ride lots and highway improvements for the Portland to Milwaukie segment.

This 2011 South/North LUFO Amendment (the 2011 LUFO) amends the 1998 LUFO as it relates to the segment of the South/North Project in north Portland extending northward from the Expo Center and the Interstate 5/Victory Boulevard Interchange to the Oregon/Washington state line on the Columbia River. This 2011 LUFO realigns the light rail route between the Expo Center and the Oregon/Washington state line westward from its alignment in the 1998 LUFO and it relocates the Hayden Island station west of its previous location. Over the river it provides for the light rail route to be accommodated on the lower tier of a new southbound Interstate 5 bridge. This 2011 LUFO also establishes a number of highway improvements, including new northbound and southbound Interstate 5 Columbia River bridges and removal of the existing bridges; widening of Interstate 5 in both directions between approximately N Victory Boulevard and the Oregon/Washington state line on the Columbia River; new or modified interchanges at N Marine Drive, Hayden Island and Victory Boulevard; a new integrated rail/vehicular/bicycle pedestrian bridge connecting Hayden Island with the Expo Center; and roadway realignments, widenings, modifications and new connections within the project area.

This 2011 LUFO further provides for expansion and improvement of the Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham within the facility boundaries established in the 2008 LUFO, to accommodate and maintain additional LRT vehicles associated with the Columbia River Crossing Project.

2. Requirements of House Bill 3478

Chapter 12 of the 1998 Oregon Laws (House Bill 3478) provides procedures for siting the South/North light rail route, associated light rail facilities, and the highway improvements included in the South/North Project. In brief, it provides a set of regulations for making and for appealing land use decisions related to the South/North Project as it may be amended or extended from time to time. The law includes a provision directing the Land Conservation and Development Commission (LCDC) to adopt criteria for land use final orders; a requirement that TriMet make application for land use final orders; requirements for how the Metro Council conducts its public hearings; and procedures for appeal.

Pursuant to House Bill 3478, upon application by TriMet and following a public hearing held on August 11, 2011, and in consideration of the whole record and based on a finding that there is substantial evidence supporting the proposed action, the Metro Council hereby adopts this 2011 South/North LUFO Amendment for the Project by Resolution No. 11-4280.

3. Establishment of Columbia River Crossing Project Light Rail Routes, Stations, Maintenance Facilities and Highway Improvements, Including their Locations

The Metro Council approves the light rail route, light rail station and highway improvements identified textually below and illustrated in the location boundary maps (**Figures 1.1 to 1.3**) that follow. These light rail facilities and highway improvements and their location boundaries are identical to those that the LUFO Steering Committee and ODOT recommended to TriMet and that TriMet included in its application for a LUFO amendment.

The Metro Council also approves expansion and improvement of the Ruby Junction Maintenance Facility within the location boundaries established in the 2008 LUFO to accommodate light rail vehicles associated with the Columbia River Crossing Project. See **Figure 2.1**.

The LUFO boundary maps contained in this order were prepared using cad line work of proposed improvements on top of aerial photos taken in 2005 and 2007. The maps illustrate the adopted boundaries at an approximate scale of one inch equals 400 feet. The boundaries shown on these maps represent the areas within which the light rail facilities and highway improvements may be located.

Preliminary and final engineering have not yet been completed. Preliminary and advanced preliminary engineering will continue until about October 2012, when the Project is expected to enter into its final engineering phase. With more detailed engineering and environmental information available, some variations from the illustrations in the attached figures may be needed when the project is built. Accordingly, the LUFO shows a larger, more generalized boundary than that actually needed for the track alignment, station and highway improvements to accommodate such variations. Final location of the light rail facilities and highway improvements anywhere within the boundaries found on the LUFO maps would be consistent with this LUFO.

The 1998 LUFO established a light rail alignment that included a segment extending from downtown Portland across the Steel Bridge and through northeast and north Portland to the Expo Center and the Oregon/Washington state line. The 1999 LUFO amended the light rail alignment for that portion located between approximately the Steel Bridge and the Expo Center.

This 2011 LUFO further modifies the 1998 LUFO by:

- 1) Relocating the light rail alignment and Hayden Island station farther to the west;
- 2) Relocating the light rail alignment leading into Vancouver, Washington onto the lower tier of a new southbound Interstate 5 bridge;
- 3) Providing significant highway improvements between approximately N. Victory Boulevard and the Oregon/Washington state line on the Columbia River, including but not limited to new northbound and southbound Interstate 5 bridges to accommodate highway, rail, pedestrian and bicycle travel; widening of northbound and southbound Interstate 5 to accommodate three travel lanes and two auxiliary lanes; and interchange and roadway modifications and improvements and new roadway.

In the 1998 LUFO there were two segments that, together, provided LRT service between the Expo Center and the Oregon/Washington state line on the Columbia River. These segments were the North Portland segment and the Hayden Island segment. In the 1999 LUFO, the Metro Council renamed the portion of the North Portland segment extending from south of the Columbia Slough near N Columbia Boulevard to the Expo Center the "Expo Center

Segment.” This 2011 LUFO amendment retains the name “Expo Center Segment” and extends it to N Marine Drive, where the Hayden Island Segment begins. This 2011 LUFO amendment also extends the Expo Center and Hayden Island segments east of Interstate 5 approximately 2,500 feet to include all areas identified for highway improvements. For convenience purposes, these two segments are consolidated and addressed as a single segment (Expo Center/Hayden Island).

Light Rail Alignment and Station

From the Expo Center station, the light rail alignment proceeds northward under N Marine Drive and onto a new, integrated light rail/vehicular/bicycle/pedestrian bridge crossing over the North Portland Harbor onto Hayden Island west of I-5. The alignment then continues northward towards Vancouver, Washington, crossing over N Hayden Island Drive onto the lower deck of the new southbound Interstate 5 bridge.

A single light rail station is located in the Expo Center/Hayden Island Segment. The Hayden Island Station will be elevated and positioned adjacent to I-5, over or near Tomahawk Island Drive. Tomahawk Island Drive will be extended under I-5 to provide a third east/west street connection for Hayden Island.

There are no new park-and-ride lots or maintenance facilities within the Expo Center/Hayden Island Segment.

Highway Improvements

The highway improvements in the Expo Center/Hayden Island Segment include the following:

1. New northbound and southbound I-5 Columbia River bridges and removal of the existing I-5 Columbia River bridges. The new southbound bridge is a two-tier bridge with highway on the upper deck and light rail on the lower deck. The new northbound bridge is a two-tier bridge with highway on the upper deck and bicycle and pedestrian facilities on the lower deck. Each new bridge will include three travel lanes and two auxiliary lanes.
2. Widening of I-5 in both the northbound and southbound directions from N Victory Boulevard to the Oregon/Washington state line. Northbound, I-5 will widen from three travel lanes at N Victory Boulevard to three travel lanes and two auxiliary lanes on the new northbound I-5 Columbia River bridge. Southbound, I-5 will narrow from three travel lanes and two auxiliary lanes on the new southbound I-5 Columbia River bridge to three lanes south of N Victory Boulevard.
3. A newly designed I-5/Marine Drive interchange, including ramps connecting I-5 with N Marine Drive and NE Martin Luther King Jr. Boulevard.
4. A newly designed I-5/Hayden Island interchange including relocated northbound and southbound exit and entrance ramps.

5. A new integrated light rail/vehicular/bicycle/pedestrian bridge west of I-5 connecting Hayden Island with the Expo Center and N Expo Road.
6. Realignment and widening of NE Martin Luther King Jr. Boulevard between the new I-5/Marine Drive interchange and approximately N Hayden Meadows Drive.
7. Realignment and widening of N Marine Drive between N Gantenbein Avenue and N Vancouver Way.
8. Modification, widening and extension of N Vancouver Way between east of N Haney Drive and approximately the light rail alignment west of I-5.
9. Realignment and widening of NE Union Court between N Hayden Meadows Drive and N Vancouver Way.
10. A new northbound connection between NE Martin Luther King Jr. Boulevard and N Vancouver Way and a new southbound connection between NE Martin Luther King Jr. Boulevard and NE Union Court.
11. Realignments, widening and roadway modifications to N Jantzen Avenue, N Jantzen Drive and N Hayden Island Drive.
12. Modification, widening and extension of N Tomahawk Island Drive from east of N Jantzen Drive to the west of I-5.
13. Construction of a new roadway west of I-5 and the light rail alignment between N Jantzen Avenue and N Hayden Island Drive.
14. A new public road extending N Expo Road westward to N Force Avenue.

See **Figures 1.1 to 1.3** of the LUFO for the boundaries within which the above described light rail facilities and highway improvements would be located.

Ruby Junction Maintenance Facility

The Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham was first authorized in 1980 as part of the Portland to Gresham light rail project. The facility includes light rail tracks, vehicle storage spaces and maintenance bays, an operation center, and related facilities necessary to maintain light rail vehicles.

As part of the 2008 LUFO amendments for the Portland to Milwaukie Project, the Metro Council approved the modification and expansion of the Ruby Junction Maintenance Facility and adopted location boundaries for it. See **Figure 2.1** of this 2011 LUFO. This LUFO authorizes the use of that facility to serve light rail vehicles associated with the Columbia River Crossing Project. Such use was expressly anticipated in the 2008 LUFO findings. Because use and improvement of the facility in connection with the Columbia River Crossing

project will occur within the location boundaries approved in 2008, no location boundary amendments are necessary.

4. Interpretation of Terms

As it did in the 1998, 1999, 2004 and 2008 LUFOs, the Metro Council interprets the terms "light rail route", "stations", "lots", "maintenance facilities" and "highway improvements" as it did in its previous South/North LUFOs, to have the following meanings:

- "**Light rail route**" means the alignment upon which the light rail tracks will be located. The light rail route will be located on land to be owned by or under the operating control of TriMet.
- "**Stations**" means those facilities to be located along the light rail route for purposes of accessing or serving the light rail system. Stations include light rail station platforms; kiss-and-ride areas; bus transfer platforms and transit centers; vendor facilities; and transit operations rooms.
- "**Lots**" means those parking structures or surface parking lots that are associated with a station, owned by or under the operating control of either TriMet or another entity with the concurrence of TriMet, and intended primarily for use by persons riding transit or carpooling. Parking structures may include some retail or office spaces in association with the primary use.
- "**Maintenance facilities**" means those facilities to be located on land to be owned or controlled by TriMet for purposes of operating, servicing, repairing or maintaining the light rail transit system, including but not limited to light rail vehicles, the light rail tracks, stations, lots, and ancillary facilities and improvements. Maintenance facilities include maintenance facility access trackways; storage tracks for light rail vehicles; service, repair and maintenance shops and equipment; office facilities; locker rooms; control and communications rooms; transit district employee and visitor parking lots; and storage areas for materials and equipment and non-revenue vehicles.
- "**Highway improvements**" include new roads, road extensions or road widenings outside existing rights-of-ways that have independent utility in themselves and are not needed to mitigate adverse traffic impacts associated with the light rail route, stations, lots or maintenance facilities.

Also consistent with its previous South/North LUFOs, the Metro Council determines that implementation of the South/North LUFO under sections 8(1)(a) and (b) of Chapter 12 of the 1996 Oregon Laws (HB 3478), including the construction, operation and maintenance of the light rail route, stations, lots and maintenance facilities and the highway improvements for the Project, necessitates and requires development approval of certain associated actions and the permitting of certain associated or ancillary facilities or improvements. These associated actions or ancillary facilities or improvements generally are required: (1) to ensure the safe and proper functioning and operation of the light rail system; (2) to provide project access; (3) to improve traffic flow, circulation or safety in the vicinity of the Project; or (4) to mitigate adverse impacts caused to the adjoining roadway network resulting from the alignment, stations, lots or maintenance facilities. For these reasons, these actions, facilities or improvements are integral and necessary parts of the Project.

The Metro Council further determines that the associated actions and ancillary facilities or improvements for the South/North Project include, but are not limited to: ties, ballast, and other track support materials such as tunnels and bridges; modifications to existing tracks; retaining walls and noise walls; culverts and other drainage systems; traction electrification equipment including substations; light rail signals and communications equipment and buildings; lighting; station, lot and maintenance facility accesses, including road accesses, pedestrian bridges and pedestrian and bicycle accessways; roadway crossing protection; and the provision of pedestrian paths, bike lanes, bus stops, bus pullouts, shelters, bicycle storage facilities and similar facilities. They also include temporary LRT construction-related roadways, staging areas and road or lane closures; roadway reconstruction, realignment, repair, widening, channelization, signalization or signal modification, lane reconfiguration or reduction, addition or modification of turning lanes or refuges, modification of traffic circulation patterns, or other modifications or improvements that provide or improve Project access, improve traffic flow, circulation or safety in the vicinity of the Project, facilitate or are necessary for the safe or proper functioning and operation of the Project, or are necessary to mitigate adverse traffic impacts created by the Project; modifications of private roadways adjoining the Project; permanent road, lane or access closures associated with and necessitated by the Project; and other associated actions or associated or ancillary facilities or improvements related to the Project.

5. Applicable Land Use Criteria

On May 30, 1996, pursuant to Section 4 of House Bill 3478, LCDC established the criteria to be used by the Metro Council in making land use decisions establishing or amending the light rail route, stations, lots and maintenance facilities, and the highway improvements for the South/North Project, including their locations. The approved criteria include two procedural, six substantive, and two alignment-specific standards, set out below. Compliance with these criteria must be demonstrated.

Procedural Criteria

1. Coordinate with and provide an opportunity for Clackamas and Multnomah counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.
2. Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots, vehicle maintenance facilities and the highway improvements, including their locations.

Findings of Fact and Conclusions of Law
South/North Corridor Land Use Final Order
Columbia River Crossing Project

1. Introduction

1.1 Nature of the Metro Council's Action

This action adopts a Land Use Final Order (LUFO) for the Columbia River Crossing (CRC) Project, which is an element of the larger South/North Corridor Project. The action is taken pursuant to Oregon Laws 1996 (Special Session), Chapter 12 (referred to herein as "House Bill 3478" or "the Act"), which directs the Metro Council (Council) to issue LUFOs establishing the light rail route, light rail stations, park-and-ride lots and maintenance facilities, and any highway improvements to be included in the South/North Project, including their locations (*i.e.* the boundaries within which these facilities and improvements may be located).¹

This LUFO is the fifth in a series of LUFOs the Council has adopted for the South/North Project. The previously adopted LUFOs are as follows:

- On July 23, 1998, the Metro Council adopted Resolution No. 98-2673 (the 1998 LUFO), establishing the initial light rail route, stations, lots and maintenance facilities and the highway improvements, including their locations, for the South/North Project.
- On October 28, 1999, the Metro Council adopted Resolution No. 99-2853A (the 1999 LUFO), amending the 1998 LUFO to reflect revisions for that portion of the South/North Project extending from the Steel Bridge northward to the Portland Metropolitan Exposition Center (Expo Center), primarily along Interstate Avenue. The 1999 LUFO modified the northern light rail alignment; established, relocated or expanded light rail station locations along that alignment; and authorized park-and-ride lots at Portland International Raceway (PIR) and the Expo Center along the light rail route.
- On January 15, 2004, the Metro Council adopted Resolution No. 03-3372 (the 2004 LUFO), further amending the previous South/North LUFO resolutions to (1) establish the light rail route, stations and park-and-ride lots, including their locations, along the Interstate-205 right-of-way from the Gateway Transit Center to Clackamas Regional Center; (2) modify the route along the downtown Portland Transit Mall to extend light rail transit (LRT) to Portland State University (PSU) and establish, adjust or relocate station locations; (3) modify the 1998 LUFO for the segment from Portland to Milwaukie by revising the alignment and adding study areas; (4) remove the 1998 LUFO designations from Milwaukie to Clackamas Regional Center; and (5) complete technical amendments to the 1999 LUFO alignment to reflect the final built configuration at certain stations consistent with the Full Funding Agreement Grant approved by the Federal Transit Administration.

¹ Metro's Regional Transportation Plan shows northward extension of light rail to Clark County Washington. However, the Metro Council's jurisdiction is limited to the Oregon portion of the South/North Project.

- On July 25, 2008, the Metro Council adopted Resolution No. 08-3964 (the 2008 LUFO), amending the 1998 and 2004 South/North LUFOs as they relate to the segment of the South/North Project extending from Portland State University (PSU) in downtown Portland through SE Portland and downtown Milwaukie to SE Park Avenue in unincorporated Clackamas County. The 2008 LUFO realigned the light rail route between PSU and SE 7th Avenue; established the route from SE Tacoma Street to SE Park Avenue; relocated light rail stations or authorized new stations along the light rail route; and established the park-and-ride lots and highway improvements for the Portland to Milwaukie segment.

This 2011 South/North LUFO Amendment (the 2011 LUFO) amends the 1998 LUFO as it relates to the segment of the South/North Project in north Portland extending northward from the Expo Center and from the Interstate 5 (I-5)/Victory Boulevard Interchange to the Oregon/Washington state line on the Columbia River. This 2011 LUFO realigns the light rail route between the Expo Center and the Oregon/Washington state line westward from its alignment in the 1998 LUFO and it relocates the Hayden Island station west of its previous location. It also provides for the rail route to be accommodated on the lower tier of a new southbound I-5 bridge. This 2011 LUFO also establishes a number of highway improvements for the Columbia River Crossing Segment of the South/North Project, including new northbound and southbound I-5 bridges; widening of I-5 in both directions between approximately N Victory Boulevard the Oregon/Washington state line on the Columbia River; new or modified interchanges at Marine Drive, Hayden Island and Victory Boulevard; a new integrated rail/vehicular/bicycle pedestrian bridge connecting Hayden Island with the Expo Center; and roadway realignments, widenings, modifications and new connections within the project area.

This 2011 LUFO also provides for expansion and improvement of the Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham to accommodate and maintain additional LRT vehicles associated with the Columbia River Crossing Project.

This 2011 LUFO is also the latest in a long string of land use final orders dating back to 1991 to the approval of the first LUFO for the Westside Corridor Project. That LUFO, and several amendments to that LUFO which followed, expanded the Portland metropolitan region's commitment to a multi-modal transportation network including light rail transit serving populations to the north, south, east and west of the Central City, an improved state highway and local street network, and facilities to encourage walking and bicycle travel. These steps coincided with the Land Conservation and Development Commission's adoption in 1991 of the Transportation Planning Rule, which encourages and supports the availability of a variety of transportation choices for moving people that balance vehicular use with other modes to avoid principal reliance on any one mode. The Westside LUFOs, among other things, approved the extension of light rail initially through Portland, unincorporated Washington County and Beaverton and then later into downtown Hillsboro. They also approved highway and bicycle improvements associated with the light rail projects, including the widening of US 26 and Oregon 217, new or modified freeway ramps, a new bridge crossing US 26 at Sylvan, a new collector-distributor road system west of the Sylvan Interchange, a new US 26 bridge crossing at Sylvan, the closing of some local accesses to and from US 26, local street

realignments, modifications and improvements, and bicycle facility improvements extending from approximately the Oregon Zoo to Oregon 217. The South/North Project continued this commitment to a multi-modal transportation system with a series of light rail and highway improvements extending along the South/North corridor between Clackamas County and the Oregon/Washington state line.² The Council anticipates that this 2011 LUFO amendment will not be the final step in that process, as House Bill 3478 envisions that at some future point, light rail transit will extend farther south into Oregon City.

1.2 Relationship of Council's Order to Requirements of the National Environmental Policy Act of 1969

Like the 1998, 1999, 2004 and 2008 LUFOs before it, this 2011 LUFO is adopted solely to implement the provisions in HB 3478 authorizing the Council to make land use decisions on the light rail route, stations, lots and maintenance facilities and the highway improvements for the South/North Project, including their locations. This land use decision is not required by the National Environmental Policy Act of 1969 (NEPA) or other federal law.

1.3 Requirements of House Bill 3478

Section 6(1) of House Bill 3478 requires the Council to "establish the light rail route, stations, lots and maintenance facilities, and the highway improvements for the project or project extension, including their locations." Section 6(1)(a) further provides that the locations for each of these facilities and improvements:

"shall be in the form of boundaries within which the light rail route, stations, lots and maintenance facilities, and the highway improvements shall be located. These boundaries shall be sufficient to accommodate adjustments to the specific placements of the light rail route, stations, lots and maintenance facilities, and the highway improvements for which need commonly arises upon the development of more detailed environmental or engineering data following approval of a Full Funding Grant Agreement."

Section 6(2) of the Act addresses amendments to the 1998 LUFO. It provides:

"Any siting of the light rail route, a station, lot or maintenance facility, or a highway improvement outside the locations established in a land use final order, and any new station, lot, maintenance facility or highway improvement, shall require a land use final order amendment or a new land use final order which shall be adopted in accordance with the process provided for in subsection (1) of this section."

² The region's rail transit system now has 50 miles of light rail, with a new line south from the Central City to Milwaukie (7.3 miles) now under construction. The system includes a 14.7-mile commuter rail serving the southwest part of the region, opened in 2008, and four miles of streetcar with another eight miles under construction. Future light rail projects under consideration include a light rail line along the Barbur Boulevard corridor.

Section 7 of HB 3478 requires the Council to apply land use criteria established by the Land Conservation and Development Commission (LCDC) in making decisions in a land use final order on the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, and to prepare and adopt findings of fact and conclusions of law demonstrating compliance with those criteria. *These findings serve to demonstrate compliance with LCDC's criteria for the modifications and new improvements selected in this LUFO amendment.*

Section 3(1) of HB 3478 provides that the procedures and requirements set out in the Act are the *only* land use procedures and requirements to which the Council's decisions on the light rail route, the stations, lots and maintenance facilities, and the highways improvements for the Project, including their locations, are subject. Consequently, these findings focus on the matters identified in HB 3478 as land use actions being taken at this time.

The Columbia River Crossing Project is an integrated bridge, light rail transit and highway project within the Expo Center and Hayden Island segments of the South/North corridor in Oregon that extends northward into the state of Washington. The Council finds that the combination of light rail and highway improvements is consistent with and authorized by House Bill 3478. Section 1(18) of House Bill 3478 defines "Project" to mean the South/North Light Rail Project as it may be amended from time to time. "The project includes the light rail route, stations, lots and maintenance facilities and any highway improvements to be included in the project." The Council finds that this definition anticipates that the character of the Project may change over time and may include highway improvements. Section 1(12) defines "highway improvements" to mean "the highway improvements, if any, to be included in the project * * *. The highway improvements shall be selected from among the highway improvements, if any, described in a Draft Statement or Final Statement for the project or project extension for the project * * *. The Council finds that this provision anticipates the inclusion of highway improvements to the Project where such improvements are addressed in a draft or final environmental impact statement involving the project. Similarly, Section 6(2) anticipates new highway improvements being added as amendments to an earlier LUFO. Section 1(13) defines "land use final order" as an order or orders of the Council deciding, among other things, the highway improvements for the project. The Council finds that this language, together with Sections 6(1) and 6(2) of the Act, authorizes the Council to make decisions on highway improvements for the project in a land use final order. Section 3(3) provides that "the procedures and requirements provided for in [HB 3478] shall be the only land use procedures and requirements applicable to * * * [d]ecisions on the highway improvements for the project * * *." The Council finds that this language directs it to follow the requirements of HB 3478 for any highway improvements that are included in the project.

The Council finds that the language in HB 3478 parallels language in Oregon Laws 1991, Chapter 3 (Senate Bill 573) for the Westside Corridor Project, which extended light rail transit from Portland to Hillsboro. Portions of that project included highway improvements along US 26 and Oregon 217, as well as along local arterials and local streets in the vicinity of these highways.³ Like HB 3478, SB 573 similarly defined "Project" to include highway

³ Among other highway improvements, the Westside Corridor Project authorized a new westbound truck climbing lane on US 26, the widening of US 26 to six lanes (three in each direction) between the Skyline

improvements, and it similarly defined “highway improvements” as “those highway improvements to be included in the project” as described in a draft environmental statement. SB 573 similarly defined “final order” as a decision (made by the TriMet Board) deciding the light rail route, light rail facilities and highway improvements”, and it similarly provided that the procedures and requirements of that Act were the only procedures and requirements applicable to TriMet Board decisions on the light rail facilities and highway improvements.⁴

The Council further finds that in Section 2(1) of SB 573, the Oregon Legislature found that to obtain maximum federal funding for the Westside Corridor Project, it was necessary to consolidate land use decisions regarding light rail and highway improvements into a single land use decision, and in Section 2(2), it found that the Act should be liberally construed to accomplish the purposes set out in Section 2(1). Similarly, for the South/North Project, Section 2(1) of HB 3478 provides that to maximize the state’s and metropolitan region’s ability to obtain the highest available level of federal funding for the South/North Light Rail Project and to ensure the timely and cost-effective construction of the project, it is necessary “to establish a process to be used in making decisions in a land use final order on the light rail route, light rail stations, light rail park-and-ride lots, light rail maintenance facilities and any highway improvements to be included in the South/North MAX Light Rail Project, including their locations.” Like Section 2(2) of SB 573, Section 2(2) of HB 3478 states, “Sections 1 to 13 of this Act shall be liberally construed to accomplish the purposes enumerated in subsection (1) of this section.” The Council finds that the purposes of obtaining the highest level possible of federal funding and ensuring the timely and cost-effective construction of the Project as it may be amended from time to time remain important priorities for the region and state. It further finds that a large portion of the project cost of the Columbia River Crossing Project will be federally funded and that the procedures and requirements in HB 3478 were developed to help the region obtain maximum federal funding for the Project.⁵

The Council finds that the Columbia River Crossing Project is a significant multi-modal public works project designed to accommodate the interstate travel needs of Portland metropolitan area residents, including residents of Vancouver, Washington in a manner that moves people and freight efficiently and minimizes conflicts between the various travel modes. The Council finds that the Project reflects negotiation and compromise among

Interchange and Oregon 217, widening of Oregon 217 from four to six lanes with an additional auxiliary lane both southbound and northbound between the Walker Road and Canyon Road interchanges, changes to the Zoo and Sylvan interchanges, construction of an eastbound collector-distributor road system between the Sylvan Interchange and SW Camelot Court, realignment of SW Canyon Court east of SW Skyline Boulevard, realignment of SW Hewitt Boulevard, and other local street improvements.

⁴ See Senate Bill 573, Sections 2(10), (11) and (13) and Section 3(1).

⁵ The Council finds that the legislature anticipated a need to amend the Project over time in, among other things, the Act’s definitions of “Project”, “Project extension”, “Draft Statement” and “Final Statement”, all of which authorize amendments from time to time; in its definition of “Land use final order” as a written order or orders of the Council; and in the language of Section 6(2) of the Act. The Council further finds that by so providing for amendments, the Act demonstrates consistency with the Westside Corridor Project, which included an initial LUFO adopted on April 11, 1991, establishing the light rail alignment through Beaverton and the highway improvements on and near US 26 and Oregon 217; a LUFO adopted on July 28, 1993 for the “Hillsboro Extension” of light rail project; and amendments to these LUFOs dated July 28, 1993 and November 22, 1995 for light rail facilities and August 23, 1995 and February 28, 1996 for highway improvements. The Council takes official notice of those TriMet Board decisions.

6 Findings of Fact and Conclusions of Law (Columbia River Crossing Project)

governmental bodies and that for all practical purposes, the light rail component could not have gone forward without the highway component and the highway component could not have gone forward without the light rail component. Indeed, the Council finds that the extension of light rail transit to Vancouver without accompanying highway improvements was attempted in 1998 but rejected by the voters.

More specifically, the Council finds that the original 1998 LUFO that this action is amending was borne out of the proposal to build the South/North light rail project from Clackamas Town Center through Milwaukie and downtown Portland to Vancouver, terminating in the vicinity of I-5 and I-205 in the State of Washington. The crossing of the Columbia River was via a proposed new bridge for light rail transit purposes only west of the existing I-5/Interstate Bridge. TriMet successfully obtained voter support of General Obligation Bonds for one-third of the local match in November 1994 by a wide margin. That ballot measure was predicated on a state legislative contribution of another one-third and a Washington State/Clark County contribution of the final one-third. In early 1995 the voters of Clark Co. turned down a ballot measure for their local match contribution. It was clear from this action that a stand-alone light rail project was not politically acceptable to the voters of Clark County. In response, TriMet and the Oregon side of the region proceeded to implement segments of the Project in Oregon (Interstate MAX, I-205 MAX to the Clackamas Town Center and Portland to Milwaukie MAX).

The question of how to address travel needs in the I-5 corridor started over through a bi-state initiative called the I-5 Transportation and Partnership. In June 2002, the conclusions of the I-5 Transportation and Trade Partnership were published,⁶ calling for a comprehensive approach to addressing the needs in the corridor, including improvements to I-5 from north of the Fremont Bridge in Oregon to I-205 in Vancouver, extension of the newly completed Interstate MAX from the Expo Center to downtown Vancouver, implementation of demand and system management strategies to encourage more efficient use of the transportation system, and implementation of tolling to help pay for the Columbia River crossing and other corridor improvements. While light rail remained an important element of the improvement plan to meet the needs, it became clear that it could only become part of a more comprehensive solution. As such, light rail is functionally linked to the bridge and highway improvements because of the demonstration through the I-5 Transportation and Trade Partnership that the functional requirements of the corridor required all of the elements included in the recommendations. The conclusion was reached that the Oregon interests required emphasis on a multi-modal solution, including better management of traffic demand, because of the difficulty of accommodating that demand through a highway-only expansion of I-5. At the same time, the conclusion recognized the Clark County interests would benefit from those improvements but needed a highway element because the land use patterns of Clark County requires a system with greater dependence on auto access.

This LUFO reflects the conclusion of the Columbia River Crossing Project on how to best

⁶ See http://www.columbiarivercrossing.org/FileLibrary/NonCRCRelatedDocuments/I-5_Partnership_2002_Final_Strategic_Plan.pdf, incorporated herein by this reference. The Metro Council endorsed that plan, including highway and light rail improvements, through its adoption of Resolution No. 02-3237A on November 14, 2002.

implement the recommendations of the I-5 Transportation and Trade Partnership. There is not light rail without the freeway bridge being replaced.

Additionally, the Council finds that the highway improvements are necessitated by the light rail improvements. Extension of light rail transit to Vancouver along the I-5 corridor requires a new bridge crossing over the Columbia River. The proposed I-5 Columbia River bridge crossing consists of two bridge structures. The light rail extension is located beneath the bridge structure carrying southbound I-5 traffic, and a bicycle and pedestrian crossing is located beneath the bridge structure carrying northbound I-5 traffic. The Council finds that the proposed pedestrian and bicycle facilities on the northbound bridge are needed to connect pedestrians and bicyclists wishing to travel across the Columbia River between Oregon and Washington to the light rail transit stations located north and south of the bridge, including the Expo Center Station and the new Hayden Island Station.

The Council further finds that construction of these new bridge structures will necessitate improvements to the I-5 highway and interchanges, including the Hayden Island and Marine Drive Interchanges, and to the local street network that connects those interchanges including realignments, widenings or extensions of or new connections between N Marine Drive, NE Martin Luther King Boulevard, N Gantenbein Avenue, N Expo Road, N Vancouver Way, N Haney Drive, NE Union Court, N Jantzen Drive, N Jantzen Avenue, N Hayden Island Drive, N Tomahawk Island Drive and N Force Avenue. It also finds that additional highway improvements are needed to integrate the transit corridor extension into the existing transportation network and to facilitate multimodal access to and from the existing light rail station at the Expo Center and a new light rail station at Hayden Island. Specifically, the Council finds that the extension of light rail tracks requires grade-separated crossings with the local road system. Accommodation of the grade-separated crossings necessitate modifications to the I-5/Marine Drive Interchange and connecting roadways including the realignments of N Vancouver Way and N Marine Drive and modifications of the road connections to NE Martin Luther King Boulevard.

The Council finds that the extension of the light rail alignment requires an additional bridge crossing over the North Portland Harbor, a navigable waterway. The new local bridge will be a multimodal facility accommodating the light rail extension as well as bicycles, pedestrians and vehicles.

The Council finds that the Expo Center Station will serve as a multimodal connection to enhance accessibility and connectivity with the East Columbia and Bridgeton neighborhoods east of I-5. Accommodation of this connection to Hayden Island requires improvements to the local street network including the construction of a new local multimodal bridge over the North Portland Harbor, a new public road extending N Expo Road westward to N Force Avenue, the extension of N Tomahawk Island Drive under I-5 to the Hayden Island Station, the creation of "Avenue A" in front of the Hayden Island Station, and modifications to N Janzen Drive, N Jantzen Avenue and N Hayden Island Drive.

The Council finds that the Hayden Island Station will be sited where the existing I-5/Hayden Island interchange southbound on- and off-ramps are currently located, prompting the need to

reconfigure the existing I-5/Hayden Island Interchange. It further finds that the reconfigured interchange requires modifications to the local roadway network to provide local access to the light rail station and to reconnect local streets to the reconfigured Hayden Island Interchange.

As discussed in Section 6.3.1 of these findings, the Council finds that nearly all of the highway improvements identified as part of the Columbia River Crossing Project are already identified as transportation improvements in the City of Portland's acknowledged Transportation System Plan (TSP) or comprehensive plan, or in Metro's Regional Transportation Plan (RTP). The only exceptions to this are the new local multimodal bridge over the North Portland Harbor connecting Hayden Island with the Expo Center and local roadway improvements in the vicinity of the Marine Drive Interchange. As noted above, the new multimodal bridge is an integrated multi-modal facility that includes the light rail alignment as well as travel lanes, bike lanes and sidewalks to serve motor vehicles, bicyclists and pedestrians. As further noted above, the local road improvements in the vicinity of the Marine Drive Interchange will improve local access to and from the Expo Center and Hayden Island light rail stations. These improvements are needed as well to accommodate the new I-5 Columbia River bridges and the modifications to the Hayden Island and Marine Drive interchanges.⁷

Finally, the Council notes that HB 3478 authorizes the Council to make land use decisions only with respect to light rail facilities and highway improvements. See Sections 6(1) and 6(2). The effect of these decisions is to permit such facilities to be constructed within the location boundaries established in the LUFO. The LUFO does not decide or address the design of these improvements, nor does it decide what mitigation will be provided. Design issues are addressed in local proceedings pursuant to Section 8 of the Act. Mitigation is determined through the FEIS process or during local permitting proceedings pursuant to Section 8 of the Act.

⁷ As elements of the Columbia River Crossing Project, the highway improvements are eligible for federal funding. While as noted, most of these improvements are already identified in Portland's acknowledged Transportation System Plan and the RTP, they are nonetheless included in the LUFO and addressed in these findings because, as part of the Columbia River Crossing Project, they remain subject to the requirements of HB 3478.

2. Amendments to the Light Rail Route, Stations, Lots and Maintenance Facilities, and Highway Improvements for the Project, Including Their Locations

2.1 Introduction

The Metro Council initially approved a light rail route, stations, park-and-ride lots, maintenance facilities and highway improvements for the Project, including their locations, in the 1998 LUFO. That decision established an alignment from the Clackamas Town Center through downtown Milwaukie to downtown Portland and northward to the Oregon/Washington state line on the Columbia River.

The 1999 LUFO modified the 1998 LUFO by relocating the light rail alignment farther to the west, establishing new light rail station locations, and providing an interim terminus at the Expo Center.⁸ The remainder of the Project outside that portion between the Steel Bridge and the Expo Center remained unchanged.

This 2011 LUFO modifies the 1998 LUFO by:

- 1) Relocating the light rail alignment and Hayden Island station farther to the west;
- 2) Relocating the light rail alignment leading into Vancouver, Washington onto the lower tier of a new southbound Interstate 5 bridge;
- 3) Providing significant highway improvements between approximately N. Victory Boulevard and the Oregon/Washington state line on the Columbia River, including but not limited to new northbound and southbound Interstate 5 bridges to accommodate highway, rail, pedestrian and bicycle travel; widening of northbound and southbound Interstate 5 to accommodate three travel lanes and two auxiliary lanes; and interchange and roadway modifications and improvements and new roadway connections within the Project area.

These 2011 findings replace and supersede findings supporting the 1998 LUFO as follows:

- That part in Section 6.4.8 of the 1998 LUFO findings addressing the portion of the North Portland segment between the Expo Center and N Marine Drive;
- In their entirety, Section 6.4.9 of the 1998 LUFO findings addressing the Hayden Island segment.

Further, to the extent these 2011 LUFO findings create inconsistencies with other sections of the 1998 LUFO findings [*see, e.g.*, Sections 2.1, 6.1 and 6.3], these 2011 findings control and supersede the earlier findings.

⁸ The 1999 LUFO did not amend the Expo Center station location or the light rail alignment immediately south of the Expo Center in any significant way.

This 2011 LUFO also authorizes use of the Ruby Junction Maintenance Facility in Gresham to serve light rail vehicles associated with the Columbia River Crossing Project.

2.2 Selected Expo Center/Hayden Island Segment Amendments

The Metro Council amends the 1998 LUFO to select and establish the locations of the light rail route, stations, maintenance facilities and highway improvements identified below. The Council finds that its selected light rail route, stations, maintenance facilities and highway improvements, including their locations, are identical to those for which TriMet requested Council approval in its "Application for South/North Land Use Final Order Amendment (Expo Center/Hayden Island Segments)", which TriMet filed on July 13, 2011 and which the Council incorporates herein by this reference.⁹ The light rail route, station, maintenance facility and highway improvements selected by this amendment are described textually and illustrated on the maps contained in the Council's adopted 2011 LUFO.

In the 1998 LUFO there were two segments that, together, provided light rail transit (LRT) service between the Expo Center and the Oregon/Washington state line on the Columbia River. These segments were the North Portland segment and the Hayden Island segment. In the 1999 LUFO, the Metro Council renamed the portion of the North Portland segment extending from south of the Columbia Slough near N Columbia Boulevard to the Expo Center the "Expo Center Segment." This 2011 LUFO amendment retains the name "Expo Center Segment" and extends it to N Marine Drive, where the Hayden Island Segment begins. This 2011 LUFO amendment also extends the Expo Center and Hayden Island segments east of Interstate 5 approximately 2,500 feet to include all areas identified for highway improvements. For convenience purposes, these two segments are consolidated and addressed as a single segment (Expo Center/Hayden Island) in these findings.

The Metro Council now deems it appropriate to approve the 2011 LUFO changes for the Expo Center/Hayden Island Segment as follows:

Light Rail Alignment

From the Expo Center station, the light rail alignment proceeds northward under N Marine Drive and onto a new, integrated light rail/vehicular/bicycle/pedestrian bridge crossing over the North Portland Harbor onto Hayden Island west of I-5. The alignment then continues northward, crossing over N Hayden Island Drive onto the lower deck of the new southbound Interstate 5 Bridge.

From the state line on the Columbia River, the alignment continues northward into Vancouver, Washington. Because the portion of the Project in the State of Washington is outside the jurisdiction of the State of Oregon, it is not subject to compliance with House Bill 3478 and is not addressed in the LUFO or these LUFO findings.

⁹ TriMet's application is attached as Exhibit B to Resolution No. 11-4289.

Light Rail Stations

A single light rail station is located in the Expo Center/Hayden Island Segment. The **Hayden Island Station** will be elevated and positioned adjacent to I-5, over or near Tomahawk Island Drive. Tomahawk Island Drive will be extended under I-5 to provide a third east/west street connection for Hayden Island. The Hayden Island Plan calls for retail development, a mixed-use station community, and a well-connected street system to be developed adjacent to the station.

Park-and-Ride Lots

There are no new park-and-ride lots in the Expo Center/Hayden Island Segment.

Operations & Maintenance Facilities

There are no operations & maintenance facilities in the Expo Center/Hayden Island Segment. Maintenance will be provided at the existing Ruby Junction Maintenance Facility in Gresham, discussed in Section 2.3 below.

Highway Improvements

The highway improvements in the Expo Center/Hayden Island Segment include the following:

1. New northbound and southbound I-5 Columbia River bridges. The southbound bridge is a two-tier bridge with highway on the upper deck and light rail on the lower deck. The northbound bridge is a two-tier bridge with highway on the upper deck and bicycle and pedestrian facilities on the lower deck. Each bridge will include three travel lanes and two auxiliary lanes.
2. Widening of I-5 in both the northbound and southbound directions from N Victory Boulevard to the Oregon/Washington state line. Northbound, I-5 will widen from three travel lanes at N Victory Boulevard to three travel lanes and two auxiliary lanes on the new northbound I-5 Columbia River bridge. Southbound, I-5 will narrow from three travel lanes and two auxiliary lanes on the new southbound I-5 Columbia River bridge to three lanes south of N Victory Boulevard.
3. A newly designed I-5/Marine Drive interchange, including ramps connecting I-5 with N Marine Drive and NE Martin Luther King Jr. Boulevard.
4. A newly designed I-5/Hayden Island interchange including relocated northbound and southbound exit and entrance ramps. The redesign is intended to further the Hayden Island Plan and implement features that are supportive of transit.
5. A new integrated light rail/vehicular/bicycle/pedestrian bridge west of I-5 connecting Hayden Island with the Expo Center and N Expo Road.

6. Realignment and widening of NE Martin Luther King Jr. Boulevard between the new I-5/Marine Drive interchange and approximately N Hayden Meadows Drive.
7. Realignment and widening of N Marine Drive between N Gantenbein Avenue and N Vancouver Way.
8. Modification, widening and extension of N Vancouver Way between east of N Haney Drive and approximately the light rail alignment west of I-5.
9. Realignment and widening of NE Union Court between N Hayden Meadows Drive and N Vancouver Way.
10. A new northbound connection between NE Martin Luther King Jr. Boulevard and N Vancouver Way and a new southbound connection between NE Martin Luther King Jr. Boulevard and NE Union Court.
11. Realignments, widening and roadway modifications to N Jantzen Avenue, N Jantzen Drive and N Hayden Island Drive.
12. Modification, widening and extension of N Tomahawk Island Drive from east of N Jantzen Drive to the west of I-5.
13. Construction of a new roadway west of I-5 and the light rail alignment between N Jantzen Avenue and N Hayden Island Drive.
14. A new public road extending N Expo Road westward to N Force Avenue.
15. Removal of the existing I-5 Columbia River bridges.

See **Figures 1.1 to 1.3** of the LUFO for the boundaries within which the above described light rail facilities and highway improvements would be located.

2.3 Ruby Junction Maintenance Facility Improvements

The Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham was first authorized in 1980 as part of the Portland to Gresham light rail project. The facility includes light rail tracks, vehicle storage spaces and maintenance bays, an operation center, and related facilities necessary to maintain light rail vehicles.

As part of the 2008 LUFO amendments for the Portland to Milwaukie Project, the Council approved the modification and expansion of the Ruby Junction Maintenance Facility and adopted location boundaries for it. See **Figure 2.1** of this 2011 LUFO. This LUFO authorizes the use of the facility to serve light rail vehicles associated with the Columbia River Crossing Project. Such use was expressly anticipated in the 2008 LUFO findings. Because use and improvement of the facility in connection with the Columbia River Crossing Project will

occur within the location boundaries approved in 2008, the Council finds it is not necessary to amend those boundaries.

3. South/North Project Land Use Final Order Criteria

On May 30, 1996, pursuant to Section 4 of HB 3478, LCDC established the criteria to be used by the Council in making land use decisions establishing or amending the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project or Project Extension, including their locations. The approved criteria include two procedural, six substantive, and two alignment-specific standards, set out as follows:

3.1 Procedural Criteria

1. Coordinate with and provide an opportunity for Clackamas and Multnomah Counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.
2. Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.

3.2 Substantive Criteria

3. Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed-use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process or, if reasonable and necessary, by affected local governments during the local permitting process.
 - A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.
 - B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.
4. Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.

5. Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
6. Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
7. Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
8. Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.

3.3 Alignment-Specific Criteria

9. Consider a light rail route connecting the Clackamas Town Center area with the City of Milwaukie's Downtown. Consider an extension of the light rail route connecting the City of Oregon City and the City of Gladstone with the City of Milwaukie via the Interstate 205 corridor and/or the McLoughlin Boulevard corridor.
10. Consider a light rail route connecting Portland's Central City with the City of Milwaukie's Downtown via inner southeast Portland neighborhoods and, in the City of Milwaukie, the McLoughlin Boulevard corridor, and further connecting the Central City with north and inner northeast Portland neighborhoods via the Interstate 5/Interstate Avenue corridor.

Compliance with Procedural Criteria 1 and 2 is demonstrated in Section 5 of these findings. Compliance with Substantive Criteria 3 through 8 is demonstrated in Section 6 (long-term impacts) and Section 7 (short term construction impacts) of these findings. The Council finds that Criterion 9 is not relevant to this 2011 LUFO because the South/North Project already connects Clackamas Town Center with downtown Milwaukie and this amendment does not concern light rail extensions from Milwaukie to Gladstone or Oregon City. It finds that compliance with Criterion 9 has been addressed in prior South/North LUFOs, including the 2004 LUFO. Regarding Criterion 10, the Council finds that this 2011 LUFO amendment

further connects the Central City with the Kenton and Hayden Island neighborhoods in north Portland via the existing alignment along the Interstate Avenue corridor.

For all of the reasons set out in these findings, the Council finds and concludes that these 2011 LUFO amendments comply with the applicable LCDC criteria.

4. Implementation of a Land Use Final Order

4.1 Overview of Process for Selecting Mitigation Measures

LCDC Criteria 3 through 8 require the Council to identify (1) specified adverse impacts (e.g., impacts to neighborhoods and natural resources) that would result as a consequence of its decisions, and (2) "measures" to reduce those impacts which potentially could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the local jurisdiction permitting processes. Consideration of appropriate measures is consistent with local comprehensive plan policies and land use regulations which recognize that development can have adverse impacts on persons and property and which seek to reduce those impacts to the extent reasonable and permitted by law.¹⁰

The Council's decisions selecting the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project, including their locations, are not the final steps in the process culminating with completion of construction of the South/North Project. Subsequent to or concurrent with Council actions, Final Environmental Impact Statements (FEIS) are submitted to the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). As part of that process, mitigation plans are developed addressing mitigation of adverse impacts associated with the selected rail and highway improvements for the Project. In each case, following federal approval of the FEIS, issuance of a Record of Decision and the signing of a Full Funding Grant Agreement with FTA and FHWA, the Final Design phase will begin. During Final Design, all necessary federal and state permits for project construction are obtained.

Also during Final Design, the siting of light rail and highway improvements is subject to local permitting processes. Section 8(1)(b) of House Bill 3478 directs all affected local governments and agencies to "issue the appropriate development approvals, permits, licenses and certificates necessary for the construction of the Project or project extension consistent with a land use final order." Section 8(1)(b) further allows these affected local governments to attach approval conditions to their development approvals permits, licenses and certificates. However, any such conditions must be "reasonable and necessary" and "may not, by themselves or cumulatively, prevent implementation of a land use final order." Under Section 8(3) of HB 3478, unreasonable or unnecessary conditions would include 1) measures for which there are insufficient funds within the Project budget to pay for those measures; 2) measures that would significantly delay the completion or otherwise prevent the timely implementation of the Project; and 3) measures that would significantly negatively impact Project operations. See also *TriMet v. City of Beaverton*, 132 Or App 253 (1995).¹¹ A condition prevents implementation of a LUFO if its imposition would require TriMet to finance construction of the condition at the expense of improvements funded under the Full

¹⁰Section 1(17) of HB 3478 defines "measures" to include "any mitigation measures, design features, or other amenities or improvements associated with the project or project extension."

¹¹In the *Beaverton* case the Court explained: "The reasonable and necessary test applies to conditions that are related to or necessitated by the project, but the bill does not permit conditions of a kind that are designed to further unrelated land use objectives of local plans and regulations."

Funding Grant Agreement or to go beyond the available federal funds and local matching funds for the Project. The Council finds that these funds constitute the envelope of available funds for the Project.

In summary, Criteria 3 through 8 require the Council to identify measures which potentially "could be imposed" later in the process as part of an approved mitigation plan under NEPA or through local permitting (if reasonable and necessary). However, the actual determination and imposition of appropriate measures occurs only through these later federal or local processes, not through this Council action. The Council finds this approach to be reasonable and appropriate, particularly given that the LUFO is not based on final design plans. Through final design, many identified adverse impacts may be avoided, and appropriate mitigation can be better determined.

4.2 Effect of Land Use Final Order on Local Comprehensive Plans and Land Use Regulations

Section 8(1)(a) of HB 3478 requires the affected cities and counties and Metro to amend their comprehensive or functional plans, including their public facility and transportation system plans and land use regulations, to the extent necessary to make them consistent with a land use final order. Section 8(2) further provides that a LUFO "shall be fully effective upon adoption."

The legal effects of these provisions are (1) to immediately authorize, as permitted uses, the light rail route, stations, lots and maintenance facilities and the highway improvements, including their locations, as identified and approved in a land use final order, and (2) to require appropriate plan and land use regulation amendments so that local land use requirements are consistent with a land use final order.¹² However, as noted above, the uses approved in a land use final order remain subject to local imposition of reasonable and necessary approval conditions under Section 8(1)(b).

While approval of a LUFO identifies where rail and highway improvements may go and authorizes their development at these locations subject to reasonable and necessary conditions, it does not concurrently prevent other uses allowed by existing zoning. Stated another way, a LUFO is not a right-of-way preservation tool. It does not prevent development of economically feasible uses currently permitted under acknowledged plans and land use regulations. It merely adds to the list of uses permitted on the properties affected by the LUFO without eliminating other uses from that list.

Similarly, a LUFO does not require local zoning amendments to allow more intense scales of development. Instead, it requires amendments only as necessary to authorize the approved Project elements and ancillary facilities or improvements that may be required to ensure the safe and proper functioning and operation of the light rail system or other Project elements,

¹²This may require amendments to authorize the ancillary facilities and improvements for the South/North Project.

provide Project access, improve traffic flow, circulation or safety in the Project vicinity, or mitigate adverse impacts resulting from the Project.

In summary, Metro Council adoption of a LUFO has the immediate effect of authorizing, on the affected properties, the light rail and highway facilities and improvements approved in the LUFO. It also identifies the affected locations for future public acquisition for rail or highway purposes. However, LUFO adoption in no way prevents or limits currently allowed uses on these properties during the interim period pending ultimate public acquisition, nor does it mandate the rezoning of areas nearby light rail stations to achieve regional growth management objectives.

5. Compliance with Procedural Criteria (1-2)

5.1 Criterion 1: Agency Coordination

"Coordinate with and provide an opportunity for Clackamas and Multnomah Counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations."

Criterion 1 ensures Metro coordination with the Tri-County Metropolitan Transportation District of Oregon (TriMet), the Oregon Department of Transportation (ODOT), and six cities and counties within the South/North corridor that are directly affected by the Project or Project Extension. Criterion 1 further requires Metro to provide these jurisdictions and agencies an opportunity to submit testimony on the light rail and highway facilities and improvements for the Project or Project Extension, including their locations.

The light rail route, station, maintenance facility and highway improvement decisions that are the subject of this LUFO amendment fall within the jurisdictional boundaries of the cities of Portland and Gresham. While the City of Gresham is not identified in Criterion 1, the Council finds that coordination with the city is appropriate because the maintenance facility serving light rail vehicles associated with the Columbia River Crossing Project is located in Gresham. The Council finds that the City of Portland's planning, engineering, and other technical staff, as well as staff from TriMet and ODOT, have been actively involved in the process resulting in these proposed amendments, and that TriMet staff has met with City of Gresham staff with regard to expanding use of the Ruby Junction Maintenance Facility.

The Council finds that Metro coordination with TriMet, ODOT, Clackamas and Multnomah Counties and the cities of Portland, Milwaukie, Gresham, Oregon City and Gladstone has occurred both through their participation (except for Gladstone) on the LUFO Steering Committee to make recommendations to TriMet on a 2011 LUFO amendment, and through invitations to these local governments and agencies to submit testimony to the Metro Council on this amendment. The Council finds that on or about June 13, 2011, TriMet staff mailed Project materials (*Proposed LUFO Steering Committee Recommendation Concerning the 2011 South/North Land Use Final Order*, dated June 23, 2011) describing all aspects of the proposed Project to ODOT and to elected officials of the cities of Portland, Milwaukie, Gresham, and Oregon City, the counties of Multnomah and Clackamas, and Metro, providing them with information regarding the proposed 2011 LUFO amendments for the Columbia River Crossing Project. The Council further finds that the LUFO Steering Committee, which includes representatives from Metro, TriMet, ODOT, Clackamas and Multnomah Counties, and the cities of Portland, Milwaukie, Gresham and Oregon City, reviewed the proposed LUFO amendments and on June 23, 2011, made recommendations to TriMet on those amendments as documented in the 2011 LUFO and as provided for in Section 6(1)(a) of

House Bill 3478. Also, the Council finds that ODOT separately submitted its own recommendations to TriMet as required by Section 6(1)(a).

In addition, the Metro Council finds that notice of its August 11, 2011, public hearing to consider this LUFO amendment was mailed directly to each of the above-identified local governments and agencies, including the City of Gladstone, thus providing those local governments and agencies with the opportunity to submit testimony to the Council on the proposed LUFO amendments at that hearing.

In adopting these 2011 LUFO amendments, the Metro Council carefully considered the recommendations of the LUFO Steering Committee and ODOT and the comments of the affected jurisdictions. The Council's decision in this 2011 LUFO amendment proceeding is fully consistent with TriMet's application, which in turn is consistent with the recommendations of the LUFO Steering Committee and ODOT.

For all of these reasons, the Metro Council finds that Criterion 1 is satisfied.

5.2 Criterion 2: Citizen Participation

"Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations."

Criterion 2 ensures that the public has an opportunity to submit testimony and be heard in the process leading to the Metro Council's selection of the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project, including their locations.

On August 11, 2011, consistent with Criterion 2, the Metro Council held a public hearing and accepted public testimony on the proposed amendments to the 1998 LUFO. This followed public notice, which Metro published in *The Oregonian* on July 14, 2011, which is more than 14 days prior to its hearing. The Metro Council finds that *The Oregonian* is a newspaper of general circulation and that this publication of notice in *The Oregonian* meets and exceeds the requirements for notice set out in HB 3478.

In addition to the published notice, a postcard mailing announcing the hearing was mailed to people on Metro's South/North mailing list for the Columbia River Crossing Project. This list includes owners of property within 250 feet of the light rail and highway alignments and within 250 feet of the Ruby Junction Maintenance Facility boundary. Also, announcements of the 2011 LUFO public hearing were included on Metro's website.

Further, the Metro Council finds that there has been substantial community participation in the process leading to the selection of the proposed amendments. The Metro Council takes notice of, and incorporates by reference herein, the description of the community participation

process leading up to adoption of these 2011 LUFO amendments as set out in Appendix B of the Columbia River Crossing Draft Environmental Impact Statement (2008).

In summary, the Metro Council finds that the holding of the public hearing on August 11, 2011, satisfies the requirement of Criterion 2. It further determines and concludes that the notices provided through publication, mailings, recorded announcements and by other means were reasonably calculated to give notice to people who may be substantially affected by the Metro Council's decision on TriMet's application.

The Council heard argument that the nature of this proceeding required the Council to follow quasi-judicial hearing procedures. The Council doubts that a proceeding involving miles of light rail track and roadway improvements affecting scores of properties and serving many tens of thousands of users each day is quasi-judicial. More significantly, the Council finds that the procedures it follows in adopting land use final orders are dictated by Section 7 of HB 3478 and that Section 7 does not mandate the use of quasi-judicial procedures in such proceedings. The Council finds that its compliance with the process set out in HB 3478 providing public notice of this proceeding, authorizing submittal of written testimony and calling for a public hearing provided interested parties with an adequate opportunity to present their views to the Council is sufficient, noting that the process set out in HB 3478 is an alternative land use siting process authorized by the legislature to achieve the purposes of the legislation. *See Seto v. Tri-County Metro. Transportation Dist.*, 311 Or 456 (1991). All that stated, the Council also finds that the procedures it authorized for this LUFO amendment provided for limited rebuttal to any new evidence introduced by the applicant during the applicant's rebuttal.

6. Compliance with Substantive Criteria (3-8) Long Term Impacts

6.1 Introduction

The Columbia River Crossing portion of the South/North Project will extend South/North light rail transit from the Expo Center to the Oregon/Washington state line on the Columbia River and then farther northward into Vancouver, Washington. The total length of the LRT extension is 2.9 miles, of which 1.0 mile is within the State of Oregon. Additionally, the Columbia River Crossing portion of the Project will provide two new bridge spans over the Columbia River, enhance pedestrian and bicycle travel in the area, widen and improve I-5, and substantially improve mobility on and the connectivity of the surrounding roadway network between N Victory Boulevard and the Columbia River.

This LUFO amendment affects the Hayden Island segment and a portion of the Expo Center segment of the South/North Project, as identified by the Council in the 1998 and 1999 LUFOs. For ease of analysis, those two segments are addressed as a single, consolidated segment (Expo Center/Hayden Island) in these findings.

6.2 Supporting Documentation

In addition to the findings of fact addressing the selected light rail route, stations, maintenance facilities and highway improvements for the Columbia River Crossing Section of the South/North Project, the Metro Council believes, adopts and incorporates by reference herein the facts set forth in the following documents:

- *Columbia River Crossing Draft Environmental Impact Statement (2008)¹³
- *CRC Project Description for Oregon (describing the Oregon portion of the Project to be included in the FEIS) (2011)
- *Preliminary Columbia River Crossing Technical Reports (including appendices) (2011):
 - *Acquisitions Technical Report
 - *Air Quality Technical Report
 - *Archaeology Technical Report
 - *Aviation Technical Report
 - *Cumulative Effects Technical Report
 - *Economics Technical Report
 - *Ecosystems Technical Report
 - *Electromagnetic Fields Technical Report
 - *Energy Technical Report
 - *Environmental Justice Technical Report

¹³ The Council is aware that the CRC Project as identified in the DEIS has been modified and supplemented and its supporting information has been updated. The 2011 technical reports reflect the Project, as it will appear in the FEIS. To the extent the DEIS is inconsistent with the Project as developed for the FEIS (e.g., a 10-lane bridge instead of a 12-lane bridge) and information in the 2011 Preliminary Columbia River Crossing Technical Reports, the Council relies on the more recent information.

- *Geology and Groundwater Technical Report
- *Hazardous Materials Technical Report
- *Historic Built Environmental Technical Report
- *Indirect Effects Technical Report
- *Land Use Technical Report
- *Navigation Technical Report
- *Neighborhoods and Population Technical Report
- *Noise and Vibration Technical Report
- *Parks and Recreation Technical Report
- *Public Services Technical Report
- *TDM and TSM Technical Report
- *Traffic Technical Report
- *Transit Technical Report
- *Utilities Technical Report
- *Visual and Aesthetics Technical Report
- *Water Quality and Hydrology Technical Report
- *Wetlands and Jurisdictional Waters Technical Report
- *Stacked Transit/Highway Bridge Memorandum
- *Highway, local road and transit roll map
- *Biological Assessment for Threatened, Endangered, and Candidate Fish
- *Draft Stormwater Management Design

Additionally, the Metro Council takes official notice of the following documents:

1. Oregon Laws 1996 (Special Session), Chapter 12 (House Bill 3478) and Oregon Laws 1991, Chapter 3 (Senate Bill 573)
2. Metro Regional Framework Plan and its components, including the 2040 Growth Concept Map, the Urban Growth Management Functional Plan, the 2035 Regional Transportation Plan (RTP) and the Regional High Capacity Transit System Plan
3. City of Portland Comprehensive Plan, Transportation Plan and Land Use Regulations
4. The following resolutions adopted by the Metro Council, including their exhibits and attachments:
 - Resolutions No. 98-2673, July 23, 1998; No. 99-2853A, October 28, 1999; No. 03-3372, January 15, 2004; and No. 08-3964, July 24, 2008, (adopting or amending the South/North Land Use Final Order)
 - Resolution No. 02-3237A, November 14, 2002, (endorsing the I-5 Transportation and Trade Partnership's "Final Strategic Plan" (June 2002))
 - Resolution No. 08-3960B, July 17, 2008 (endorsing the Locally Preferred Alternative for the Columbia River Crossing Project)
 - Resolution No. 11-4264, June 9, 2011 (regarding considerations and concerns raised about the Columbia River Crossing Project)
5. Metro Ordinance No. 10-1241B, June 10, 2010 (adopting the 2035 Regional Transportation Plan)
6. The following resolutions adopted by TriMet, including their exhibits and attachments:

- Resolution Adopting a Land Use Final Order (SB 573), April 12, 1991 (adopting the Westside Corridor Project Land Use Final Order)
- Resolutions No. 93-07-56, July 28, 1993; No. 93-07-57, July 28, 1993; No. 95-08-60, August 23, 1995; and No. 96-01-10, February 28, 1996 (adopting the Hillsboro extension of the Westside Corridor Project and amendments to the Westside Corridor Project and Hillsboro Extension Land Use Final Orders)

6.3 Expo Center/Hayden Island Segment: Findings and Mitigation Measures

As noted in Section 2.2 of these findings, the Expo Center/Hayden Island Segment of the South/North Project includes the following facilities in Oregon:

- For light rail, the Project extends the existing MAX light rail facilities from the Expo Center Station in north Portland northward across Hayden Island to the Oregon/Washington state line on the Columbia River. The light rail transit alignment is located generally to the west of the alignment approved in the 1998 South/North LUFO and includes one LRT station on Hayden Island.
- For the highway improvements, the Project begins just south of N Victory Boulevard and extends northward to the Oregon/Washington state line on the Columbia River. The multi-modal Project includes a new bridge crossing over the Columbia River (including the LRT extension noted above), and related highway, interchange and bicycle and pedestrian improvements.

See **Figures 1.1 to 1.3** of the LUFO for the boundaries within which these light rail facilities and highway improvements will be located.

6.3.1 Criterion 3: Neighborhood Impacts

“Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process or, if reasonable and necessary, by affected local governments during the local permitting process.”

- “A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.”

“B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.”

Criterion 3 requires the Council to provide for a light rail route, stations, lots, maintenance facilities and associated highway improvements, “balancing” the need to protect affected neighborhoods from identified adverse impacts with the positive benefits provided by light rail proximity and service (including the development of an efficient and compact urban form) and by an improved highway system.

The Council finds that the Columbia River Crossing Project amending the 1998 LUFO includes both light rail facilities and associated highway improvements. These improvements were identified and analyzed as Alternative 3 in the DEIS issued in 2008. After a public hearing on the DEIS on May 29, 2008 and extensive public review, a Locally Preferred Alternative (LPA) was selected. The LPA was endorsed by TriMet and ODOT and is being advanced into the Final Environmental Impact Statement as the Preferred Alternative. The Preferred Alternative includes the light rail improvements necessary and appropriate to extend the South/North Light Rail Project into the State of Washington and the associated highway improvements, as presented in this application.

The Council finds that the CRC Project, as set out in the LPA and the LUFO application, will be a significant transportation improvement project in which light rail, highway, bicycle and pedestrian improvements are all associated as part of an integrated, multi-modal project. The Council finds that the affected local governments and agencies involved in this Project have expressed strong interest that the Project be a joint light rail and highway project. It finds that the associated highway improvements directly and indirectly serve the light rail improvements by accommodating the alignment (e.g., new I-5 bridges, new arterial bridge over the North Portland Harbor) or providing regional and local access to the Expo Center and Hayden Island light rail stations (e.g., I-5 interchange improvements, access and circulation improvements and roadway modifications on Hayden Island and in the vicinity of the Marine Drive interchange). The Council further finds that some of the highway improvements are needed for engineering purposes to accommodate the new bridge containing the light rail alignment and the modifications to the I-5 interchanges and their approaches. And the Council finds that the light rail and highway improvements are linked together as well in federal and state proposals for funding the Project. See Metro Resolution No. 11-4264 and Exhibit A attached thereto, incorporated herein by this reference.

Description of Affected Neighborhoods in the Expo Center/Hayden Island Segment

The consolidated Expo Center/ Hayden Island segment extends north from N Marine Drive across the North Portland Harbor and Hayden Island to the Oregon/Washington state line in the Columbia River. The segment includes portions of the East Columbia, Kenton, Bridgeton and Hayden Island neighborhoods. These neighborhoods are identified and described in the

Neighborhoods and Population Technical Report, incorporated herein by reference. Major public land uses in this segment include the Portland International Raceway, the Expo Center, and Delta Park.

The *East Columbia Neighborhood* is located directly east of I-5 and extends from the Columbia Slough north to Marine Drive. East Columbia contains a variety of land uses including large recreational and entertainment uses on the western and eastern boundaries of the neighborhood. One such use is East Delta Park, which is 86 acres in size. It features the Delta Sports Complex with five lighted softball fields and a synthetic soccer field. The complex also hosts additional softball fields, seven grass soccer fields, six sand volleyball courts, a playground, picnic tables, an off-leash dog area, and nature trails. The neighborhood also includes wetlands, trucking companies, and small industrial businesses. Other amenities within the East Columbia Neighborhood are Portland Meadows Race Track and Columbia Edgewater Golf Course. Between these large tracts of land are several manufactured home parks and large tracts of industrial land.

The East Columbia Neighborhood contained an estimated 2000 US Census population of 344. The percentage of African American residents is approximately twice that of the county or city, while the percentage of Hispanic or Latino residences is substantially smaller than that of the county or city. The percentage of population 65 years of age or older is one-third of the city percentage and slightly more than one-third of the county percentage.

The *Kenton Neighborhood* is located west of I-5 and extends from Lombard Avenue to North Portland Harbor. Kenton contains a wide range of uses, including residential, commercial, industrial, and recreational. Single-family residential development is concentrated south of Columbia Boulevard, with commercial and industrial uses located to its north. Multi-family residential dwellings are scattered throughout the neighborhood, but a majority are found among densely packed commercial structures along Interstate and Lombard Avenues.

The northern portion of Kenton contains multiple community resources including Portland International Raceway, Heron Lakes Golf Course, Multnomah County Fairgrounds, and the Expo Center. The large Paul Bunyan statue at the intersection of N Interstate and N Argyle Avenues, the Kenton Neighborhood Rose Garden, and the Historic Kenton Firehouse are also important cultural resources that provide identity to the community. West Delta Park and Vanport Wetlands serve as natural resources, as does Kenton Park on Brandon Avenue. There are many historic resources including the Kenton commercial historic shopping district on Denver Avenue, the historic David Cole House on N McClellan, and the historic Kenton Firehouse on Brandon Avenue.

The Kenton Neighborhood contained an estimated 2000 US Census population of 7,086. The percentage of African American residents in Kenton is more than twice that of the county or city, while the percentage of Hispanic or Latino residents is slightly higher than that of the county or city. The percentage of population 65 years of age or older is within one percent of the city percentage and county percentage.

The *Bridgeton Neighborhood* is located east of I-5 on North Portland Harbor. It is an early Portland neighborhood with cottages built between 1915 and 1930 along the Columbia River.

Residential uses are concentrated at the eastern end of the neighborhood, both on land in rowhouses and detached single-family dwellings, and on the river in floating homes. Industrial uses can be found directly adjacent to I-5 around the Marine Drive interchange. There is a small commercial node at Marine Drive and I-5. Columbia High School and its adjacent playfield act as important community resources, as do the neighboring sloughs and the Columbia River, which provide recreational uses.

The Bridgeton Neighborhood contained an estimated 2000 US Census population of only 39 within the area of potential impact from the CRC Project. The percentage of Hispanic or Latino population is lower than the county and city, while the percentage of African Americans is double that found in Multnomah County and almost double the percentage found in Portland. The percentage of population 65 years of age or older is one-third of the city percentage and slightly more than one-third of the county percentage.

While a range of uses is located in the *Hayden Island Neighborhood*, the primary use is commercial. Jantzen Beach Center, a large commercial mall, and other retail uses are located to the west of I-5. Hotels and restaurants are also located on the island. Residential uses are located in the northwestern and eastern portions of the island. The residences in the northwestern area are manufactured homes. In the eastern portion of the island the residences are both on the land and in the river; floating homes are located on the south side of the island and along North Portland Harbor. Small marinas are located around the island.

The Hayden Island Neighborhood contained an estimated 2000 US Census population of 2,086. The percentage of minority population and proportion of households below the poverty level is lower in the neighborhood than for the county and the region. The percentage of population over 65 years of age is considerably higher than averages for the county and the region.

The LRT alignment will generally parallel the west side of I-5 through this segment, with a station located at the east end of the Jantzen Beach Center.

Identify adverse economic, social and traffic impacts on affected neighborhoods. Identify measures to reduce those impacts.

Economic, social and traffic impacts specific to the Expo Center/Hayden Island segment are addressed in the following section. Economic, social and traffic impacts are also described, along with corresponding mitigation measures, in the Acquisitions Technical Report, Aviation Technical Report, Economics Technical Report, Environmental Justice Technical Report, Land Use Technical Report, Navigation Technical Report, Neighborhoods and Population Technical Report, Traffic Technical Report, Transit Technical Report, and Visual and Aesthetics Technical Report.

For the purpose of these findings, long-term adverse impacts generally are grouped under one of three headings: economic, social or traffic impacts. The Council recognizes, however, that impacts often can fall under more than one heading. For example, impacts on freight movement may be relevant as both economic and traffic impacts. Displacements have both

economic and social implications. Parking can be categorized as an economic, social and traffic concern. The Council intends these findings to be interpreted broadly to allow overlap among these different categories.

Although the following list is not exclusive, the Council finds that the economic, social and traffic impacts associated with the CRC Project fall primarily within the following categories:

Economic Impacts

- Business displacements
- Loss of parking/access
- Tax base
- Freight movement (train, truck, water and air)

Social Impacts

- Residential displacements
- Access to community facilities
- Barriers to neighborhood interaction
- Safety and security
- Visual/aesthetic

Traffic Impacts

- Transit
- Systemwide and local traffic impacts

As noted, Criterion 3 directs the Council to balance these impacts with the need for light rail and highway improvements. Before identifying the adverse economic, social and traffic impacts on the affected neighborhoods, the Council finds it useful to briefly summarize the need for the light rail and highway improvements that comprise the Columbia River Crossing Project.

Overview of Need for Light Rail and Highway Improvements in the Expo Center/Hayden Island Segment

The Council finds that the Columbia River Crossing Project seeks to address problems relating to growing travel demand and congestion; impaired freight movement; limited public transportation operation, connectivity and reliability; safety and vulnerability to incidents; substandard bicycle and pedestrian facilities; and seismic vulnerability.

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

shoulders) when an accident occurs or when vehicles break down. These conditions make congestion worse and decrease safety. Traffic can also become congested when the bridges' lift spans are raised to allow large river vessels to navigate underneath the bridges.

2. **Impaired freight movement:** Congestion on I-5 reduces freight mobility between regional markets in Portland and Vancouver, as well as national and international (Mexico or Canada) destinations along the I-5 corridor. Freight trucks most often travel in the middle of the day to avoid congestion, but can be delayed by bridge lifts. As hours of congestion continue to increase over time, travel times for freight trucks will continue to increase—even when traveling during the off-peak hours. This increases delivery times and raises shipping costs. It also negatively affects this region's economy. Truck-hauled freight in the Portland-Vancouver metropolitan region is expected to grow more rapidly than other forms of freight movement (such as marine-hauled freight).
3. **Limited public transportation operation, connectivity, and reliability:** Congestion on I-5 reduces bus travel speeds and reliability. Local bus services currently travel between downtown Vancouver and downtown Portland. Express bus routes serve commuters by providing service directly from Clark County park-and-rides to downtown Portland. Both of these services travel over the I-5 bridges. Bus travel times from downtown Vancouver to Hayden Island increased 50 percent between 1998 and 2005. On average, local bus travel times are from 10 to 60 percent longer during peak periods than during off-peak periods.
4. **Safety and vulnerability to incidents:** Over 300 vehicle crashes are reported annually on I-5 in the project area, making this one of the most accident-intensive sections of I-5. This high accident rate is a result of multiple highway design features that do not meet current standards, including:
 - Close interchange spacing – Within the CRC Project area, I-5 has six interchanges spaced approximately one-half mile apart. The recommended minimum distance between interchanges is one mile so that cars entering and exiting the highway have enough distance to fully merge with traffic or diverge to the off-ramp before the next interchange.
 - Short on- and off-ramps – Several on-ramps are not long enough for vehicles to reach highway speed before merging with highway traffic. Off-ramps are too short for safely slowing down, and during heavy traffic, these short ramps may cause exiting vehicles to back up onto I-5. This generates traffic congestion and can cause accidents because maneuvering is difficult, especially for large trucks.
 - Vertical grade changes – A “hump” in the I-5 bridges that accommodates the Columbia River shipping channel blocks the view of roadway conditions ahead. This blocked view reduces speeds and creates potential hazards to motorists.
 - Narrow lanes and shoulders – Several portions of I-5 in the project area have narrow inside and outside shoulders, while the I-5 bridges essentially have no shoulders, with less than one foot between the outside lanes and the bridges' side barriers. The

northbound I-5 bridge also has lanes one foot narrower than the minimum standard for a highway, and no shoulders. These conditions place vehicles very close to physical barriers and other vehicles, causing motorists to slow down, and do not provide space for disabled or emergency vehicles.

- Hazardous river navigation – The U.S. Coast Guard (USCG) allows ODOT to not raise the I-5 bridges' lift spans during peak traffic periods because of the substantial impacts this would have on bridge traffic. This requires boats heading downstream (west) to navigate using the fixed “barge channel” near the middle of the river, and then quickly turn to line up with the narrow opening on the north end of the Burlington Northern Santa Fe (BNSF) railroad bridge, located about one mile downstream. This movement is especially difficult during high river levels.
5. **Substandard bicycle and pedestrian facilities:** The bicycle and pedestrian paths on the I-5 bridges are very narrow (four feet wide in most places, decreasing to less than four feet at some locations) and extremely close to traffic and to the steel trusses. Also, the connections to these paths at both ends of the bridges are difficult to follow, especially around the Marine Drive and Hayden Island interchanges, which at times require riders to cross active roadways. Many existing non-motorized facilities cannot be used by persons with disabilities, and thus do not comply with the Americans with Disabilities Act (ADA) accessibility standards.
 6. **Seismic vulnerability:** The I-5 crossing of the Columbia River main stem consists of two bridges, one built in 1917 (the northbound structure) and the other built in 1958 (the southbound structure). The foundations of both bridges rest in soils that could liquefy during a major earthquake. Neither bridge was built to current earthquake safety standards and could be damaged or collapse during a major earthquake.

Economic Impacts

The overall quality of the transportation system is an important factor in the viability of the local and regional economy. For decades, transit has played an important role in maintaining the level of service and operation of the overall regional transportation system, particularly because the region has made a policy commitment to invest in transit improvements rather than expanded highway capacity. But for the overall transportation network to function efficiently, including transit service, significant highway improvements are necessary at times. This is the case with I-5, which is the principal major arterial in Oregon serving statewide transportation needs, including the movement of freight.¹⁴

Overall, the Columbia River Crossing portion of the South/North Project will result in positive impacts in the Expo Center/Hayden Island segment because improved transit capacity will be available to support more intensive development in the Jantzen Beach area and the highway improvements, including the new I-5 bridges, improvements to I-5 and its

¹⁴ I-5 serves this role for Washington and California as well, as (heading north to south) the freeway extends from the Washington/British Columbia border through major northwest metropolitan centers in Seattle, Tacoma, Olympia, Portland, Salem, Eugene and Medford into northern and southern California.

interchanges, and improvements to local roadways in the area, will provide greater accessibility and mobility not just for automobile and truck traffic but also for transit riders, bicyclists and pedestrians. LRT will also offer an alternative to traveling on I-5. However, the long-term benefit must be balanced by the short-term adverse economic impacts associated with the displacement of existing businesses on Hayden Island and in and near North Portland Harbor.

Business Displacements. In every instance where the South/North Project displaces an existing commercial or industrial use, that represents an adverse economic impact. Displacements affect employment, incomes, services and taxes. Even though the adverse impacts associated with displacements in the Expo Center/Hayden Island segment may not be significant on a region-wide or citywide level, the Metro Council recognizes and is sympathetic to the significance of each displacement at the individual business and community level. The Council understands and acknowledges that relocations can cause significant anxiety and trauma not only to the company being displaced, but also to employees who work for the company.

Given that the South/North Project as a whole, including the Columbia River Crossing Project portion of the South/North Project, serves a largely developed urban area, it is impossible to avoid displacement impacts while still providing transit accessibility and highway improvements. To the extent feasible and practicable, the South/North LRT route has been designed to follow existing public road and railroad rights-of-way to minimize displacement impacts. Locations for related facilities such as LRT stations, park-and-ride lots and operations & maintenance facilities also have been selected with the objective of balancing displacement and other adverse impacts with the positive benefits of LRT proximity and service. Highway improvements generally have been located within or next to existing highway right-of-way to minimize displacement impacts.

Oregon Mainland. On the Oregon mainland south of Hayden Island, the Columbia River Crossing Project would displace five businesses in the Marine Drive area: a boat sales business, a boat repair business with an auxiliary boat dock, a billboard operated as a business, and two marine businesses with a total of 25 staff and approximately \$10.6 in annual sales revenues. The boat sales business and the two marine-related businesses are dependent upon a location close to the river. Finding suitable locations for boat sales, a boat dock, and the repair and marine-related businesses may be difficult because much of the Columbia River area in the vicinity of freeway access is built up for either residential or industrial/commercial use. ODOT would provide relocation assistance to displaced businesses.

Hayden Island. On Hayden Island, the Columbia River Crossing Project would displace an estimated 39 businesses with a total of 643 employees and approximately \$62.7 million in annual sales revenues. The displacements include a section of restaurant and bar establishments currently between the existing freeway and N Center Drive; a restaurant and an office supply store west of N Center Drive; eateries and a cellular services store north of N Hayden Island Drive; fast food and service establishments along N Jantzen Beach Drive; two cellular arrays run as businesses both east and west of I-5; and the Safeway store east of I-5 between the existing freeway and N Jantzen Drive.

Hayden Island is a regional draw because of the numerous big box retail establishments located west of the freeway and the Jantzen Beach SuperCenter. Although the extent of displacements caused by the project is substantial, these regional attractors would not be directly affected. The City of Portland has, however, documented a vision for this area in the Hayden Island Plan (City of Portland, adopted August 2009). This plan assumes redevelopment of the SuperCenter property into a Regional Retail Center (called a “Lifestyle Center”) with mixed-use and transit-oriented residential to the south. Redevelopment of the property is of interest to its current owners, who have entered into a design process, but planning has been put on hold because of current economic conditions. Even without redevelopment of the property, the retail uses west of the freeway could be assumed to draw regional traffic in the long run.

More important from an economic standpoint is the effect of the project on island residents as customers and/or employees of displaced businesses. The majority of businesses displaced by the project serve mainly local clientele. These include a series of delis and bars west of the freeway; local fast food and sit-down restaurants; retail; and services. The project displaces one of the two banking establishments and the only grocery store on the island. ODOT would work with affected business owners to provide relocation assistance.

The Safeway Grocery Store is the only grocery store on Hayden Island since another grocery store (Zupan’s) closed several years ago. The Columbia River Crossing Project may suggest replacement sites for the relocation of Safeway, but it is up to the storeowners to choose their replacement location, if any. While Safeway may not relocate on the island, it could be replaced by other grocery stores. Officials representing the Jantzen Beach SuperCenter initiated a site plan review with the City of Portland for a relocation and expansion of the Target store on the island. Plans submitted to the City of Portland’s Bureau of Development Review indicate that the Target store would include a grocery and a pharmacy.

Safeway officials have indicated that it would be difficult for the store to relocate to another site on Hayden Island or in the Delta Park area because of the current lack of available sites. They may be able to locate a replacement store in either the North Portland area or South Vancouver. Alternately, Safeway may choose to remodel or expand existing stores in Vancouver or Portland. Relocation of Safeway to the north would mean a permanent loss in tax revenues for the City of Portland. Relocation to either the north or south would mean required travel on I-5 or the local traffic bridge between Hayden Island and North Portland for all customers and employees currently living on the island. Added to this is that movement to another location could reduce the viability of other Safeway stores nearby. Currently there are six other Safeway stores within five miles of the store on Hayden Island. Four of these are in Vancouver and two are in Portland.

The direct impacts on Hayden Island have the potential to significantly affect wage-earning opportunities for those seeking service industry employments. According to the Oregon Employment Department, the average salaries of most food preparation and service workers within Multnomah and Washington Counties fall within the range of \$18,000 to \$23,000 per

year. Wages within this range would lift all individuals and most small families above the federal poverty guidelines and therefore would not constitute an environmental justice impact.

Measures to Mitigate Displacement Impacts. The methods used to determine displacement impacts are described in the Acquisitions Technical Report. A displacement occurs if a use, such as a building or parking lot, is demolished or moved as a result of the project, or if people or a business can no longer occupy the building as a result of the project. Individuals or businesses that are displaced from their real or private property would be eligible to receive relocation benefits.

Where property acquisition and residential or business displacements are unavoidable, the project would provide mitigation. These mitigation measures are addressed by federal and state regulations, which require that acquired property be purchased at fair market value and that individuals living in a residence displaced by the project be provided decent, safe, and sanitary replacement housing. Displaced households and businesses would be relocated per the Uniform Relocation and Real Property Acquisitions Policies Act of 1970, as amended (Uniform Act). Under these regulations, relocation experts would:

- Explain all relocation programs to the affected businesses;
- Assist in preparing and filing reimbursement claims; and
- Assist in completing forms required by the lending institutions, the Small Business Administration, and others associated with the lease or purchase of new properties.

All properties required for the CRC Project will be acquired at fair market value for land and improvements. If only a portion of a property is required, the acquisition price will also reflect any measurable loss in value to the remaining property due to the partial acquisition. Generally, the relocation process occurs concurrently with the acquisition of affected properties. Relocation benefits vary between residential and business properties and may include payment for actual reasonable expenses of moving a business or personal property and/or other benefits, such as rent supplements, increased interest costs on replacement dwellings, reasonable search costs for new business sites, and business reestablishment costs. Relocation assistance for businesses could include moving costs, site search expenses, business reestablishment expenses, and assistance in locating a replacement business site. The specifics of relocation assistance are determined on an individual basis and are based, in part, upon ownership or tenant status.

Each acquiring agency (TriMet or ODOT) has an established advisory services program to ensure that displaced businesses or persons receive adequate assistance in relocating to a new business site or to decent, safe, and sanitary housing, respectively, with a minimum of hardship. For displaced businesses, such services could include the hiring of an outside specialist to assist in planning the move, making the move, and reinstalling machinery and other personal property. For displaced residents, these advisory services could include supplying information concerning federal and state programs that offer assistance to displaced persons and technical help in applying for such assistance or providing transportation to displaced persons to search for or view replacement housing. These programs work to ensure

that the acquiring agency takes advantage of all financial and personal resources available during the relocation process.

The displacement of publicly owned facilities, such as the ODOT permit center, could be mitigated by functionally replacing the property acquired with another facility that would provide equivalent utility. Alternately, such facilities could be provided relocation assistance in a similar fashion as displaced businesses.

In some instances there may be opportunities for minor design modifications to avoid or reduce business displacement impacts. During the preliminary and final engineering processes, engineering staff will try to minimize displacement impacts to the extent practicable through design refinements.

Although there are multiple vacant buildings on the island, including several in and around the Jantzen Beach SuperCenter, the island is limited in its capacity to provide appropriate replacement sites for the 39 businesses that would be displaced by the Project. As a result, many of these businesses may have to relocate outside the main project area. According to the Hayden Island Plan, there are plans to redevelop a portion of the Jantzen Beach SuperCenter site into a high-density mixed-use transit-oriented development supported by the new light rail station. This redevelopment would include new commercial space that could house existing businesses and attract new ones to the island. It is not known when this redevelopment would occur, and therefore it is not known whether businesses displaced by the Project could be directly relocated to the newly constructed space.

Several measures are potentially available to mitigate for the loss of service industry jobs on Hayden Island. Many large public projects in the region set goals for hiring local contractors, utilizing apprenticeships, and otherwise cooperating with job training programs. The City of Portland has requirements for City projects that pertain to both of these measures as well as the hiring of minority, women-owned, emerging, and disadvantaged businesses. The project could adopt similar goals for construction contracting. The project could include innovative requirements in its construction contracting and contractor selection, with the intent of providing job training and a preference for local services.

Workforce practices can be used to provide experience and business for disadvantaged workers and companies. For instance, apprentices could be used for a percentage of labor during construction. Alternatively, the project could set a goal for the percentage of construction dollars contracted to DBE firms with a focus on those in within the project area.

Lastly, the project could work with TriMet to maintain the existing bus service that regularly connects Hayden Island with nearby grocery and other retail services. This may include additional routing on the island to provide greater transit access during construction. The project could also work with TriMet to maintain paratransit service for qualifying, mobility impaired Hayden Island residents.

The provision of a light rail station, the completion of Tomahawk Drive, the improved I-5 access and capacity of the Hayden Island interchange, and the addition of direct local access

on a new local multimodal bridge would provide beneficial land use and economic impacts and would all contribute to the viability and success of the redevelopment plans for the island and mitigate for the business displacements on the island. Additional beneficial effects would result in improvements in the local street network consistent with the Hayden Island Plan.

Loss of Parking/Access. Loss of parking, and the loss or change of access, can have adverse economic impacts on businesses. If the project must remove an existing access, and if that access cannot be safely and adequately relocated or reconfigured, then the entire business is assumed to be displaced. Even if alternative access is available, it may not be as convenient as the existing access and could result in some loss of business.

Oregon Mainland. On the Oregon mainland on-street parking would not be impacted. However, the Expo Center parking lot would be reduced by 280 parking spaces, a reduction of 13 percent of the total parking. This area would be used for landscaping and the realignment of both Marine Drive and the new Expo Center Drive. The Expo Center seldom requires the use of all 2,100 parking stalls and any impacts that could be observed during peak events would likely be offset by the new light rail transit service provided connecting the Expo Center with Vancouver.

The realignment of Marine Drive and the new Expo Center Drive would eliminate parking spaces in a parking lot located on ODOT land, which is currently leased by Diversified Marine for equipment storage. Currently there are approximately 20 unstriped parking spaces in this parking lot. There is potential for identifying new space on the lessee's property or along property remainders for vehicle storage.

Two existing freight and truck storage businesses would experience impacts to their parcels from construction of the Delta Park to Vancouver Way connection over Martin Luther King Jr. Boulevard, and a connection between Martin Luther King Jr. Boulevard and N Haney Drive via Vancouver Way. These new connections could require relocation of existing access for both parcels. This portion of the CRC Project would reduce the parking capacity on the truck storage parcel south of Vancouver Way by approximately 55 to 60 vehicles, out of a total capacity of around 200 vehicles. Typical utilization is approximately 80 percent. This limits the number of vehicles able to park in the lot and could impact the viability of business at this location. The new roadway alignment bisects the existing storage lot, requiring a new access to be added for the northeastern segment cut off by the new road connecting to Marine Drive. The truck storage and distribution business north of Vancouver Way would lose approximately 50 truck parking spots, out of a total capacity of approximately 400 total spaces. The business could also lose some employee parking in one lot, though there is adequate room to relocate the displaced parking. Additionally, two fuel storage tanks and a refueling area located on the parcel would need to be relocated, potentially impacting existing parking configuration and reducing the number of available parking spaces.

The roadway realignments and extensions in the vicinity of the Marine Drive interchange associated with the CRC Project would improve access and circulation overall, with specific benefit for commercial vehicles accessing the freeway from Marine Drive. The realignment of Marine Drive would still provide circulation to I-5, Vancouver Way, and Martin Luther King Jr. Boulevard. Current uses in the area described below include a convenience store, gas

station, truck stop, hotels, residential, recreational, industrial and other commercial uses. Accessing the existing area of Marine Drive northeast of I-5 would require a minimum level of out-of-direction travel, but access would remain with the development of a new underpass that crosses through Werner Enterprise to Vancouver Way and on to Marine Drive.

A tire business would need to relocate its main entrance off of Vancouver Way to an existing access from N Haney Drive. A freight storage business south of Vancouver Way would need to relocate its entrance between N Haney Drive and the new connection to Marine Drive. Access would be kept open for the manufacturing facilities north of Marine Drive and west of I-5; however a local road would be constructed to preserve access to two businesses. The new Anchor Way extension under I-5 would allow traffic to circulate back onto the major roadways east of I-5 and would provide improved access to the west of I-5 for the businesses along this roadway.

The local traffic bridge connection between North Portland and Hayden Island would provide one lane in each direction over the North Portland Harbor, allowing residents and those accessing Hayden Island from the Oregon mainland an additional access option between the two areas, creating a local connection that currently does not exist. Local traffic near the arterial bridge and the Anchor Way extension could increase as drivers have the option to avoid the highway.

An aggregate gravel business's access and circulation would be modified. The access to the site would be via a driveway from the Anchor Way connection under I-5. Currently vehicles accessing I-5 from the site turn left directly onto Marine Drive. With the CRC Project, traffic accessing I-5 north from the site would go south on the new access road, travel along the east side of the Expo Center parking lot, turn right on Expo Road and right again on N Force Avenue, and finally turn right on Marine Drive, accessing I-5 via the single point urban interchange (phased highway option) or the flyover in the Full Build option. This is illustrated in Exhibit 4-5 of the *Economics Technical Report*.

The option of constructing the Bridgeton Trail between Marine Drive and the Columbia River would require a partial acquisition of multiple industrial parcels though no displacements would occur, and no economic impacts are anticipated. Design of the trail would need to consider the potentially conflicting users of freight and recreational bicyclists and pedestrians. Internal circulation within the aggregate gravel business is currently difficult. Some backing of vehicles onto Marine Drive is needed to access certain areas of the site. Left turns are currently allowed onto Marine Drive directly from the business but can be difficult when traffic flows are heavy

Hayden Island. There is currently no on-street parking on Hayden Island. However, parking lot impacts would be experienced for the following properties adjacent to I-5: Large hotel on N Hayden Island Drive (10 stalls removed out of approximately 700); Hotel on N Jantzen Drive (8 stalls out of 185); parking lot for floating homes (40 stalls out of 200), Jantzen Beach SuperCenter (175 stalls out of 1300+). The Jantzen Beach SuperCenter parking lot would have 175 spots permanently removed, but because of the high number of overall parking spaces in the area, the effect of this change would be small; a sufficient supply of parking

would remain at the SuperCenter to serve to serve anticipated future need most of the year, and the addition of light rail transit adjacent to the SuperCenter would help offset the small reduction in on-site parking.

Overall, the Project would improve access to Hayden Island. The extension of the Yellow MAX Line would provide direct transit service for residents, employees, and customers between the island and both downtown Portland and Vancouver. The two-lane local traffic bridge between Hayden Island and North Portland would also provide an off-highway option for travelers between the island and mainland Oregon. The Project includes widening two east-west local streets, extending N Tomahawk Drive under I-5, and widening N Jantzen Drive. Subsequent plans for the Jantzen Beach Super Center include rearranging the buildings around an extension of N Tomahawk Drive and the development of a new road connecting N Jantzen Drive to N Hayden Island Drive.

The widened N Jantzen Drive between the underpass with I-5 and N Hayden Island Drive to the north would acquire all the existing properties except for a fast food restaurant on the west and the hotel on the east side of N Jantzen Drive. The Project would restrict access to both the hotel and the restaurant to right-in/right-out only movements. The hotel and restaurant along N Jantzen Drive could experience circulation impacts, because the entrances and areas adjacent to the road are currently the primary access and circulation for the businesses. The expansion of the sidewalk along N Jantzen Drive to the east would require reconstruction of the guest canopy and load/unload area currently facing the street. This is the primary entrance for guests to the hotel, and alterations to the canopy could impact business operations. Access to the large hotel along N Hayden Island Drive would be reduced from three points to one new access opposite the widened N Jantzen Drive. This entrance would also serve banquet services and restaurants located on the property. All four businesses could experience slightly impaired circulation in the parking lot and increased congestion at the entrance. However, the design for N Jantzen Drive extends into the parking lot of the hotel, and could cause internal circulation issues, as the guest loading/unloading canopies and the principal entrance to the hotels would be difficult to maintain with the extension of the street.

The Columbia River Crossing Project team has coordinated with the City of Portland Office of Transportation, Bureau of Planning, the Portland Development Commission, and business owners on Hayden Island (through the development of the Hayden Island Plan and an Interchange Area Management Plan for the I-5/Hayden Island Interchange), to identify an adequate local circulation system, access spacing, and land use policies to manage demand on the interchange.

Although portions of parking lots near the Hayden Island Station could potentially be used as a de facto park-and-ride, the availability of 2900 park-and-ride spaces in Vancouver, Washington should minimize this likelihood. Because there will be a toll for vehicles to cross the bridge, the Council believes and finds that most Washington commuters travelling by light rail would park in Vancouver rather than at Jantzen Beach.

To mitigate for the adverse economic effects of the project, Interchange Area Management Plans (IAMPs) for the Hayden Island and Marine Drive interchanges are currently being developed in coordination with the City of Portland, ODOT, and other stakeholders. These efforts are building off the adopted Hayden Island Plan and the work of the Marine Drive Stakeholders Group. The IAMPs will provide a framework for access management and local circulation decisions in the context of these interchanges.

An Interstate Access Modification Request (IAMR) for the Hayden Island, Marine Drive, and Victory/Denver interchanges is also in preparation. The IAMR is a stand-alone document that includes the necessary supporting information needed for access modification requests to the Interstate System. An IAMR provides the rationale for access modifications to the Interstate System and documents the assumptions and design of the preferred alternative, the planning process, the evaluation of alternatives considered, and the coordination that supports and justifies the request for an access revision.

Tax Base. Local jurisdiction tax bases are affected in two ways by the development of large public infrastructure projects such as South/North light rail. First, and by far the greatest long-term impact, is the development and redevelopment that could occur in conjunction with the project. As this development occurs, the value of the investments is added to the tax base. The effect of this kind of impact is difficult to estimate because it is dependent upon many independent private decisions that would occur in the future. However, the Council finds that the overall impact should be positive.

The second type of impact is the direct impact to tax bases that occurs through property acquisition for construction of the project. Private property is typically acquired by the Project. Through acquisition, this property converts to public property and, as such, is removed from the tax rolls unless resold for private purchase. Often, the short-term impacts are minimal, as the loss in value in the tax rolls is offset over time by the expected greater increase in value added to the tax base due to new development in the corridor, specifically in station areas.

As shown below, the Columbia River Crossing Project will have a negative economic impact on the tax base through the displacement of business uses from the tax rolls. However, the Council finds that tax base impacts associated with displacement may be shorter-term because the availability of light rail and highway improvements is expected to spur redevelopment of the commercial area around the Hayden Island Station and could enhance property values and the tax base on a long-term basis.

Oregon Mainland. The five businesses displaced have an estimated right-of-way value of \$4.1 million, a property tax impact of \$27,000, which is 0.01% of Multnomah County budgeted 2008 property tax revenue.

Hayden Island. The 39 businesses to be displaced have an estimated right-of-way value of \$33.3 million, a property tax impact of \$219,000, which is 0.10% of Multnomah County budgeted 2008 property tax revenue.

Freight Movement. The area encompassed by the South/North Corridor is of critical importance to the movement of commodities within and through the Portland metropolitan area. The freight movement system in the South/North Corridor is comprised of two primary transportation modes: freight railroads and trucking. Additionally, along the Columbia River, the movement of commodities also relies on water freight movement and air transportation.

There are no rail lines crossed by LRT or the highway improvements in the Oregon portion of the Expo Center/Hayden Island Segment, so there will be no impact on *rail freight movement*.

Truck traffic relies heavily on the major streets and highways in the South/North Corridor and the region, including I-5. The Project is expected to improve traffic conditions in the corridor compared to No-Build and therefore will improve conditions for truck traffic, as addressed in the *Traffic Technical Report*. Daily truck travel demand would be similar for the No-Build and the Project because the movement of freight is substantially related to economic conditions in the region, and freight moved by trucks is not likely to shift travel modes due to congestion. However, truck demands by time of day would likely change because there would be fewer congested hours with the CRC Project, resulting in more trucks during the commuter peak and midday hours.

The Project would result in higher volumes of trucks during midday operations compared to the No-Build Alternative. The reduction in congestion and truck travel occurring throughout the day would mean more flexibility in truck scheduling and improved reliability of truck shipments. Exhibit 7-10 of the Traffic Technical Report summarizes truck volumes by time of day.

Adverse impacts to truck movements in the South/North Corridor include both potential delays due to increased congestion or out-of-direction travel associated with light rail, and the possible loss of on-street loading zones. Localized delays to peak-period truck activity could occur due to increased congestion that would result from reductions in roadway/intersection capacity associated with light rail operations. However, the overall improvement to traffic conditions in the corridor mitigates the localized delays that would occur from light rail.

The roadway realignments and extensions in the vicinity of the Marine Drive interchange associated with the Project would improve access and circulation overall, with specific benefit for commercial vehicles accessing the freeway from Marine Drive. The realignment of Marine Drive would still provide circulation to I-5, Vancouver Way, and Martin Luther King Jr. Boulevard. Accessing the existing area of Marine Drive northeast of I-5 would require a minimum level of out of direction travel, but access would remain with the development of a new underpass that crosses under I-5 to Vancouver Way and on to Marine Drive

The Council finds that the project would improve truck traffic through better local intersection operations and fewer hours of congestion on I-5 compared to the No-Build alternative.

Segments of two navigable waterways are located within the Expo Center/Hayden Island segment: the North Portland Harbor and the main Columbia River channel. The United States Coast Guard (USCG) has jurisdiction over navigation within these waterways, and

construction of a bridge across these waterways will require the USCG's approval of a bridge permit under Section 9 of the Rivers and Harbors Act of 1899 and the General Bridges Act of 1946, as amended.

The CRC project would have a positive effect on marine commerce on the Columbia River. The existing I-5 bridge structures each have nine piers that result in navigation "channels" between the piers. Three such channels are used for navigation:

- A wide span with approximately 60 feet of mid-span vertical clearance;
- A high span with approximately 70 feet of mid-span vertical clearance; and
- A lift span with approximately 40 feet of mid-span vertical clearance when closed and 180 feet when open.

The wide span is the main channel used for navigation, but during high-water many barges need to use the high span, or require bridge lifts at the lift span. In 2004, there were 604 bridge openings. The proposed I-5 bridges would be high enough to allow the vast majority of vessels to pass without bridge openings. With the exception of a small number of specialized vessels that use the river infrequently, the majority of vessels require vertical clearances of less than 90 feet from the surface of the water to the bottom of the bridge deck. The project team, in consultation with the Coast Guard, established a 95-foot minimum vertical clearance for structures built without a lift span. Vertical clearances greater than 95 feet would raise the bridge structure into restricted airspace for flight navigation. The 95-foot clearance with the Project will be fixed, not subject to lift restrictions, and accommodate all recreational and commercial vessels. Infrequent trips of marine contractor's cranes will not be accommodated. Their cranes or cargo may be broken down, at a cost, to meet proposed clearances. Reduced clearances resulting from the project will be mitigated by significantly improved navigational safety.

Currently, bridge openings are restricted to non-peak roadway commute hours. Thus, the new spans would provide more flexibility in operating schedules for marine commerce. The new spans would also eliminate some of the "S-Curve" marine movements currently required for marine traffic to pass under the highway and railroad bridge structures at their highest elevation.

Six piers would support the bridge structures, which is three fewer than exist on the current bridges, thus widening the horizontal clearance of navigation channels. The bridge span length would be 465 feet, with 390 feet of clearance for marine travel between the pile caps, which would be an increase over the width of the "main channel" by 127 feet and a decrease of the "barge channel" width by 121 feet. The current main channel width is 263 feet, and the barge channel has a horizontal clearance of 511 feet. The longer span lengths in the main channel would provide more room for boat captains to maneuver between the piers and improve the inherent safety of marine navigation.

The North Portland Harbor does not include a designated shipping channel and is largely travelled by recreational boaters and those accessing the water-oriented uses along the Harbor.

All of the new structures would have at least as much vertical clearance over the river as the existing North Portland Harbor bridge.

The Council finds that the project will improve marine navigation due to the removal of the “S-Curve” maneuver that currently exists; the removal of bridge lifts and associated restrictions; and the reduction in the number of piers in the river.

Two airports are located near the CRC Project area. Portland International Airport (PDX) is located about three miles southeast of the project on the Oregon side of the Columbia River. It is the major regional airport and serves large commercial passenger and freight service, private aircraft, and the Air National Guard. Planned expansions include both potential runway extensions and the addition of a new runway.

Pearson Field is located directly east of the project on the Washington side of the Columbia River. It serves primarily small piston-engine aircraft weighing 10,000 pounds or less. Because developed urban uses and the Vancouver National Historic Reserve (VNHR) surround it, there are no plans to expand facilities or operations at this airfield.

The lift towers of the existing bridge currently intrude 98 vertical feet into protected airspace for Pearson Field and are an aviation hazard. To avoid the towers, aircraft must use special departure and arrival procedures. The new bridge designs will not include lift towers. The bridges would be located slightly farther from the airfield, and so would intrude less into Pearson Field airspace.

The Council finds that the project will improve aviation safety and efficiency due to the removal of lift spans in Pearson Field’s airspace. At worst, the project will have no negative impact to air freight.

Other Economic Impacts. Other economic impacts include the disruption of business during construction, possible loss of property values, possible inability to sell a business or secure loans to pay off mortgages or other business debts due to proximity to the light rail alignment or related light rail facilities, changes in business activity resulting from changes in traffic patterns or access management measures, and utility relocations. Construction impacts are addressed in the Short-Term Impacts portion of these findings (Section 7.0). The Council finds that generally, there is no required mitigation for temporary economic loss or business interruption during construction of a public project. However, for this specific project, the Council finds that TriMet would be willing to provide staff assistance to impacted property owners in assisting the property owners with their loan refinancing and/or loan application processes. Programs to help businesses affected during construction would include some combination of the following: business planning assistance, marketing and retail consulting, and promotions to generate patronage in construction areas. TriMet would provide these programs; similar programs have been employed on recent light rail extension projects. The Council also finds that there may be reductions in property values, but it believes and finds that most of these properties will increase in value over the long term following construction. The Council finds that no mitigation is necessary for possible temporary reductions in property value.

As a result of improvements to I-5 and the local street network, including access management measures associated with highway improvements, some area traffic patterns will change. Drivers are likely to choose routes that can take advantage of the new roadway capacity and intersections that operate better as a result of the Project. Some local businesses will experience an increase in drive-by traffic, while others will experience a decrease, especially if access becomes more out-of-direction. A significant decrease in drive-by traffic, for some businesses, may result in an adverse effect on business revenues. For example, the Project includes a new design for the North Marine Drive/Union Court intersection. The new design will improve mobility, traffic operations and safety. However, it will also reduce traffic volumes at North Marine Way and North Vancouver Way. There are businesses at this location that could experience a decline in revenues as a result of this change in the local traffic patterns. Similarly, access management measures associated with the Marine Drive and Hayden Island interchanges could make access to certain businesses more out-of-direction and less convenient, which could impact overall business revenues. Out-of-direction travel associated with changing traffic patterns or access management measures also adds costs in terms of increased fuel consumption for patrons of affected businesses. The Council finds that during the preliminary and final engineering processes, engineering staff will try to minimize impacts associated with traffic pattern changes and access management measures to the extent practicable through design refinements.

The Council heard testimony that in some instances, impacts associated with changes in traffic patterns or access management resulting in more out-of-direction travel will severely impact existing businesses, such as fast food restaurants, a hotel and convenience stores that have not been identified as being displaced, to the point that they would not be profitable. Initially, the Council finds that for some of these businesses located on Hayden Island, the roadway modifications resulting in these impacts are consistent with the City of Portland's adopted Hayden Island Plan and that testimony objecting to the provisions of that plan constitutes an unlawful collateral attack on that plan. That stated, the Council finds that a process is available to consider these kinds of impacts through final design and development of the Interchange Area Management Plan. During these processes, there will be a detailed analysis of impacts on affected properties. If damages to a business are found to be different from those currently projected, such that a full displacement is justified and warranted, then the property could be fully displaced. And while the Council heard testimony that current economic conditions may put redevelopment plans for Hayden Island "on hold", it finds that planning addresses development over the long-term and that economic conditions are cyclical, such that redevelopment is likely to occur when the economy improves.

The project will require relocation of certain utility facilities and lines. Utility relocations typically are addressed during preliminary engineering and final design. The Council finds that the costs of relocating utilities impacted by the project are addressed, and can be paid, as provided in existing law.

For some, bridge tolling may constitute an adverse economic impact. Tolling of interstate facilities must be consistent with Title 23 U.S.C. Section 129, the federal law that specifies the circumstances under which interstate facilities may be tolled. The CRC Project qualifies,

though tolling on I-205 does not. The Council finds that at this point that tolling will be necessary both to manage congestion and as part of a funding package for the CRC Project along with federal and state funding. It also finds that tolling would likely be beneficial for freight-dependent businesses and businesses that rely on just-in-time deliveries, because the predictability of travel times would improve. However, the greater the toll, the higher the operating costs for truck movements. For other kinds of businesses, tolling will be an additional expense. However, time savings associated with improved mobility on I-5 will help mitigate that impact.

Concerns have been raised that tolling the I-5 bridge could divert traffic onto the I-205 bridge, increasing congestion and causing added delays on that bridge and its approaches from I-84 and I-205. The Tolling Study Report, released in January 2010, indicates and the Council finds that at the Columbia River, there is an approximate 4.5% shift of auto trips on an all day basis from I-5 to I-205 as compared to a Build-No Toll scenario. More diversion to I-205 is predicted in the off-peak hours when capacity is available than during peak hours. On I-205 south of I-84, the models estimate that diversion will be approximately 1% on an all day basis as compared to the no-build.

While the Tolling Study found, under most of the I-5 only toll scenarios, that the majority of drivers would not change their travel patterns and that most diversion would occur in off-peak hours, the Council finds that the full extent of diversion onto I-205 and associated impacts from tolling on I-5 are not fully known at this time. This will require additional study and analysis as the Project advances. In particular, more refined analysis of traffic demand and patterns will be developed prior to setting the toll rates, and tracking of travel demand and patterns after completion of the Project will allow for adjustment over time. In addition to adjusting the toll rates over time, there will also be adjustments as appropriate to transit service and fares and demand management programs such as incentives for carpooling and vanpooling. These adjustments will mitigate the effects of tolling on travel patterns.

The Council heard testimony questioning the adequacy of the models used to forecast toll traffic and revenues. Modeling experts acknowledge that there is a level of modeling analysis required at the environmental impact state, and a more rigorous analysis required at the point of financial commitments, in several years. By that time, Metro's modeling will be upgraded and input data regarding traffic, growth forecasts, gas prices, transit coverage, interest rates and other conditions will be updated to be as current as possible to the timing of financial commitments.

However, while the Council recognizes the importance of funding for this Project, it finds that the LUFO process under HB 3478 is a land use decision-making process established to address land use impacts and provide land use authorization for the Project. See HB 3478, Sections 3, 4, 6(1), 7. It finds that the criteria established by LCDC are criteria established for making land use decisions. It further finds that the LUFO process and the LCDC criteria do not address how a project gets paid for and that project funding is not a land use issue.¹⁵ The

¹⁵ Although the provisions in OAR Chapter 660 do not apply, the Council understands that provisions addressing

Council understands that in order to be eligible to obtain federal funding, it must demonstrate that the Project is consistent with land use requirements. These findings demonstrate such compliance.

As explained in the social impact findings below, the Project may affect localized access to properties by police, fire and ambulance vehicles. However, the project should not otherwise increase these governmental services. The Council has seen no evidence to this effect, and it finds that any significant increase in police, fire or emergency medical services as a result of the project is speculative. The Council concludes that no mitigation is necessary in this regard.

Conclusions on Economic Impacts

While the Council is sensitive to the displacement of businesses and loss of existing jobs associated with the Columbia River Crossing Project, the Council finds that, on balance, the CRC Project will result in positive economic impacts in the East Columbia, Kenton, Bridgeton and Hayden Island neighborhoods, particularly because the extension of light rail transit to Hayden Island and northward into Vancouver, Washington will further support commercial development at the Jantzen Beach Center and because highway improvements, including new I-5 bridges with greater capacity, improved I-5 interchanges at Hayden Island, Marine Drive and Victory Boulevard, and better roadway connections to I-5 and between Hayden Island and N Marine Drive will improve access and circulation for companies and businesses in the area. Furthermore, the improvements to I-5 will substantially reduce delay and improve the movement of freight between Oregon and Washington, improve navigation along the Columbia River, and remove hazards to air navigation associated with the existing I-5 Interstate Bridge lift towers.

The Council also finds that the Project would result in short-term economic benefits with the increase in employment resulting from the construction of the LRT facilities and highway improvements in the Expo Center/Hayden Island segment. The Council finds that there will be a short-term decrease in the tax base due to business displacements. However, the availability of light rail is expected to spur redevelopment of the commercial area around the Hayden Island Station and could enhance property values and the tax base on a long-term basis.

Based on information in the CRC technical reports, the Council finds that adverse economic impacts associated with LRT and highway improvements can be mitigated through a variety of means, including relocation assistance programs for displaced businesses and coordination with local jurisdictions and stakeholders. The Council finds that the bridge has been designed to avoid any need for bridge raising or lowering to accommodate river traffic on the Columbia River, and also designed to avoid interference with air navigation using PDX or Pearson Field Airport in Vancouver.

the timing and financing of transportation improvements are not considered to be land use decisions. See, e.g., OAR 660-012-0040(5).

Tolling issues have yet to be fully resolved and could impact larger portions of the region than just the I-5 corridor. Coordination between the states and regionally among the affected South/North Project local governments could help lead to a more generally accepted resolution of this concern.

Social Impacts

The Council finds that the social impacts of the South/North Project are generally positive in the Expo Center/Hayden Island segment. Light rail will provide quicker, more reliable and more comfortable transit access to the substantial commercial and employment base at the Jantzen Beach commercial center and to residents of Hayden Island. The highway improvements will improve access and circulation on I-5 and local roads in the area, improving safety, reducing congestion, and increasing mobility of motorists, freight traffic, bicyclists, and pedestrians along the I-5 corridor.

Residential Displacements. As with business displacements, the Council recognizes that in every instance where the South/North Project displaces an existing household, that represents an adverse social impact, and the Council is sympathetic to the significance of each residential displacement. The Council understands and acknowledges that relocations can cause significant anxiety and trauma to families, uprooting them from neighborhoods, schools and friends and imposing change on them.

Given that the South/North Project serves a largely developed urban area, it has been impossible to avoid residential displacement impacts while still providing transit accessibility. To the extent feasible and practicable, the LRT route follows existing public road and railroad rights-of-way to minimize displacement impacts. Locations for related facilities such as LRT stations and park-and-ride lots have also been selected with the objective of balancing displacement and other adverse impacts with the positive benefits of LRT proximity and service.

The methods used to determine displacement impacts are described in the Acquisition Technical Report and in the discussion of economic impacts above. The same methods applicable to business displacements are relevant to determination of residential displacement impacts and are incorporated by reference. Additionally for residential displacements, federal and state guidelines determine the standards and procedures for providing replacement housing, based on the characteristics of individual households. Eligibility for relocation benefits would be determined after the issuance of the NEPA Record of Decision (ROD) and once the project is granted approval to begin right-of-way acquisition. Relocation assistance could include replacement housing for displaced persons, moving costs, and assistance in locating replacement housing.

Oregon Mainland. Impacts summarized in this section include those between the southern terminus of the project at Victory Boulevard and the south shore of North Portland Harbor. Most of the permanent property impacts in this portion of the project area are due to the highway portion of project, specifically, the realignment of Marine Drive and the addition of local street connections near the Marine Drive interchange.

The transit alignment over North Portland Harbor would result in the displacement of one floating home associated with the parcel adjacent to and west of I-5. The remaining portion of this parcel, not impacted by transit, would be permanently acquired for the highway alignment, which would displace a single-family home with two households on land and two additional floating homes in the harbor. A total of five households would be displaced in this portion of the project area.

Hayden Island. Impacts summarized in this section include those on Hayden Island and associated portions of North Portland Harbor. The permanent acquisition of property would be required in this area to accommodate the reconstruction of the Hayden Island interchange and the extension of light rail over Hayden Island.

The project would have 32 residential displacements on Hayden Island. Twelve of the 32 residential displacements on Hayden Island would be from Row 9 of the Columbia Crossings Jantzen Bay moorage in North Portland Harbor east of I-5. Two of the homes were identified by survey as also containing businesses that would be displaced, as would an additional floating home in this moorage that is used solely for a business. These business displacements are included in the business displacement section of this document. The remaining 20 residential displacements on Hayden Island would occur at rows A, B, and the east side of row C in the Jantzen Beach Moorage, Inc. located in North Portland Harbor west of I-5.

Mitigation of residential displacements could include minor redesign of the project during preliminary and final engineering to avoid or reduce displacements. Some displacements could be mitigated by taking only a portion of the property and/or structure and by modifying the remaining property and/or structure to allow continued occupancy. Where displacements are unavoidable, the project will provide compensation to property owners based on fair market value and a comprehensive relocation program. The compensation/relocation program for residential properties operates in the same manner as described above for business relocations.

It has been FTA's and FHWA's long-standing policy to actively ensure nondiscrimination under Title VI of the Civil Rights Act. Title VI-related impacts include those impacts that are specific to a protected population under the 1964 Civil Rights Act. Under Title VI and related statutes, each federal agency is required to ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion. Some of these populations (such as the elderly) are not covered by EO 12898, which specifically addresses disproportionately high and adverse effects to minorities and low-income populations.

The Council finds that for the Expo Center/Hayden Island Segments, the data on residential displacements does not suggest disproportionate or discriminatory impacts to environmental justice populations.

Access to Community Facilities. The Columbia River Crossing portion of the South/North Project will improve mobility for Hayden Island residents to travel to and from community

facilities and employment centers outside their neighborhood. This is a particular benefit given the absence of other convenient travel options besides the automobile. The Hayden Island Station will improve transit access to the substantial concentration of jobs and commercial services at the Jantzen Beach Center. It will also provide improved transit accessibility and links for Hayden Island residents to local and regional employment centers, community facilities and recreational destinations along the South/North and East/West MAX lines, including employment centers and community facilities in the downtown areas of Portland, Milwaukie, Gresham, Beaverton and Hillsboro. The highway improvements will improve local access and circulation in the area and improve mobility along I-5.

Construction of the Project would displace the Safeway grocery store and pharmacy, which are the only grocery store and pharmacy on the island and are important community resources. While ODOT can suggest replacement sites for the relocation of Safeway, it is up to the storeowners to choose their replacement location, if any. While Safeway may not relocate on the island, it could be replaced by other grocery stores. Officials representing the Jantzen Beach SuperCenter initiated a site plan review with the City of Portland for a relocation and expansion of the Target store on the island. The Council heard testimony that the plan has been approved by the city. That plan provides for a grocery and possibly a pharmacy. During construction, the project would work with TriMet to maintain the existing bus service that regularly connects Hayden Island with nearby grocery and other retail services. This would include additional routing on the island to provide greater transit access during construction. DOTs would also work with TriMet to maintain paratransit service for qualifying, mobility-impaired Hayden Island residents.

Displacement of the Safeway grocery store and pharmacy may disproportionately impact low-income residents who use these services and do not own cars. Potential mitigation includes a shuttle service for residents.

The displacement of the Safeway store would also displace an extremely active bottle return center. The store managers report over \$10,000 each week paid out through the returns. Although it limits each patron to only \$7.20 in returns per day, this bottle return center provides an opportunity for individuals to generate income. There are other locations where bottles can be returned on the island and in north Portland. Many of these smaller establishments (such as convenience marts) also enforce limits on the number of bottle returns per visit. However, as long as these businesses continue to operate and proper access to them is maintained, displacement of the return center at Safeway would not result in a high degree of impact.

To mitigate for the displacement of the Safeway bottle return center, the project could provide some written and posted guidance before the closure of the Safeway return center. The guidance would provide community members with alternate bottle-return locations, and directions for getting to these locations. In the event that there would be no other return center on the island, the project could work with an appropriate business site to provide this service.

Barriers to Neighborhood Interaction. The Council finds that the light rail alignment will not result in barriers to neighborhood interaction, primarily because the alignment in large measure parallels the I-5 freeway that already functions as an edge and boundary to the local

neighborhoods. Similarly, the Council finds that the highway improvements generally improve existing roadways that either already create barriers to neighborhood interaction (e.g., I-5) or provide convenient access and circulation within and between the affected neighborhoods. The bicycle and pedestrian lanes on the new northbound I-5 bridge will improve interaction between north Portland and Vancouver, Washington neighborhoods.

Safety and Security. The Council is sensitive to the importance of safety and security in neighborhoods affected in particular by the light rail components of the South/North Project. For the South/North Project as a whole to succeed, passengers must feel safe using the stations and trains. The Council finds that with appropriate location and design, and with implementation of system-wide transit security measures as described below, the Hayden Island station would not adversely affect passenger safety and security.

The extension of light rail north from its existing terminus at the Expo Center would cross several intersections at grade. Train frequency in the peak periods is estimated to have 7.5-minute headways with greater headways during off-peak periods. Positive traffic control such as signalization, signage and pedestrian treatments would be used to enhance the safety of other vehicles, pedestrians and bicyclists traveling near light rail vehicles. Transit security on vehicles and at stations and park and ride lots would also be addressed during the design, construction, and operational phases of the project. Examples of safety and security measures that may be designed into the project include:

- Physical barriers such as medians, fencing, landscaping, or chain and bollard (short, vertical posts) to help channel automobiles, pedestrians and bicyclists
- Signage, tactile pavers, audio warnings, and pavement markings at track crossings to alert individuals they are approaching tracks
- Active treatments such as flashing lights, bells, and illuminated and audible warning devices in traffic signals
- The creation of inviting, well-lighted platforms and station areas
- Maintaining clear sight lines for oncoming trains
- Implementing a public safety education campaign before the start of rail service

TriMet has adopted a system-wide Transit Security Plan that applies community policing techniques to transit security. Elements of the Transit Security Plan that will be incorporated into the design and operation of the light rail line serving the Expo Center/Hayden Island segment include: increased in-house training of transit district employees in crime prevention; a high level of coordination with local law enforcement agencies and personnel; improved facility design and operation standards to increase visibility and security enforcement levels, and investment in new tracking and surveillance technology.

The Council further finds that security lighting will be provided at station platforms and that landscape design will ensure consideration of safety and security. Additional potential mitigation measures include emergency call boxes and monitoring/surveillance cameras. Strategies such as crime prevention through environmental design (CPTED) and the use of police, private security patrols, and security cameras could be employed as appropriate to make the light rail facilities as safe and secure as possible. The existing policies and

procedures developed by TriMet and FTA for operations during a potential catastrophic event and to prevent terrorist activities would be expanded to include the CRC Project. Finally, design criteria such as platform location and length, pedestrian crossings, and alignment design would be used to ensure that the project operates safely.

Localized access to properties by fire, police and ambulance vehicles could be affected by changes in local street configurations throughout the corridor. The current level of design reflects consideration of access by emergency vehicles (e.g., street and bike path dimensions, proximity to emergency facilities, primary access routes for emergency vehicles, etc.)

The Council finds that, with appropriate design and implementation of systemwide transit security measures identified above, the new Hayden Island Station will not adversely affect safety and security. The station will be elevated to the level of I-5. The final design of the station will include careful consideration of security concerns. Security lighting and landscape design will ensure consideration of safety and security.

Visual/Aesthetic. The CRC Project will result in impacts to visual and aesthetic resources in the Expo Center/Hayden Island segment as a consequence of introducing:

- Cut/fill slopes, bridges, overhead structures, sound/retaining walls, catenary poles and overhead wires;
- A light rail station at Hayden Island;
- New I-5 bridges and interchanges;
- New North Portland Harbor bridges;
- Improvements and modifications to existing structures, roads, vegetation, topography;
- Disruptions of existing visual resources, viewpoints, view corridors and vistas; and
- New views.

Impacts to the Columbia River main channel would be mostly positive. Potential impacts would include:

- Removal of the visually complicated truss structures and lift towers of the existing I-5 bridges, which obstruct views from the river, from the Interstate bridges themselves, and from the shoreline. This action would remove an important contributor to the area's historic context (the I-5 bridges) and a character-defining aspect of interstate travel.
- From I-5, views of the Portland and Vancouver skylines, distant shorelines, rolling hills, and mountain profiles would generally improve. Toward I-5, views of open water and shorelines from shoreline-level and elevated viewpoints would also generally improve.
- Removal of the lift towers would be interpreted to have a generally positive visual impact on views from downtown Vancouver.
- Modifications to interchanges would increase heights at the Marine Drive and Hayden Island interchanges, where new ramps and elevated roadways would be higher than

any existing facilities in these immediate areas. Even at these interchanges, the degree of change is expected to be moderate, since these areas are already and would continue to be large urban interchanges.

- Removal of the existing bridge structures that currently obstruct views of much of the area immediately beneath the bridges, along the river. This would provide for more light and vegetation under the bridges. These elements would all provide positive visual changes to the immediate area and adjacent areas.

North Portland Harbor would experience moderately negative visual impacts from the addition of piers for the LRT bridge and collector/distributor ramps; these would clutter views along the slough and reduce views of open water.

Given the types of visual impacts summarized in the *Visual and Aesthetics Technical Report*, the Council finds that the following strategies can be used to reduce adverse visual impacts to affected neighborhoods:

- Planting vegetation, street trees, and landscaping for screening or visual quality. The project will adhere to a green-over-grey approach for treatment of many new structures, using climbing vines and non-invasive ivies, where practicable.
- Designing landscape plans and other visual treatments consistent with adopted guidance and plans.
- Shielding station and facility lighting from nearby residences and the night sky.
- Minimizing structural bulk, such as for ramps and columns.
- Designing architectural features to blend with the surrounding community context.
- Placement of public art (to be relocated when necessary and added as part of transit stations and gateways).
- Where practicable, integrating lighting with facilities in a manner that produces a positive visual and aesthetic impact, reduces night sky light pollution, reduces possible light trespass into residential units, and contributes to crime prevention through environmental design (CPTED).
- Utilizing the UDAG Design Guidelines, as well as design guidelines of the City of Portland and Tri-Met.
- Selecting new and replacement pole and utility cabinet locations, colors, and styles in relation to their context and in accordance with municipal lighting standards.

In each affected neighborhood, the Council recognizes that potential mitigation measures will vary to fit neighborhood scale, character and concerns. In some neighborhoods, potential measures could improve the visual character of impacted areas. In other areas, the CRC portion of the South/North Project will be a prominent visual feature even with mitigation.

The area from Victory Boulevard, the Expo Center and Marine Drive north to Hayden Island and the Columbia River consists primarily of a major interstate freeway with connecting arterials, a busy, auto-dominated commercial strip, and large, dramatic expanse of open water. The area from Victory Boulevard to Marine Drive has industrial, recreational, and transit developments scattered throughout the area amid large tracts of open space. Commercial

development patterns on Hayden Island have obscured natural features to the point where any connection to water or natural landforms is not visually apparent unless one is on the shoreline. Throughout this segment, many signs and utility poles; constant, fast traffic and noise; scattered moderate and large-scale commercial structures; and the artificial landforms associated with I-5 create a coarsely textured, complex environment with a confusing visual character. The breadth and openness of the Columbia River provides visual contrast to an otherwise cluttered visual environment.

Dominant visual features in this segment include I-5, Delta Park, the Vanport wetlands, the North Portland Harbor, Jantzen Beach Center, the historic I-5 truss bridge between Hayden Island and Vancouver, Washington and the wide, flat and open stretch of the Columbia River. The river is a significant regional resource and the dominant visual element within this segment because of its large scale and openness. It also serves as a dramatic gateway between Oregon and Washington.

LRT improvements in the Expo Center/Hayden Island Segment include a good deal of bridging. The bridges over the North Portland Harbor would remove structures, including floating homes and vegetation, along both banks of the harbor, and interrupt views south from Hayden Island to the west hills. The light rail alignment then parallels the west side of I-5, removing commercial structures along that side of the freeway

In general, the Council finds that the impacts to views would vary within the Columbia River Crossing portion of the project area. Impacts to the Columbia River main channel would be mostly positive, as described above. Impacts to North Portland Harbor would be moderately negative, with the addition of more bridges across the harbor. Impacts to the area from Victory Boulevard to Marine Drive would be low.

The Council finds that possible measures that could mitigate the adverse impacts of the new bridges on views include those described above. Appropriate conditions can be imposed through the local review process consistent with Section 8(1)(b) of HB 3478 to avoid or mitigate adverse impacts on designated scenic resources and viewpoints.

Other Social Impacts. Other social impacts include loss of property values, property acquisitions not requiring displacements, loss of trees along roadsides and in neighborhoods, increase in electric and magnetic fields (EMF), and perceived reductions in "quality of life" associated with LRT and highway improvements, both during construction and in the long term. Construction impacts are addressed in the Short-Term Impacts portion of these findings. The Council finds that there may be reductions in property values, especially during the construction phase, but it believes that most of these properties will increase in value following completion of construction. The Council also finds that residing immediately next to the alignment or a station may result in some property owners experiencing perceived reductions in quality of life. Others may see a reduction in quality of life associated with increased density that might result from the proximity of rail to an area. These are very subjective matters that can vary from individual to individual. Landscaping and noise barriers might help mitigate adverse impacts. Where trees are removed, potential mitigation includes equivalent tree replacement. Extension of the light rail system would generate EMF and could increase exposure. However, in those locations where people could be exposed (within and

near the light rail right-of-way, near substations, or in the light rail vehicles), EMF emissions would be below exposure guidelines. Because light rail electric power substations tend to generate the highest EMF intensities in the field measurements, the substations have been designed and sited to minimize exposure to users of the system, the general public, and sensitive users.

The Council heard testimony regarding health concerns and vibration impacts to the manufactured housing community on Hayden Island. Mitigation can include monitoring vibration and halting construction if thresholds are exceeded; monitoring dust and halting working if thresholds are exceeded; and covering debris or application of water to avoid release of dust into the air.

The manufactured housing community also expressed concern about access on and off the island during construction, especially for emergency vehicles. Mitigation could include construction of the local bridge over the North Portland harbor as a first stage of construction.

Social benefits include cleaner air by providing improved transit access in the region, resulting in less automobile driving than would otherwise occur and less congestion and air pollution. Cleaner air also is provided by decreasing congestion through improvements to the highway system. Social benefits also include improved quality of life from lower and more reliable transit travel times, resulting in more time for people to spend doing things other than commuting.

A greenhouse gas emissions analysis was prepared for the Columbia River Crossing Project and is detailed in the Energy Technical Report. The report includes a macroscale analysis to provide a picture of the regional emissions, as well as a microscale analysis that focuses more on the project area. The Project is expected to reduce regional emissions by approximately 130 metric tons of CO₂e /day, which equates to a reduction of approximately 0.5 percent. For the 12.2-mile length of I-5 surrounding the CRC project area, the Project is expected to reduce emissions by roughly 21 metric tons of carbon dioxide equivalent during the AM and PM peak periods, or 5.4 percent.

The differences in long-term effects on water quality between the Project and the No-Build Alternative are substantial. Although the total amount of pollution-generating impervious surface (PGIS)¹⁶ would slightly increase for the Project, the amount of untreated impervious surface would drop dramatically compared to existing conditions and the No-Build Alternative. This is because under the Project, stormwater runoff from all new or reconstructed impervious surface area would be treated, while stormwater runoff from most of the existing PGIS does not currently undergo stormwater treatment.

¹⁶ Pollution-generating impervious surfaces include highways, parking lots, sidewalks and other surfaces that do not absorb water and to which contaminants may adhere, so that when stormwater strikes the surface, it runs off to a nearby surface, carrying some of these contaminants with it. If the water runs off to soil, these contaminants can enter the soil, causing harmful effects. Additionally, PGIS are often warmer than the surrounding surfaces, and runoff from these surfaces that enters nearby rivers or lakes can raise water temperatures, causing harmful effects.

Payment of the new highway toll would require a higher proportion of income for lower income drivers than for higher income drivers. The Council finds, however, that when considered in combination with the other elements of the project, the impact would not be high and adverse. In exchange for the toll, travelers would receive the benefits of shorter highway travel times, lower congestion, extended LRT service, more reliable commute trips, reduced crashes, no bridge lift interruptions, increased access to employment, housing, education and services, and improved biking and walking facilities. There would also be toll-free options for crossing the river, including transit, carpooling, biking or walking, and crossing on I-205. The toll rate is also reduced during the off-peak travel times.

The project team reviewed the available research to inform the environmental justice impact evaluation. Several academic studies have been conducted on equity and tolling. The Washington State Department of Transportation (WSDOT) also conducted research on tolling equity for various projects.

The University of Washington and the Washington State Transportation Center published in 2009 a research paper entitled “The Impacts Of Tolling On Low-Income Persons In The Puget Sound Region.” The paper starts with the assertion that “Tolls may be progressive, regressive, or neutral, depending on the social and geographic characteristics of the town or region and the structure of the tolling regime. The distributional effects must be evaluated on a site and project specific basis.”

In “International Experiences with Congestion Pricing” (May 1993), Anthony May considered the equity component of congestion pricing. He cited older studies that argue that congestion pricing is a regressive measure that has greater impacts on lower-income drivers, but indicated this population is more likely to travel by bus or foot. May concluded that the most inequitable effects are dependent on the pricing scheme implemented and would likely impact a small percentage of lower-income drivers. He suggests that the only way to address the issue of equity is to invest some of the toll revenue in public transport rather than solely to improve the road infrastructure. The Project includes substantial improvements to transit as well as bicycle and pedestrian facilities.

Existing electronic toll collection systems with transponders present various hurdles for low-income users. One must normally either pay a deposit or link the account to a credit card or bank account. Some low-income populations may not be able to purchase a transponder. Not being able to purchase a transponder due to large set-up fees or lack of a credit card and/or bank account would be an adverse impact on those low-income populations affected. A similar barrier may exist when new tolls are instituted in areas where some groups and individuals lack the English language skills to understand the complex tolling system. These impacts would be mitigated through outreach and special programs.

The Council finds there are several strategies that would mitigate the potential impacts of tolling on low-income populations. Since toll transponders are unfamiliar to most Oregon and southwest Washington residents, educational materials can be made available that explain how tolling and transponders work. All such communications would be made available in selected non-English languages, as appropriate. C-TRAN offers programs that assist low-

income populations and people with disabilities to obtain a reduced transit fare. TriMet offers similar programs that assist senior and disabled populations using transit.

Conclusions on Social Impacts. The Council finds the social impacts of the Columbia River Crossing project are generally positive in the affected East Columbia, Kenton, Bridgeton and Hayden Island neighborhoods, although there are 46 potential residential displacements in these segments.

Relative to access to community facilities, the project would displace the only grocery store and pharmacy (Safeway) on Hayden Island. The displacement could also affect low-income populations that use the bottle return center. However, the Council finds that the improved transit access, improvement of the local street network, and a bridge providing local multimodal access to and from the island, as well as the other mitigation measures mentioned above, would mitigate the displacement of the Safeway.

Relative to barriers to neighborhood interaction, the Council finds that the LRT alignment will not result in barriers to neighborhood interaction, primarily because the alignment in large measure parallels the I-5 freeway which already functions as an edge and boundary to the Hayden Island Neighborhood. It finds that the extension of LRT to Hayden Island will better connect the island and its residents to the region and its amenities. Similarly, the highway improvements generally expand or improve existing roadways.

Relative to safety and security impacts, the Council acknowledges and supports TriMet's continuing efforts to improve passenger and community safety throughout its service area. The Council finds that TriMet is committed to making continued improvements to help maintain a safe and effective transit system, and it finds that the measures identified above improve public safety.

Relative to the visual impacts, the Council finds that the project would result in positive and negative impacts. The negative impacts could be mitigated by the measures addressed above, including following existing design guidelines from the City of Portland and TriMet when designing the light rail and highway improvements.

Traffic Impacts

The *Transit Technical Report*, *Traffic Technical Report* and Section 3.1 Transportation of the Draft Environmental Impact Statement (DEIS) evaluate the Project's impacts to the highway and street network. Traffic impacts from transit and highway improvements and potential mitigation are summarized below.

Transit. The Council finds that the light rail route and station on Hayden Island will provide light rail proximity and service to the substantial employment and commercial base located at the Jantzen Beach Center. Additionally, through improved high capacity transit service, island residents will have improved accessibility to local and regional employment centers, community facilities and recreational destinations throughout the Portland metropolitan region.

Currently, travel options to and from Hayden Island are limited and often congested, and under the DEIS No-Build alternative, these options would get much worse over time. Light rail will provide a convenient, reliable alternative mode of travel.

The CRC Project would more than double the number of transit passenger trips over the I-5 crossing, compared to the 2030 No-Build Alternative. For weekdays, there would be 20,600 bridge crossings on transit, compared to 10,200 trips under the 2030 No-Build Alternative. Of the transit passengers crossing the Columbia River, 18,700 would be on light rail transit (91 percent) and 1,900 would be on buses (9 percent).

One of the major contributing factors to reliable transit service is reserved or separated right-of-way for transit vehicles. Transit vehicles operating in mixed traffic are subject to delays caused by accidents, breakdowns, congestion, and in the case of existing I-5 Columbia River bridges, bridge openings. With a separated right-of-way and separated bridge crossing on the lower deck of the new southbound I-5 bridge, transit service between Portland and Vancouver, Washington will become faster and more reliable. For example, a transit trip between Hayden Island and Vancouver would save an estimated five minutes in comparison with the No-Build Alternative, while a trip between Pioneer Square and Clark College would save 28 minutes (dropping from 72 minutes with the No-Build to 44 minutes with LRT).

Additionally, most of the intersections within the South/North Corridor through which light rail vehicles will operate have traffic signals preempted for LRT, have gated crossings for LRT, or have LRT separated from other traffic. In summary, the Columbia River Crossing portion of the South/North Project will provide significantly more reliable transit service than the No-Build Alternative, and a significant portion of the corridor's transit riders will experience the improvement in reliability with light rail.

Transit improvements in the Expo Center/Hayden Island segment of the South/North Project could affect traffic congestion in two basic ways. First, these improvements could divert trips from automobiles to transit, resulting in reduced systemwide vehicular travel. Second, transit facilities could also affect localized traffic operations on highways and streets in the study area.

The LRT alignment will have an at-grade crossing with the extension of N Vancouver Way, at the south end of the local multimodal bridge. Traffic analysis performed for the *Traffic Technical Report* indicates that this intersection will operate acceptably (meeting City of Portland Bureau of Transportation standards) in design year 2030. Light rail will be grade-separated on Hayden Island, with no traffic impacts on the island. The LRT alignment will bridge over N Jantzen Avenue and N Jantzen Drive, and Hayden Island Drive and N Tomahawk Island Drive (to be constructed as part of the project). Given the design, the Council concludes that the CRC transit portion of the South/North Project will not result in adverse traffic impacts in the Expo Center/Hayden Island Segment.

The traffic analysis model shows only one intersection in Oregon as not meeting the appropriate jurisdictional standards. The intersection, Going Street and Interstate Avenue, will not meet Portland Bureau of Transportation standards in 2030. Potential mitigation could be to optimize the light rail transit pre-emption at the intersection, install advanced signal

controllers to manage light rail transit pre-emption, and change the westbound right lane into a through/right choice lane to allow traffic to continue westbound.

Regarding traffic safety, light rail transit is designed to be safe through methods and devices such as speed control, signalization, gated crossings, and pedestrian movement controls. In general, light rail vehicle speeds match road vehicle speeds where the vehicles run in adjacent lanes. Light rail vehicles operate in accordance with normal traffic control devices (traffic signals) as supplemented by specific light rail signals where needed. Specific train warning signals may be provided as needed. Pedestrian movements are governed by pedestrian signals at signalized intersections. At gated intersections, the gates and warning signals control pedestrian movements. At non-signalized, non-gated pedestrian crossings, barriers ("z-crossings") may be used to focus pedestrian attention on the direction of approaching light rail vehicles. The project could provide pedestrian access to stations by establishing "through-walking areas"—clear pathways free of street furniture or other impediments—adjacent to the planned station locations. The project would strive to maintain the width of these areas at approximately 7 to 8 feet in busy pedestrian locations and 6 feet in areas with lower levels of pedestrian traffic. For bicycles, station areas could include bicycle facilities, which could include secure storage areas. The Council concludes that these methods and devices provide for a safe multi-modal environment.

Highway Improvements. Since the stated purpose from the Columbia River Crossing Project DEIS is "to improve I-5 corridor mobility by addressing present and future travel demand and mobility needs in the CRC Bridge Influence Area," most project impacts to traffic are positive. The associated highway improvements in the segment are provided as part of the CRC Project in order to improve transportation performance compared to the No-Build alternative.¹⁷

In 2030 the traffic models under the No-Build Alternative predict 15 hours of congestion per day (northbound and southbound) on I-5. With the CRC Project, there would be just 3.5 to 5.5 hours of congestion in 2030. During the peak period, the Project would increase the number of people traveling over the I-5 crossing northbound in 2030 from 26,500 with No-Build to 35,300 (in vehicles), and from 2,200 to 6,100 (on transit).

Local street traffic performance is monitored and measured by the City of Portland and ODOT based on established performance standards for the facilities under their respective jurisdictions. Local street congestion is most intense near the I-5 ramps and is influenced by the travel direction and length of time that I-5 is congested during each weekday. This section

¹⁷ House Bill 3478, Section 8(1)(a), directs all affected local governments and special districts to amend their comprehensive or functional plans, including transportation system plans, "to the extent necessary to make them consistent with a land use final order." As noted below and in Section 1.3 of these findings, most of the highway improvements included in the CRC Project are already identified and authorized in the City of Portland's acknowledged Transportation System Plan (TSP) or in Metro's Regional Transportation Plan (RTP). As such, they already have land use approval. They are addressed in these findings because they are included as part of the Columbia River Crossing Project which, as an element of the South/North Project, requires findings of compliance with the applicable criteria for any "highway improvements". For these improvements, no further plan amendment action is necessary to make them consistent with this 2011 LUFO. For those local highway improvements that are not already part of Portland's TSP, the city will need to amend its plan to comply with Section 8(1)(a).

summarizes existing local street performance at selected study intersections. Results are reported for the AM and PM peak hours of travel.

The Project would address most of the non-standard geometric and safety design features currently existing on the I-5 mainline and ramps within the main project area. Improvements would be made to the existing short on-ramp merges/acceleration lanes and off-ramp diverges/deceleration distances, short weaving areas, substandard lane widths, vertical and horizontal curves that limit sight distance, and narrow or non-existent shoulders. The Project would remove both Interstate Bridge lift spans. In addition, the Project would substantially reduce traffic congestion compared to No-Build conditions.

As the number of vehicular collisions in the main project area is related to the presence of non-standard geometric design and safety features, which is exacerbated when traffic levels are at or near congested conditions, the Project would substantially improve traffic safety in the area. It is estimated that the Project would reduce average annual yearly collisions in the main project area from 750 under the No-Build Alternative to between 210 and 240.

This estimate was calculated by making the assumption that the highway geometric and safety improvements would result in a highway corridor that performed at least as good as an average, similar type of urban interstate facility in Oregon. The collision rate for similar urban, interstate facilities is approximately 0.55 collisions per million vehicle miles travelled (MVMT). Applying this rate (with an allowance for a higher collision rate during congested periods and during late evening and early morning hours) to the forecasted traffic volumes over a year period generated an estimated annual collision total of between 210 and 240.

The Portland local street system is divided by I-5, with community connections across I-5 limited to the following interchange and non-interchange crossing locations: Skidmore Street, Alberta Street, Killingsworth Street, Ainsworth Street, Rosa Parks Way, Lombard Street, Columbia Boulevard, Schmeer Road, Victory Boulevard, Martin Luther King Jr. Boulevard, Pier 99 Street, Jantzen Street, and Hayden Island Drive (overcrossings for non-motorized travel also exist at Failing Street and Bryant/Saratoga Streets). In addition to the interchanges, several local streets and nearby intersections are affected by traffic operations in the I-5 corridor.

Under 2030 No-Build conditions, 25 intersections were analyzed, one of which would not meet applicable performance standards during the morning peak hour - the intersection of Fremont Street with Martin Luther King Jr. Boulevard. During the afternoon/evening peak hour, five intersections would not meet applicable performance standards: Martin Luther King Jr. Boulevard with Fremont and Alberta Streets, Interstate Avenue with Argyle and Going Streets, and Marine Way with Vancouver Avenue.

With the Project, Portland's local street operations would improve along the I-5 corridor relative to No-Build conditions. For example, at the I-5 interchange with Marine Drive, 2030 afternoon peak intersection performance would improve from V/C 0.82 (LOS F) with the No-Build Alternative to V/C 0.42 (LOS B) with the Project. This indicates that the Project would improve mobility and accessibility to this freight and employment corridor during the

afternoon peak. Similar findings were observed during the morning peak. The Project with highway phasing would improve the 2030 p.m. peak V/C to 0.64 (LOS B) from 0.82 (LOS F).

With the Project improvements, the total number of local intersections and ramps would increase to 38, primarily as a result of additional intersections associated with the local roads in the Hayden Island and Marine Drive interchange areas. During the 2030 morning peak hour, 37 of these 38 intersections and ramps are expected to operate within acceptable standards, while one would fail to meet standards. The intersection of Interstate Avenue with Going Street is expected to fail to meet applicable performance standards and to require mitigation. During the 2030 afternoon/evening peak hour, with Project improvements, all intersections would operate within acceptable standards. Potential mitigation for the Interstate Avenue and Going Street intersection (also described above in the Transit section) could be to optimize the light rail transit pre-emption at the intersection, install advanced signal controllers to manage light rail transit pre-emption, and change the westbound right lane into a through/right choice lane to allow traffic to continue westbound.

The existing pedestrian and bicycle facilities throughout the Columbia River Crossing main project area are outdated, potentially unsafe, and confusing to navigate. The width of the shared-use pedestrian and bicycle facility on the I-5 bridge is non-standard (generally no wider than 4 feet) and separated from traffic by the bridge girders and non-standard low barriers. The mixing of pedestrians and bicycles in this narrow facility can cause safety problems. The Project would improve bicycle and pedestrian facilities in the area, as described in the *Traffic Technical Report*, resulting in greater use of the facilities and safety improvements.

Several pedestrian and bicycle forecasting scenarios predict that pedestrian and bicycle travel demands would increase substantially if a new I-5 bridge is constructed with sufficient multimodal facilities. Pedestrian travel across the bridge would be expected to increase from 80 daily pedestrians today to between 600 and 1,000 daily walkers in 2030, an increase of 650 to 1,150 percent. The number of bicyclists predicted to use the crossing would increase from 370 today to between 900 and 6,400 riders in 2030, an increase of between 150 and over 1,600 percent. With the exercise and visual benefits this will provide, the Council finds this results in both positive traffic and social impacts.

The majority of the Project transit and highway improvements are identified in Metro's RTP and in the City of Portland TSP and are therefore consistent with those transportation system plans. Below is a list and description of the RTP and TSP projects for which the Project would build the improvements:

Regional Transportation Plan (Metro)

- **RTP Project 10893: Improve I-5/Columbia River Bridge (Victory Boulevard to Washington State Line); Replace I-5/Columbia River bridges and improve interchanges on I-5.** New bridges will replace the existing I-5 bridges and the following I-5 interchanges in Oregon will be improved: Victory Boulevard, Marine Drive, Hayden Island/Jantzen Beach

- **RTP Project 10902: MAX Light Rail: Yellow Line: CRC/I-5 North Extension** *CRC: Expo to Vancouver, north on Main to Lincoln.* Light rail will be extended from the Expo Center MAX station in Portland to a station and park-and-ride lot at Clark College in Vancouver.
- **RTP Project 11032: Ruby Junction light rail operating base expansion:** *LRV maintenance and storage facility, including expansion on the west side of Eleven Mile Avenue. Capital cost is included in Milwaukie and CRC projects.* Ruby Junction maintenance facility in Gresham will be expanded to accommodate a new operations facility, new storage tracks and additional light rail vehicles.

Transportation System Plan (Portland)

- **TSP Project 30018: Hayden Island: Street Network Improvements.** *Provide a street network plan for improvements that implement the Region 2040 connectivity standards and improve multi-modal access for Hayden Island.* The Hayden Island Street Plan is described in more detail in the Hayden Island Plan, which was adopted into the City Comprehensive Plan in August 2009. The Hayden Island Plan recommends amending the TSP to implement the street network as shown in the document. The CRC Project would build these improvements consistent with the Hayden Island Street Plan.
- **TSP Project 30020: I-5 (Columbia River-Columbia Blvd): Bridge Widening** *Improve I-5/Columbia River bridge (local share of joint project) based on recommendations in I-5 Trade Corridor Study. Project addresses a high congestion location.* The CRC Project would build these improvement
- **TSP Project 30033: Light Rail Extension - Phase 2.** *Extend light rail service from Expo Center to Vancouver WA.* The CRC Project would build these improvements.
- **TSP Project 40080: Marine Dr. (6th - 33rd & Gantenbein - Vancouver Way) Bikeway** *Retrofit bike lanes to existing street and complete off-street paths in missing locations.* The CRC Project would build these improvements.

The CRC Project also includes improvements to the local street system east and west of the Marine Drive interchange and a new bridge over North Portland Harbor to the west of I-5 that would carry light rail vehicles as well as local motor vehicle and bicycle/pedestrian traffic between Marine Drive and Hayden Island. The local street improvements east and west of the Marine Drive Interchange will improve local access to and from the Expo Center and Hayden Island light rail stations and are necessary as well to accommodate the design of the new I-5 bridges and the modified interchanges.

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

- Major new light rail line in exclusive right-of-way, as well as express bus and feeder routes.
- Modern bicycle and pedestrian facilities that accommodate more bicyclists and pedestrians, and improve connectivity, safety, and travel time.

- Park and ride lots and garages.
- A variable toll on the highway crossing.

In addition to these fundamental elements of the Project, facilities and equipment would be implemented that could help existing or expanded Transportation System Management (TSM) programs maximize capacity and efficiency of the system. These include:

- Replacement or expanded variable message signs or other traveler information systems in the Project area.
- Expanded incident response capabilities.
- Queue jumps or bypass lanes for transit vehicles where multi-lane approaches are provided at ramp signals for entrance ramps.
- Expanded traveler information systems with additional traffic monitoring equipment and cameras.
- Active traffic management

Conclusions on Traffic Impacts. The Council finds that the transit and highway improvements summarized above will substantially improve traffic operations in 2030 compared to the No-Build Alternative and that adverse traffic impacts associated with extending light rail transit through the Expo Center/Hayden Island segment can be mitigated. The Council finds that the potential mitigation for the Interstate Avenue and Going Street intersection would mitigate for the reduction in intersection performance as a result of the Project. Potential mitigation could be to optimize the light rail transit pre-emption at the intersection, install advanced signal controllers to manage light rail transit pre-emption, and change the westbound right lane into a through/right choice lane to allow traffic to continue westbound.

The Council finds that transit improvements will increase transit ridership, decrease transit travel times, and improve accessibility to local and regional employment centers, community facilities and recreational destinations throughout the Portland metropolitan region.

Relative to general transit safety and transit impacts on bicycle and pedestrians, the Council finds that the impacts could be mitigated through the measures described above. Relative to impacts from highway improvements, the Council finds that most impacts from the Columbia River Crossing portion of the North/South project would be positive and would improve transportation performance in the Hayden Island/Expo Center segment.

Provide for a light rail route and associated facilities, balancing the need for light rail proximity and service to areas that are capable of enhancing transit ridership; the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and the need to protect affected neighborhoods from the identified adverse impacts.

The South/North Steering Committee initially assembled in the 1990s to recommend the federal Locally Preferred Strategy adopted the following goal for the project¹⁸: *To implement a major transit expansion program in the South/North Corridor that supports bi-state land use goals, optimizes the transportation system, is environmentally sensitive, reflects community values and is fiscally responsive.* That "LPS Steering Committee" also adopted the following objectives for the project:

1. Provide high quality transit service;
2. Ensure effective transit system operations;
3. Maximize the ability of the transit system to accommodate future growth in travel;
4. Minimize traffic congestion and traffic infiltration through neighborhoods;
5. Promote desired land use patterns and development;
6. Provide a fiscally stable and financially efficient transit system; and
7. Maximize the efficiency and environmental sensitivity of the engineering design of the proposed project.

The project goal and objectives closely parallel the emphasis of Criterion 3(A) for this Land Use Final Order. The effectiveness evaluation of the South/North Project relative to meeting the objectives is summarized below.

Ability to Provide High Quality Transit Service. The Council finds that the portions of South/North Project already constructed or currently under construction provide a significant amount of light rail coverage between the Portland downtown and Milwaukie and Clackamas Town Center to the south and between the Portland downtown and the Expo Center to the north. The Columbia River Crossing Project provides the missing piece to the original transit concept by extending LRT coverage into Vancouver, Washington. The Council finds that the South/North Project, including the CRC Project, provides improved reliability over the No-Build Alternative. Factors that affect reliability include the amount of reserved right-of-way, percent of protected trunk-line intersections and percent of passengers on exclusive transit right-of-way.

The Council finds that the CRC Project will result in improved peak-hour in-vehicle and total weighted travel times between Portland and Vancouver, Washington compared to the No-Build Alternative. It will increase transit trips within the South/North Corridor and increase the transit mode split for peak-hour radial trips.

Moreover, compared to an expanded all-bus system, the Council finds that the CRC Project will:

- Increase transit trip production in the Project Transit Corridor by 150 percent compared to existing conditions by the year 2030;
- Increase weekday transit ridership into on the Interstate Max Yellow Line by 21,400 trips (150 percent) compared to the No-Build Alternative;

¹⁸This Steering Committee was assembled under requirements of federal law. It differs from the LUFO Steering Committee assembled to comply with House Bill 3478.

- Double the number of transit passenger trips over the I-5 Columbia River crossing, compared to the 2030 No Build alternative
- Decrease rush-hour transit travel times between Pioneer Courthouse Square and Clark College in Vancouver by 28 minutes compared to the No Build alternative; and
- Increase the percent of transit trips between the project corridor and downtown Portland from 21% in 2005 to 39% in 2030.

Ensure Effective Transit System Operations. By locating the South/North light rail alignment on the downtown Portland transit mall, all alignment alternatives have allowed for easy transfers to other transit routes serving most of the metropolitan region. The Council believes that this improved transit access has enhanced transit ridership, and it so finds.

Maximize the Ability of Transit to Accommodate Growth in Travel Demand. In 1998 the Council determined that the South/North Project had the greatest ability to accommodate growth of the various DEIS alternatives studied. The CRC portion of the South/North Project would increase LRT place miles (“place miles” are transit vehicle capacity for each vehicle type multiplied by vehicle mile travelled) by 58% and would increase total bus and LRT place miles by over 2% compared to No-Build.

Minimize Traffic Congestion and Traffic Infiltration Through Neighborhoods. In 1998 the Council determined that the South/North Project would help slow the rate of traffic congestion and related problems, compared to the No-Build Alternative. It would:

- Remove almost 133,000 vehicle miles of travel per average weekday from the corridor road system;
- Eliminate 16 lane-miles of congested roadways; and
- Avoid 4,500 hours of traffic delays each weekday (compared to the No-Build Alternative in the year 2015).

By slowing the rate of traffic congestion growth, avoiding delay, and reducing the number of vehicle miles of travel per average weekday as compared to the No-Build Alternative, the South/North Project will minimize traffic congestion. The Council found that the slowing of congestion and reductions in vehicle miles of travel also would reduce the amount of traffic infiltrating Portland and Clackamas County neighborhoods by causing fewer vehicles to be on the roads than would otherwise occur in the absence of light rail transit.

The Traffic Technical Report indicates and the Council now finds that the CRC Project, in comparison with a No-Build Alternative and with the highway improvements that are included in the Project, will result in a 57 percent decrease northbound and a five percent decrease southbound in rush-hour automobile travel times between Columbia Boulevard in Portland and SR 500 in Vancouver. It also finds that the Project will reduce the duration of congestion from 15 hours per day in the No-Build to between 3.5 and 5.5 hours per day with the improvements being made for automobile, transit and truck travel.

Facilitate Efficient Land Use Patterns. The Council finds that light rail has influenced the quality of access to vacant developable and redevelopable parcels of land in the South/North Corridor. It finds that light rail transit throughout the South/North corridor has supported the region's growth management strategy and the urban growth boundary (UGB) by:

- Providing access to vacant and redevelopable infill properties;
- Providing transportation capacity to the Portland Central City that will enable the region's core to accommodate the expected high growth levels;
- Providing the high quality transit needed to make the Clackamas Regional Center and Milwaukie Regional Center function in accordance with the growth strategy;
- Establishing new station communities which can be developed as mixed-use areas; and
- Instituting a pattern of growth that conforms to the goals, objectives and policies of local land use and infrastructure plans.

The Council finds that the CRC Project will further facilitate efficient land use patterns by promoting denser, transit-oriented development on Hayden Island. This shift in land use patterns from the existing auto-oriented development is consistent with the Hayden Island Plan, which includes plans to redevelop a portion of the Jantzen Beach SuperCenter site into a high-density mixed-use transit-oriented development supported by the new light rail station.

Balance the Efficiency and Environmental Sensitivity of the Engineering Design. Indicators of environmental sensitivity include displacements, noise and vibration impacts, parkland impacts, floodplain impacts, wetland impacts and historic and archaeological resources impacts. These impacts are addressed in other findings, set out below, addressing the relevant LCDC criteria applicable to this proposal. For the reasons stated in the findings addressing those other criteria, the Council concludes that the positive impacts of the Project outweigh the negative environmental impacts.

Social Equity Considerations. In addition to the LPS Steering Committee objectives listed above, the Council believes and finds that social equity considerations should be taken into account. When it adopted the initial South/North LUFO back in 1998, the Council found the percentage of minority populations in nearly one half of the neighborhoods in the South/North Corridor to be higher than the regional average of 8.6 percent. Nearly two-thirds of corridor neighborhoods have a percentage of low-income households that is higher than the regional average (1990 US Census). The Council also found that the South/North Project would serve both low-income and minority neighborhoods. The Council concluded that the South/North Project would not adversely affect low income or minority neighborhoods disproportionate to the benefits they would receive with improved transit access. Indeed, it found that the project would substantially benefit a much larger segment of the populations of these affected areas, including low-income, transportation-disadvantaged, minority and elderly populations, than are otherwise directly adversely affected by the project. The Council continues to abide by these findings.

Finally, the Council intends that the project will leave the project area and surroundings better off. There are many enhancements in the project, such as improved local street connections on Hayden Island, replacement of substandard facilities for bicyclists and pedestrians, local

auto access from North Portland to Hayden Island on a separate arterial bridge, and inclusion of public art in the transit element of the project. The Council finds that establishment of an enhancement fund would complement and build upon the enhancements included in the project itself and make the area more livable for all segments of the population. There is general agreement to continue to explore the establishment of a community enhancement fund - which would require consideration of funding mechanisms and administration of the fund - as an ongoing responsibility of the Departments of Transportation.

Overall Conclusions Regarding Neighborhood Impacts (Transit)

In summary, the Council finds and concludes that the selection of the light rail route and the Hayden Island station, including their locations, within the area constituting the Columbia River Crossing Project includes a balancing of:

- the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership;
- the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and
- the need to protect affected neighborhoods from identified adverse impacts.

The Council finds and concludes that the CRC portion of the South/North Project will enhance transit service to areas all along the South/North Corridor, with particular benefits to Hayden Island and Vancouver Washington. The Council finds and concludes that this Project will improve connections and mobility throughout the Portland metropolitan region, including to areas along the existing eastside and westside MAX light rail lines; that the presence of light rail transit north of the Expo Center into Vancouver, Washington will encourage and support new and efficient development, consistent with Region 2040 Growth Concepts and Portland's adopted Hayden Island Plan that will benefit the affected local communities and the region; and that the improved accessibility provided by extending the South/North Project, and its many benefits, north to Hayden Island and Vancouver, Washington, especially when compared with the No-Build Alternative, combined with available measures to mitigate adverse impacts created by the Project, result in a substantial net benefit to the affected local communities, the region, and the states of Oregon and Washington.

For the reasons stated herein, the Council finds that it has considered the adverse economic, social and traffic impacts of the Columbia River Crossing Project and balanced these impacts against the Project's benefits. It finds and concludes that the northern extension of the South/North light rail line to Hayden Island and Vancouver, Washington will make a significant positive contribution to the quality of life in the Portland region, through improved mobility, decreased congestion, improved air quality, reduced energy consumption, and decreased reliance on the automobile, which will benefit Oregonians now and well into the future. It further finds that light rail transit can, has, and will continue to stimulate and enhance development of an efficient and compact urban form in appropriate locations identified for such development. It also finds that with mitigation imposed as part of the NEPA process or during local permitting processes, most of the adverse consequences identified in these findings can be reduced or avoided. Potential mitigation measures are identified in findings.

Provide for associated highway improvements, balancing the need to improve the highway system with the need to protect affected neighborhoods from the identified adverse impacts.

The Columbia River Crossing Project includes a broad spectrum of highway improvements including new I-5 bridges across the Columbia River, widening of and interchange improvements along I-5, and improvements to highways accessing I-5, the Expo Center and Hayden Island. The Council finds that these highway improvements are in addition to other highway improvements that the Council previously approved for the South/North Project, including highway improvements in SW Portland, SE Portland and Milwaukie. All other street and highway changes, such as intersection modifications, installation of traffic signals, access changes, etc. are ancillary to light rail improvements or proposed as mitigation to address specific adverse impacts of the South/North Project, and are not classified as highway improvements.

The Council finds that the need to construct new I-5 bridges is the principal catalyst behind the CRC Project and that light rail transit is a fundamental component of the bridge project. It finds that the CRC Project is a combined transit/highway project that represents a consensus among affected local government officials. It finds that without the identified highway improvements, the light rail improvements would not and could not go forward independently and that without the rail component, the highway improvements would not independently be going forward. For this project to work, both components are required. Additionally, the Project will facilitate bicycle and pedestrian travel across the Columbia River, thereby being a truly multi-modal project. The Council further finds that the combining of rail and highway improvements is not unique to the region. Indeed, it finds that the Westside Corridor Project, which extended light rail transit from downtown Portland to downtown Hillsboro, was a combination rail and highway project that was approved through a series of LUFOs and LUFO amendments adopted between 1991 and 1996.

The Council finds that construction of new I-5 bridges, including a southbound bridge carrying light rail transit and a northbound bridge accommodating bicycle and pedestrian traffic, is necessary to maintain and improve an adequate interstate highway system. It finds that I-5 is the principal arterial serving the west coast states of Oregon, Washington and California, and the principal facility serving the interstate movement of freight by truck travel in these states. It finds that the existing I-5 bridges are severely congested during peak travel hours and severely hindered by their need to close traffic for periods at a time to allow ships and boats to pass underneath, and that these conditions will worsen substantially over time. All of this impedes mobility and delays the timely and efficient movement of freight between Oregon and Washington.

The Council also finds that the other identified highway improvements are necessary to complement the I-5 improvements and allow for an efficient local transportation system and access to/from I-5, the Hayden Island and Expo Center LRT stations, and residential, commercial and industrial areas in the project area.

The improvements at the Victory Boulevard Interchange would improve safety and lengthen short, substandard on- and off-ramps. All movements within the Marine Drive Interchange would be reconfigured to reduce congestion and improve safety for trucks and other motorists entering and exiting I-5. Trucks currently account for 8 to 10 percent of the daily vehicles that cross the I-5 bridges. At the Marine Drive Interchange, trucks account for greater than

20 percent of the daily vehicle composition. During the hour when the highest numbers of trucks are using the Marine Drive Interchange (9-10 a.m.), trucks account for approximately 30 percent of vehicles in the interchange. So by virtue of the improvements, the proposed design for the Marine Drive Interchange improves truck mobility. The improvements would allow the movements with the highest volumes in the interchange to move freely without being impeded by stop signs or traffic signals.

All movements for the Hayden Island Interchange would be reconfigured. The new configuration would be a split tight diamond interchange. Ramps parallel to the highway would be built, lengthening the ramps and improving merging speeds. Improvements to N Jantzen Drive and N Hayden Island Drive would include additional through, left-turn, and right-turn lanes. A new local road, N Tomahawk Island Drive, would travel east-west through the middle of Hayden Island and under the I-5 interchange, improving connectivity across I-5 on the island and improving access to and from the Hayden Island LRT station.

The CRC Project would also include local street improvements on the Oregon mainland, which would improve access between I-5 and local roads in the area. The project would build a local multimodal bridge that would provide access to and from Hayden Island and the Hayden Island station for vehicle traffic, bicycles and pedestrians separate from the I-5 mainline.

Many bicycle and pedestrian improvements are included in the CRC Project. These include new facilities such as the multi-use pathway across the Columbia River, street improvements around the rebuilt interchanges, and new facilities for bicyclists and pedestrians around the new light rail station.

The proposed Marine Drive Interchange area would be entirely grade-separated, with the local road network and multi-use paths running below the interchange. Pedestrian and bicycle improvements at the Marine Drive Interchange would include a multi-use path constructed from the Marine Drive Interchange, over Hayden Island and the Columbia River. The path would be a minimum of 16 feet wide between its barriers and would direct users with pavement markings and signage. Larger curves would provide improved sight distance and flow, and path components would meet ADA accessibility standards.

Sidewalks would be constructed on most reconstructed streets throughout the project area. To improve east-west connections on Hayden Island, a 6- to 8-foot-wide sidewalk would be provided along N Jantzen Drive and N Hayden Island Drive. A 6-foot minimum width sidewalk would be provided along N Tomahawk Island Drive. Crosswalks would be provided at all intersections and would meet ADA accessibility standards. The island streets would also include 6-foot bicycle lanes wherever improvements are made. All of the improvements would facilitate access to the light rail system.

The new northbound bridge over the Columbia River would also accommodate a multi-use pathway under the highway deck. This path would be 16 to 20 feet wide, located within the superstructure above the bridge columns and below the bridge deck. The multi-use path

would separate pedestrians and bicyclists from vehicle noise and avoid proximity to moving vehicles.

The Council finds that the local improvements summarized above would improve the flow of traffic in the I-5 corridor, would improve intersection performance on local intersections compared to No-Build and would improve bicycle and pedestrian mobility and safety.

The Council finds that the local multimodal bridge that provides local access to/from Hayden Island would benefit residents of the island, providing an alternate access to the island.

The Council finds that although there are adverse impacts associated with the highway improvements of the Project, many of the impacts can be sufficiently mitigated, as addressed in the NEPA documentation. The Council finds that the benefits of the Project including improved I-5 and local intersection performance, decreased congestion in the corridor, improved bicycle and pedestrian mobility and safety, and others as addressed in this document herein, outweigh the impacts and that the Columbia River Crossing Project would cause a net positive impact to residents.

Overall Conclusions Regarding Neighborhood Impacts (Highway)

Overall, the Council finds that these highway improvements, taken together, will have a positive impact on interstate and local travel and on interstate and local commerce. They will enhance nearby neighborhoods and improve opportunities for pedestrian, bicycle and vehicle circulation to and around the Expo Center, Jantzen Beach Center, Hayden Island and Vancouver, Washington. While the expansion of and modifications to the local highway network may result in some adverse impacts identified and discussed above, the Council believes and concludes that on balance, these highway improvements will be a substantial benefit to the City of Portland, the Metro region, the State of Oregon, and their residences and businesses, in terms of accessibility, mobility, improved movement of commerce, and improved bicycle and pedestrian transport. The Council concludes that the benefits of these improvements strongly outweigh the adverse impacts that are associated with them.

6.3.2 Criterion 4: Noise Impacts

“Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.”

Noise is a form of vibration that causes pressure variations in elastic media such as air and water. The ear is sensitive to this pressure variation and perceives it as sound. The intensity of these pressure variations causes the ear to discern different levels of loudness, and these differences are measured in decibels, or dBs. Vibrations can also be carried through the ground, in which case they are described in terms of vibration velocity levels in dB referenced to one micro-inch per second. As with air or water borne vibrations, ground vibrations have a threshold of human perception. Because air and ground borne vibrations have similar

properties and are measured in similar ways, the Council finds that vibration impacts are appropriately considered with noise impacts in these findings.

Noise and vibration impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section. Noise and vibration impacts also are identified, along with corresponding mitigation measures, in the Noise and Vibration Technical Report (Noise Report).

Identification of Noise and Vibration Impacts in the Expo Center/Hayden Island Segment.

The guidelines and standards for analyzing and mitigating transit noise and vibrations are different from those used for analyzing and mitigation highway noise. For transit noise, the guidelines and standards are established by the FTA while for highway noise, the guidelines and standards are established by the FHWA and ODOT. Because of the different guidelines and standards, the noise and vibration impacts of the transit and highway improvements in the Expo Center/Hayden Island Segment are addressed separately.

Transit Noise and Vibration Impacts and Mitigation Options

The noise criteria in the FTA Guidance Manual are founded on well-documented research on community reaction to noise and are based on change in noise exposure using a sliding scale. The amount that a transit project is allowed to change the overall noise environment is reduced with increasing levels of existing noise.

The FTA Noise Impact Criteria groups noise sensitive land uses into the following three categories:

Category 1: Buildings or parks where quiet is an essential element of their purpose.

Category 2: Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.

Category 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, office buildings, and other commercial and industrial land uses.

There are two levels of impact included in the FTA transit noise criteria.

Severe Impact: Severe noise impacts are considered “significant” as this term is used in NEPA and implementing regulations. Noise mitigation will normally be specified for severe impacts unless there is no practical method of mitigating the noise.

Impact: In this range, often called a “moderate” impact, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These other factors can include the predicted increase over existing noise levels, the types and number of noise-sensitive land uses affected, existing outdoor-indoor sound insulation, and the cost-effectiveness of mitigating noise to more acceptable levels.

Transit noise can take several forms. These include LRT-induced noise impacts resulting from changes to roads and to motor vehicle traffic volumes; wayside LRT noise impacts; LRT wheel squeal impacts; noise from ancillary LRT facilities; and LRT vibration impacts and mitigation.

LRT-induced road traffic noise is generally associated with park-and-ride lots. There are no new planned park-and-ride lots in the Expo Center/Hayden Island segment. There are, however, numerous highway improvements proposed for this segment. Their noise impacts are addressed below.

Wayside LRT noise is modeled based on measurements of existing LRT systems, the length and speed of trains, rates of acceleration and deceleration, location of special trackwork, auxiliary equipment and other factors. Options generally available to mitigate wayside LRT noise impacts include sound walls, crossover relocation and reduced LRT speeds. Within the Expo Center/Hayden Island segment, wayside LRT noise impacts floating homes within the North Portland Harbor. These noise impacts are addressed below

Wheel squeal noise is generated by train wheels as they traverse a curve. Whether wheel squeal occurs and how loud it is depends on many factors, including the material used to make the rail, the level of wheel/rail contact point lubrication, the sharpness of the curve, train speed and wheel profile. While there are several locations in the South/North Corridor where track curvature is acute enough to create wheel squeal impacts, none are located within the Expo Center/Hayden Island segment.

Where wheel squeal noise is generated, the noise impacts can be reduced or eliminated using the following general techniques:

- Dampening the wheel or using resilient wheels;
- Lubricating the wheel surface that slides against the rail;
- Using track designed to dampen squeal on sharply curved sections of the alignment.

If any wheel squeal impacts remain following the use of these mitigation measures, the use of barriers near affected receivers could be considered.

Noise from ancillary facilities includes noise from crossing bells and electrical substations located adjacent to the LRT trackway and LRT switching gear and transformers. Designing and building substations to meet federal noise criteria for transit system ancillary facilities can mitigate substation noise. Noise levels less than 60 dBA, which is a level typical of many residential areas, is expected at one foot from the exterior substation wall. This noise level can be reduced by as much as 10 dBA through the use of enhanced substation housing where substations are located near sensitive receivers. No noise impacts from crossing bells or substations are expected in the Expo Center/Hayden Island segment.

LRT vibration impacts resonate from the wheel/rail interface and are influenced by wheel/rail roughness, transit vehicle suspension, train speed, track construction and the geologic strata underlying the track. Vibration from a passing light rail train moves through the geologic strata into building foundations, potentially causing the buildings to vibrate. Ground-borne vibration is of such a low level that there is almost no possibility of structural damage to buildings near the alignment. The main concern of ground-borne vibration is that it can be annoying to building occupants. The primary options available to mitigate vibration impacts

include: incorporating state-of-the-art vehicle specifications; keeping special trackwork (such as crossovers) as far as possible from sensitive receptors; using either spring-loaded frogs in tie-and-ballast track sections or flange-bearing rail in paved track sections where special trackwork cannot be moved; and installing ballast masts (in tie-and-ballast sections) or vibration isolation technology, such as “whisper rail,” “booted” track-type support systems or resilient supported rail (for paved track sections). Small speed reductions may be able to reduce impacts to acceptable levels in a few locations, provided the speed reductions do not affect service schedules. There are several locations in the South/North Corridor where LRT vibration impacts occur. However, none of these are located within the Expo Center/Hayden Island segment.

The FTA has developed impact criteria for acceptable levels of ground-borne vibration that would apply to the light rail component of the Project. Exhibit 2-3 of the Noise Report summarizes the FTA impact criteria for ground-borne vibration as it affects most buildings. Exhibit 2-8 shows the ground-borne vibration and noise impact criteria for special buildings such as concert halls, TV and recording studios, auditoriums and theaters.

Overall, noise levels in the Expo Center/Hayden Island segment are currently dominated by motor vehicle traffic on I-5 and Portland International Airport aircraft. Existing noise levels in this area exceed traffic noise criteria for 96 noise-sensitive receptors. As discussed in the Noise Report, the first three banks of floating homes in the vicinity of the new light rail alignment would be relocated due to project construction, and therefore those homes were not analyzed for project-related noise impacts. Of the floating homes that will remain, analysis identified 8 floating homes where noise levels are predicted to meet or exceed the moderate FTA noise impact criteria. The impacts occur at the row of homes nearest the future tracks, where light rail operations are predicted to produce a noise level of 61 dBA Ldn, which just meets the 61 dBA Ldn impact criteria. Noise from future light rail operations is well below the traffic noise levels at all other noise sensitive properties in the Expo Center/Hayden Island segment, including the manufactured home residential area along the Columbia River.

Potential mitigation measures evaluated for reducing noise impacts from light rail for the project include 1) sound barriers, 2) track lubrication at curves, 3) special trackwork at crossovers and turnouts, 4) reduced train speed, and 5) building sound insulation. No light rail vibration impacts requiring mitigation were identified in the Expo Center/Hayden Island segment. The eight light rail noise impacts at the floating homes would be best mitigated with the installation of sound barriers along the elevated light rail structure. A 3- to 4-foot acoustical absorbent sound wall or 6-foot reflective sound wall would be effective at reducing noise levels at these homes by 7 to 10 dBA.

Traffic Noise Impacts and Mitigation Options

Traffic and construction noise analyses are required by law for federal projects that 1) involve construction of a new highway, 2) substantially change the horizontal or vertical alignment, or 3) increase the number of through traffic lanes on an existing highway. Oregon policies also require the review and consideration of noise abatement on projects that substantially alter the ground contours surrounding a state highway.

FHWA and ODOT impact criteria for noise studies depend on existing land uses or planned and permitted future land uses. Existing land uses in the Expo Center/Hayden Island segment

include commercial, industrial, park/open space and residential. Most of the land uses near the LRT and highway improvements are commercial/industrial and park/open space. There is a large group of floating homes located along the southern edge of Hayden Island on both sides of I-5. Other residential land uses include the Red Lion Jantzen Beach Hotel, the Oxford Suites, and the Courtyard by Marriott. There is also a large group of single and multi-family residential units east of I-5 along N Hayden Island Drive and N Tomahawk Island Drive.

As described in the discussion of transit noise impacts above, existing noise levels in the project corridor were modeled and noise levels currently exceed FHWA and ODOT traffic noise criteria for 96 noise-sensitive receptors located in the Expo Center/Hayden Island Segment. These receptors include floating homes, the south portion of Delta Park and at the Red Lion Columbia Center Hotel, which include all rooms facing toward I-5.

The project includes removal of the floating homes closest to the I-5 crossing of the North Portland Harbor and the addition of 3.5-foot safety barriers along all sides of all elevated roadway structures. The combined effect of displacing noise sensitive properties nearest the project roadways, and the addition of the safety barriers, would result in no newly impacted noise-sensitive receptors in the Expo Center/Hayden Island segment. In addition, those receptors currently impacted will not experience substantial increases in the severity of those impacts.

Overall Conclusions Regarding Noise Impacts and Mitigation Options

Based on the information in the Noise Report, the Council finds and concludes that sound wall options are available and have been recommended to mitigate the identified light rail noise impacts in the Expo Center/Hayden Island segment. Based also on information in the Noise Report, with the removal of some existing noise-sensitive receptors and the addition of safety walls, no new highway noise impacts are expected in the Expo Center/Hayden Island segment. The final decision and recommendation to include the approved mitigation will be made during the final design process.

6.3.3 Criterion 5: Natural Hazards

“Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Natural hazard impacts specific to the Expo Center/Hayden Island segment are addressed in the following section. Natural hazard impacts, and associated mitigation measures, also are described in the Geology and Groundwater Technical Report (Geology Report) and the Water Quality and Hydrology Technical Report (Hydrology Report).

Overview of Natural Hazards Impacts in South/North Corridor and Mitigation Measures

The South/North Project, including the Columbia River Crossing portion, lies within the Portland Basin, a basin characterized by relatively low topographic relief with areas of buttes and valleys containing steep slopes. Much of the overall South/North Project alignment crosses developed land. Long-term impacts to the geologic environment consist of relatively minor changes in topography and drainage patterns, minor settlement of near-surface materials, and potential changes in slope stability and erosion. These impacts could occur as a result of excavation, placement of structures and fills and clearing and grading.

The geology and soils in the area of the South/North Project are typical of the Portland Basin. Soils within the South/North Corridor developed on flood and alluvial deposits. Where undisturbed, they are generally sandy to clayey loam and are well to poorly drained. However, much of the area is classified as urban land, where the original soils have been extensively modified or covered. Associated with the channel deposits, areas of highly organic silt and clay and deposits of peat may be encountered and require special construction techniques. Expansive (high shrink-swell) soils are present in the corridor.

The potential for major landslides within the South/North Corridor is very limited because the topography within the corridor is relatively gentle, and the geologic conditions are generally favorable.

The Pacific Northwest is a seismically active area and subject to earthquakes. Oregon has the potential for three types of earthquakes: crustal, intraplate and subduction zone. Although earthquake prediction is an inexact science, it is reasonable to assume that earthquakes will occur in Oregon.

Studies of relative earthquake hazards have been completed for much of the Portland area. These studies show that much of the South/North corridor lies in areas with relatively high potential for earthquake damage. Project design and estimated construction costs reflect the need to conform to the relevant seismic standards for capital construction.

To mitigate earthquake hazards, TriMet and ODOT will adhere to applicable Federal, State and local building codes or standards for bridges and structures in the South/North Project.

Groundwater may be encountered at shallow depths along sections of the corridor that cross the flood plains of rivers and creeks. Other areas of shallow groundwater levels may exist locally, controlled by local variations in soil type and drainage.

Additionally, the study area intersects major rivers, minor watercourses and floodplains within the lower Columbia and Willamette River basins. Floodplains are valuable natural resource areas providing fish and wildlife habitat, flood control, stormwater storage, water quality enhancement, sediment and erosion control, and educational, recreational, research, and aesthetic uses. Executive Order 11988 directs federal agencies to conduct their activities in ways designed to reduce the risk of flood loss; to minimize the impact of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains.

Natural Hazard Impacts within the Expo Center/Hayden Island Segment

As shown in Exhibit 3-12 of the Geology Report, no specific *landslide areas* or steep slopes (greater than 25 percent) are identified in the Expo Center/Hayden Island segment. As noted above, the potential for major landslides within the South/North Corridor is very limited because the topography within the corridor is relatively gentle. Although the LRT and highway improvements will cross the North Portland Harbor and the Columbia River on new bridge structures, the banks associated with the crossings are not particularly steep. As shown in Exhibit 3-4 of the Geology Report, the mapped surface unit for the bridge footprints is Quaternary alluvium and fill. In addition, historic aerial photographs for the area indicate that construction of North Portland Harbor and Columbia River bridge foundations and abutments would likely encounter fill embankments at Hayden Island. However, because steep slopes and landslides have not been identified near the proposed bridge footprints, no long-term adverse effects due to steep slopes or landslides are anticipated.

Exhibit 3-5 of the Geology Report identifies soil types within the greater Expo Center/Hayden Island segment area, and Exhibit 3-6 describes the erosion hazard ratings for these soil types. As shown in Exhibit 3-5, the project footprint extends to areas with three soil types – Pilchuck-Urban land complex (0 to 3 percent slope); Sauvie-Rafton-Urban land complex (0 to 3 percent); and Rafton silt loam, protected. These soil types are not considered to have *severe erosion potential*.

As stated above, the Pacific Northwest is a seismically active area and is subject to *earthquake damage*. Bridges are vital links in the transportation system and are often especially vulnerable during seismic events. The Geology Report does not identify any seismically active earthquake faults in the Expo Center/Hayden Island segment. However, several types of earthquakes could occur in the project area. In particular, there is a large, offshore fault located in the Pacific Ocean west of the I-5 crossing. Exhibit 3-16 of the Geology Report shows a map of the relative earthquake hazard ratings in the project area. These ratings take into account a variety of potential earthquake effects, with Zone A being the most hazardous areas and Zone D being the least hazardous. Earthquake effects include ground motion amplification, slope instability, and soil liquefaction, all of which have a high potential to impact public safety and cause structural damage and economic disruption. The Expo Center/Hayden Island segment is identified in relative earthquake hazard Zones A and B.

The Hydrology Report includes background information on hydrology and floodplains in the CRC project corridor. The I-5 bridges are located at river mile 106 of the Columbia River. The Columbia River is highly constrained within the project area by existing levees and landform. In addition, 10 bridge footings are currently located below the river's ordinary high water level (OHW), and also constrict the river. The North Portland Harbor is a large channel of the Columbia River located between North Portland and the southern bank of Hayden Island. A flood control levee runs along the south bank of the North Portland Harbor and forms a boundary between the adjacent neighborhoods and the harbor.

The installation of piers within the Columbia River and North Portland Harbor would encroach upon the Columbia River's *100-year floodplain*. However, this would result in little, if any, increase in flooding risks, given the relatively small size of the bridge piers compared to the size of the Columbia River. The LRT and highway improvements in the Expo Center/Hayden Island segment would either avoid or be elevated above the floodplain, with no significant encroachment or fill that would cause adverse flooding conditions or changes in flood velocity. The volume of displacement presented by the piers is expected to be insignificant.

Mitigation Options for Natural Hazard Impacts in the Expo Center/Hayden Island Segments

Based on the information contained in the Geology Report, the Council finds that no *landslide areas* or *areas of severe erosion potential* have been identified in the Expo Center/Hayden Island segment. While historical evidence of seismic activity in Oregon is minimal, recent studies indicate that western Oregon may be subject to a greater risk from *earthquake hazards* than previously thought. Site geology has a significant impact on earthquake damage. Young unconsolidated silt, sand, and clay deposits are associated with enhanced earthquake damage through amplification of shaking, settlement, liquefaction, and landsliding.

Potential mitigation measures to address geologic/soils conditions are provided in the Geology Report. During final engineering stage of the project, site-specific assessments would include additional geotechnical testing and monitoring. Soft foundation conditions, delineated by the exploration program, can be mitigated with proper designs. The site-specific assessments will also assess the use of soil stabilization techniques to minimize liquefaction of soils. Stabilization techniques include the use of compaction grouting, stone columns, and other techniques.

Mitigation measures would also apply to project structures. The project will provide seismic upgrades to existing structures, as needed, and new and upgraded structures will adhere to the following applicable building codes and standards:

- AASHTO LRFD Bridge Design Specifications
- AASHTO Guide Specifications for LRFD Seismic Bridge Design
- WSDOT Bridge Design Manual, LRFD M 23-50 (BDM)
- ODOT Bridge Design and Drafting Manual (BDDM)
- City of Vancouver Municipal Code (VMC) Chapter 20.740.130 Critical Areas Protection- Geologic Hazards Areas

The project will use elements such as drilled shafts, driven piles, abutments and retaining walls. Structural designs will take into consideration stormwater infiltration or other future changed conditions near shallow footings, retaining walls and/or other structures that could increase the potential for soil liquefaction during a future seismic event.

Based on the facts in the Geology Report, the Council finds that long-term Project impacts to geology and soils in the Expo Center/Hayden Island segment are minor and can be mitigated.

Mitigation could consist of using standard engineering practices to construct stable slopes; design of bridges to meet Uniform Building Code seismic standards; and techniques such as excavation and backfilling, special footing and foundation designs, and special construction techniques such as surcharging and dewatering to address the stability of artificial fill and the high water table on Hayden Island. Additionally, the CRC Project would replace existing bridges with new and retrofitted structures built to modern seismic safety standards, and would stabilize weak soils along the Columbia River on Hayden Island and around Marine Drive. The Council concludes that the proposed LRT and highway improvements would significantly improve public safety and structure stability during earthquake seismic events when compared with existing conditions.

The North Portland Harbor and the Columbia River will span the 100-year *floodplain*, but with no significant fill or encroachment into the floodplain resulting from pier placement. A minor amount of fill will be associated with the placement of piers for the new bridges. However, the Council finds that floodplain impacts, if any, would be very small given the relatively small size of the bridge piers in comparison to the Columbia River. A flood-rise analysis will be conducted during the final design to calculate the impact that piers in the water will have on flood elevation, in accordance with local regulations and Executive Order 11988 – Floodplain Management. If flood-rise exceeds the allowable limit, the rise would be mitigated through floodplain excavation (cut/fill balance) activities, and the Council finds that such mitigation is feasible

6.3.4 Criterion 6: Natural Resource Impacts

“Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Natural resource impacts specific to the Expo Center/Hayden Island segment are addressed in the following section. Natural resource impacts, along with associated mitigation measures, also are described in the Ecosystems Technical Report (Ecosystems Report), the Wetlands Technical Report (Wetlands Report), the Parks and Recreation Technical Report (Parks Report) and the Visual and Aesthetics Technical Report (Visual Report).

Identification of Impacts to Significant, Protected Natural Resources in the Expo Center/Hayden Island Segment

Criterion 6 of this Land Use Final Order requires identification of adverse impacts on *significant* resources (fish and wildlife, scenic and open space, riparian, wetland and park and

recreational areas, including the Willamette River Greenway) that are *protected* in acknowledged local comprehensive plans. Oregon planning under Statewide Planning Goal 5 calls for inventories and protection of significant natural resources including fish and wildlife habitat, wetlands, riparian and scenic and open space areas. Because not all natural resource sites within the project area are identified as significant by local governments in their comprehensive plans, the scope of analysis of natural resource impacts under Criterion 6 is generally narrower than the scope of analysis contained in the federal environmental impact statements.

For the Columbia River Crossing portion of the South/North Project, the relevant acknowledged comprehensive plan is the City of Portland Comprehensive Plan. That plan includes policies and objectives to address conservation of a range of natural resources identified in Statewide Goal 5, including wetlands, riparian areas and water bodies, fish and wildlife habitat, scenic routes and viewpoints, and significant upland areas. The City has completed an inventory and analysis of natural resource sites, identified the significance of each resource site and provided varying levels of protection to specific sites through the application of Environmental Overlay zones (E-zones). The city applies two environmental overlay zones: environmental protection (ep) and environmental conservation (ec). The *environmental protection zone* provides the highest level of protection for resource areas deemed highly valuable through a detailed inventory and economic, social, environmental, and energy (ESEE) analysis. Development is largely prevented in these areas. The *environmental conservation zone* areas are also considered valuable, but can be protected while allowing “environmentally sensitive urban development.”

Within the Expo Center/Hayden Island segment, the Council finds that the environmental conservation zone applies to the Columbia River, North Portland Harbor, Columbia Slough, and the Vanport Wetlands to identify and protect these areas for multiple resource values, including *fish and wildlife habitat, riparian corridors, open space and scenic and wetland areas*. However, the E-zone regulations are superseded by the regulations of Peninsula Drainage District #1 at the Vanport Wetlands. As identified in the Ecosystems Report, about 41 acres within the project’s footprint in the Expo Center/Hayden Island segment are within Portland’s E-zones, and impacts to these resources are regulated.

The Council also finds that N Marine Drive is identified as a *scenic corridor* in the Portland Comprehensive Plan and the Columbia Slough has been defined as a *scenic waterway* by the City of Portland, and could be considered a recreational resource. Further, the Portland Comprehensive Plan designates the planned extension of the 40-Mile Loop *recreational trail* along N Marine Drive adjacent to the south side of the North Portland Harbor. Additionally, the Portland Comprehensive Plan designates lands within the Expo Center/Hayden Island segment as *Open Space*. This designation provides for the enhancement and preservation of public and privately owned open, natural, and improved parks and recreational areas. Designated Open Space is found on the east side of I-5 between N Martin Luther King Jr. Boulevard and N Hayden Meadows Drive (Delta Park), and on the west side near the Expo Center exit. The Open Space designation also borders the N Columbia Boulevard interchange at the southern end of the area of primary impact. Based on these facts, the Council concludes

that the natural resources highlighted above are significant and afforded some protection under the acknowledged Portland Comprehensive Plan.

Fish and Wildlife Habitat. The Columbia River and North Portland Harbor are major aquatic resources in the Expo Center/Hayden Island segment and are recognized as significant natural resources for multiple values, including *fish and wildlife habitat*. Shorelines along both of these waterways have been substantially altered and now support limited natural vegetation. These aquatic resources could be directly affected by one or more of the following activities: 1) in-water construction work, 2) construction in or near riparian areas, 3) re-routing of stormwater drainage from roadways and bridges, and 4) permanent structures placed in or removed from waterways.

Historically, the project area was forested, with forested wetlands along the Oregon shoreline and on Hayden Island. The Oregon shoreline was part of a large floodplain wetland system and included many sloughs, back channels, and small or seasonal lakes. Urban development has substantially degraded historic habitat in all parts of the project area, particularly for land-based species. Exhibit 3-10 of the Ecosystems Report shows the amount of different habitat types within the project area. The largest area is comprised of open water, as this classification includes the portions of the Columbia River, North Portland Harbor and Columbia Slough within the project area, and stretches up and downstream from the existing I-5 bridges to account for hydroacoustic attenuation areas. Outside of open water, the project area is almost exclusively occupied by urban habitats. Less than 2 percent of the project area is classified as either wetland or forest habitat, with most of this occurring as small patches isolated from other natural areas.

As described in the Ecosystems Report, the Columbia River and its tributaries are the dominant aquatic system in the Pacific Northwest. In the project area, tides and upstream dams influence river height and flow rate. Because the project is within a heavily developed area, riparian habitat quality along the banks of the Columbia River is poor. Dikes and levees, particularly when reinforced with riprap or concrete, as is the case near the I-5 bridges, make poor quality riparian habitat. The river in this area offers pool and glide habitats for fish, though the water quality is limited for several pollutants. The I-5 bridges influence aquatic habitat conditions in the main channel and North Portland Harbor. Bridge piers in the river provide potential refuge from the current for both predatory fish and juvenile salmon.

The North Portland Harbor channel, on the south side of Hayden Island, supports several floating home communities and commercial and recreational moorages. Average depth in this channel is about 14 feet, with deeper water on the south side. The south shore supports active industrial uses. Piers and moorages line the shore, providing very low quality riparian habitat. Piers and floating homes provide shade and refuge for both predatory fish and juvenile salmon. With the exception of a few large cottonwoods along both shores of the harbor, ornamental plantings and weedy exotic species comprise most of the vegetative cover. Only the open water of the river, and to a lesser extent the harbor, provides much habitat value to wildlife. A variety of resident and migratory waterfowl are expected on both waterways, as are small mammals such as nutria and river otter.

The Ecosystems Report contains detailed information on the status of protected species in the project corridor. Bald eagles use the Columbia River and environs to forage for fish and waterfowl, but no nesting or breeding sites are known within one mile of the project. Bald eagles were removed from the federal ESA list in August 2007, but are still listed as threatened under Oregon and Washington ESAs.

Peregrine falcons are known to be present in the project area, and utilize the existing I-5 bridge structures year-round. This species was removed from the federal ESA list in 1999 and from the Oregon ESA list in March 2007.

The project area is located in the Pacific flyway, the major north-south route for migratory birds that extends from Patagonia to Alaska. Many migratory birds use the area for resting, feeding, and breeding.

The Columbia River is an important passageway for anadromous fish species moving between the ocean and upstream spawning areas, and also provides significant habitat for resident fish species. The Columbia River and North Portland Harbor are known to support listed anadromous salmonids, including Chinook salmon, chum salmon, sockeye salmon, steelhead trout, and coho salmon, which use this habitat primarily for migration, holding, and rearing. Exhibit 3.9 of the Ecosystems Report summarizes the protected aquatic species known to use or potentially be using waterways in the project area.

The Council finds that the existing I-5 highway, bridges, and interchanges are located in a highly urbanized area. The combined effect of existing transportation facilities and development patterns results in adverse impacts to aquatic, riparian, and terrestrial habitats and the species that rely on them for survival. Existing fish and wildlife habitat impacts include the following: 1) Untreated stormwater runoff has degraded water quality, 2) Columbia River bridge piers provide a refuge for fish species that prey on juvenile salmon, and 3) the bridge and roadway alignment travels through locally and regionally designated habitats.

In general, the Council finds that the long-term effects to aquatic habitat would be consistent with current conditions with the continued presence of bridge piers in the Columbia River and a major transportation structure over the river. Compared with the No-Build Alternative, the Project has fewer bridge piers; however, the piers will be bigger than those currently in place, casting larger shadows and displacing some shallow water habitat.

The Council finds that effects to riparian habitat will be negligible in the Columbia River and North Portland Harbor, as there is very little functioning riparian vegetation in the main project area. About 35 acres within Portland's E-zones would be directly impacted by light rail and highway improvements in the Expo Center/Hayden Island segment. However, the additional acreage impacted should not adversely affect the overall function of terrestrial and riparian habitat or the long-term sustainability of plant and animal species in the project area. The project improvements will mostly be constructed within existing rights-of-way or land already developed to urban densities, areas that generally provide poor quality fish and wildlife habitat. The project will revegetate disturbed shoreline areas, minimizing long-term

effects to Columbia River riparian habitat. There will be no excavation or removal of trees from the Columbia Slough riparian area. Therefore, the project will have no effect on Columbia Slough riparian habitat.

Scenic and Open Space Areas. *Scenic and open space* resources recognized in the City of Portland's *Scenic Views, Sites and Drives Inventory*, *Scenic Resource Protection Plan* include the Marine Drive scenic corridor, the North Portland Harbor scenic corridor, the historic northbound I-5 truss and lift bridge, and the Columbia River scenic corridor. Additionally, the Columbia Slough has been defined as a scenic waterway by the City of Portland and could be considered a recreational resource.

The Council recognizes that highways and major transit facilities are highly visible public facilities that can noticeably affect the visual character of surrounding landscapes and the perception of visual resources. Such changes can be of keen interest to local residents and jurisdictions as well as to travelers using the facilities.

The Visual Report describes existing conditions and long-term effects to the viewsheds in the project corridor. A viewshed, or "landscape unit", is the portion of the landscape that can be seen from within the project area and that has views of the project area. The boundaries of a viewshed are determined by the surrounding topography, vegetation, and built environment. Two viewsheds are described for the Expo Center/Hayden Island Segment: 1) the Columbia Slough landscape unit, and 2) the Columbia River landscape unit.

Mixed industrial-commercial development, sports fields, and marinas define the visual character of the Columbia Slough landscape unit. Visual resources include the Columbia Slough Scenic Corridor, stands of mature trees, Vanport Wetlands (west of I-5), and views of the Tualatin Hills, Mount St. Helens, and the Washington Cascades. Viewer sensitivity in the Columbia Slough landscape unit is low for drivers and high for recreational users.

The river defines the visual character of the Columbia River landscape unit. Visual resources include the Columbia River and its shoreline and views of Mt. Hood and the Tualatin Hills. Viewer sensitivity and vividness in the Columbia River landscape unit is high.

The primary elements of the CRC Project that would affect visual quality and character are the new bridge structures across the North Portland Harbor and the Columbia River. Visual impacts to the North Portland Harbor scenic corridor would occur from the new light rail/vehicular/bicycle/pedestrian bridge between Hayden Island and Expo Center Drive. Visual impacts to the N Marine Drive and Columbia River scenic corridors would occur from:

- The greater heights and widths of the new structures across the Columbia River;
- The widening of the I-5 corridor due to the addition of auxiliary lanes along I-5;
- The new light rail/vehicular/bicycle/pedestrian bridge between Hayden Island and Expo Center Drive; and
- The wider or higher ramps for reconfigured interchanges at Marine Drive and Hayden Island.

This section of the N Marine Drive Scenic Corridor borders the North Portland Harbor, a narrow waterway dominated on the east by the large horizontal forms of I-5 and heavy industrial activities and busy roads along its south banks. Older, wooden and metal storage and other buildings rim the bank. Views from the south and north bank of the Harbor are blocked to the east by the I-5 bridge but focus on a cluster of small docks and houseboats nestled against the south shore of Hayden Island adjacent to the bridge. Views west down the harbor focus on the channel and on river-related commercial and industrial activities along both banks.

The new light rail/vehicular/bicycle/pedestrian bridge will cross under N Marine Drive and over the North Portland Harbor on an approximately 1000 foot structure constructed west of the existing I-5 bridge over the harbor. The LRT bridge would remove some houseboats and vegetation along both banks of the harbor. The bridge would also introduce a new overhead structure over the Marine Drive and North Portland Harbor scenic corridors. However, because the multi-modal bridge will closely parallel the existing I-5 bridge and is located in an intensively urban, industrial section of the scenic corridor, the Council finds that the project will not result in a significant adverse impact on either scenic corridor.

The reach of the Columbia River crossed by the I-5 bridges is flat, open water bordered by industrial, commercial, residential and undeveloped areas along its shoreline. The river is a significant regional resource and the dominant visual element within this segment because of its large scale and openness. The river also serves as a dramatic gateway between Oregon and Washington. The Visual Report concludes that the new bridge forms over the Columbia River and the resulting changes to views of (and from) the Columbia River would be mostly positive. Potential impacts would include:

- Removal of the visually complicated truss structures and lift towers of the existing I-5 bridges. This action would remove an obstruction of views from the higher deck and from the river. However, this action would remove an important contributor to the area's historic context (the I-5 bridges) and a character-defining aspect of interstate travel.
- From I-5, views of the Portland and Vancouver skylines, distant shorelines, rolling hills, and mountain profiles would generally improve. Toward I-5, views of open water and shorelines from shoreline-level and elevated viewpoints would also generally improve.

The Council finds that high-quality design and construction of the proposed transit and highway facilities will be important mitigation tools for visual quality and aesthetics associated with designated scenic and open space resources. The City of Portland and other stakeholders will continue to discuss the aesthetic attributes of the new bridge structures to best mitigate potential visual impacts and to create a noteworthy visual feature. The Council understands that design guidelines have been developed and will be used during the final design phases of the Project to guide decisions that impact visual character and quality. It considers the design of the I-5 bridges to be a substantial visual mitigation opportunity for the Project. Appropriate conditions that are reasonable and necessary and do not prevent

implementation of the LUFO can be imposed through the local review process to avoid or mitigate adverse impacts on designated scenic resources and viewpoints.

Riparian Areas. As described in the discussion of fish & wildlife habitat, the *riparian area* along the North Portland Harbor and the Columbia River has been significantly altered with development. Shorelines along both of these waterways now support limited natural vegetation. The project improvements will mostly be constructed within existing rights-of-way or on land already developed to urban densities, areas that generally provide poor quality fish and wildlife habitat. The project will revegetate disturbed shoreline areas, minimizing long-term effects to Columbia River riparian habitat. There will be no excavation or removal of trees from the Columbia Slough riparian area. Therefore, the project will have no adverse effect on Columbia Slough riparian habitat.

Wetland Areas. The Wetlands Report notes that there are large wetland systems east and west of the immediate project area in the Expo Center/Hayden Island segment, including the Vanport Wetland, Force Lake, Smith and Bybee Lakes, and West Hayden Island wetlands. Additionally, the Columbia Slough watershed has substantial wetlands and other water present within the urban matrix. Exhibit 3.6 identifies the following field-identified wetlands in the Expo Center/Hayden Island Segment: 1) Victory interchange wetlands, 2) Schmeer Slough, 3) Walker Slough, 4) Expo Road wetland, and 5) Vanport Wetlands. The wetland delineation report was submitted for concurrence to the Oregon Department of State Lands (DSL) in 2008 and DSL has concurred with the delineation (#WD 2008-0205). In addition to field-identified wetlands, a potentially jurisdictional water area is also identified in Exhibit 3-6 of the Wetlands Report (PJWA O). The CRC project has the possibility of encroaching upon the eastern edge of PJWA O, however, lacking permission from the property owner to enter the Vancouver Way property, neither the project team nor regulatory agencies can confirm the presence or absence of jurisdictional wetlands at this location.

Based on information in the Wetlands Report, the Council finds that the project footprint would not encroach upon any identified wetlands in the Expo Center/Hayden Island Segment. The new impervious surface will not discharge untreated stormwater runoff into the wetlands and the urbanized environment already negatively affects the wildlife activities that may be impacted.

Park and Recreational Areas and Willamette River Greenway. Designated *park and recreational areas* close to the proposed LRT and highway improvements in the Expo Center/Hayden Island segment include East Delta Park, the Marine Drive Multi-Use Trail and the proposed Bridgeton Multi-Use Trail. The project improvements are located outside of the boundaries of the *Willamette River Greenway*.

East Delta Park is a regional park located east of I-5 between N Denver and Martin Luther King Jr. Boulevard. East Delta Park encompasses about 85 acres and facilities include softball and soccer fields, control line flying field, sand volleyball courts, playground, and off-leash dog area on ODOT property. Approximately 0.4 acre of off-leash area associated with East Delta Park, but located in ODOT right-of-way, would be permanently acquired for the project improvements.

The Marine Drive Multi-Use Trail is a designated *recreational trail* along N Marine Drive. The five-mile segment extending from I-5 west to Kelley Point Park connects to the Marine Drive interchange and North Portland Harbor bridges. The 40-Mile Loop is designated a significant recreational resource and is protected in the acknowledged City of Portland Comprehensive Plan. Project improvements in the Expo Center/Hayden Island segment would not require any use of the trail. Based on information included in the Parks and Recreation Report, the Council finds that improvements to the bicycle and pedestrian facilities would represent a large improvement over the circuitous paths that exist today within the loops and ramps of the Marine Drive interchange. New, wide multi-use paths beneath the Marine Drive Interchange would connect both sides of I-5 to the Expo Center light rail station, East Delta Park, the Marine Drive Multi-Use Trail, and the crossing over North Portland Harbor to Hayden Island. Additionally, the Council finds that the new improvements to bicycle and pedestrian facilities within the Marine Drive Interchange area could be connected to the proposed Bridgeton Trail sometime in the future.

Mitigation Options for Natural Resource Impacts in the Expo Center/Hayden Island Segments

The Council finds that the South/North Project will have no adverse impacts on park areas and designated recreational trails, riparian areas and identified wetland areas. Pedestrian and bicycle improvements in the vicinity of the Marine Drive interchange will substantially improve connections to the Marine Drive multi-use recreational trail.

The Council finds that the bridges across the North Portland Harbor will have an impact on the scenic and visual character of this segment. However, by locating the LRT bridges in close proximity to the existing and more dominant I-5 bridges, the Council concludes that visual impacts will be reduced. Additionally, by locating the LRT alignment to the west of I-5, views up the Columbia River from the I-5 bridges toward Mt. Hood are not affected.

Construction of the new LRT and highway bridges over the North Portland Harbor and the Columbia River could result in adverse impacts to wildlife habitat. Impacts to riparian habitat along North Portland Harbor would be limited to the loss of several relatively large cottonwood trees along the harbor shorelines. Since these trees occur in small, isolated stands surrounded by development, their loss would not adversely affect wildlife populations. Small, isolated stands of trees in an urbanized area afford relatively poor quality habitat due primarily to the lack of habitat diversity, lack of buffering from human activity and lack of movement corridors to other habitat areas.

Long-term impacts to fisheries include the removal of a small amount of channel bottom habitat due to construction of the bridge pier foundations. None of the bridge piers is expected to adversely modify critical habitat; however, elements such as cover, shelter, refuge, holding, or rearing might be adversely affected to a relatively small extent. No suitable spawning habitat, and limited rearing and holding habitat for juvenile salmonids, is present in the area of the bridge crossings. As a result of the analysis and findings presented in the *Biological Assessment for Threatened, Endangered, and Candidate Fish* and the approved Biological Opinion, the Council concludes that, with implementation of a number of conservation measures, the South/North Project would not likely jeopardize populations of threatened or

endangered fish species or adversely modify their critical habitat in the CRC project area. However, due to the extent of in-water work and the presence of many ESA-listed fish, it is acknowledged that adverse effects to individual fish and their critical habitat are likely to occur, but effects are avoided or minimized to the extent practicable. The Council notes that the National Marine Fisheries Service (NMFS) produced this finding in its Biological Opinion.

The Council finds that the following mitigation measures outlined for Threatened, Endangered, and Candidate Fish in the Expo Center/Hayden Island Segment are available to mitigate adverse impacts to the North Portland Harbor and the Columbia River and could be imposed as conditions of approval during the FEIS process and/or the local permitting process if reasonable and necessary:

- Implement erosion and sediment control measures to prevent sediment from entering surface waters.
- Time in-water construction activities based on discussions with NMFS and the Oregon Department of Fish and Wildlife, and take into consideration factors such as timing of fish migration and construction schedule and cost.
- Use of hydroacoustic attenuation measures to reduce impacts on the behavior of fish and sea lions.
- Conduct sediment sampling prior to construction of in-water bridge piers in order to determine the presence of and characterize potential contaminants.
- Limit the operation of equipment in the active river channel to the minimum necessary.
- Clean all equipment that is used for in-water work prior to entering the water.
- Do not store or transfer petroleum products within 150 feet of the active river channel, unless isolated within a hard zone with suitable containment measures in place.
- Assure the development and implementation of plans for the safe storage and containment of all hazardous materials used in project construction.
- Include measures in the plan for containment berms and/or detention basins, where appropriate.
- Develop a site-specific sediment control and erosion control plan prior to project implementation.

6.3.5 Criterion 7: Stormwater Runoff

“Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Stormwater runoff impacts specific to the Expo Center/Hayden Island segment are addressed in the following section. Stormwater impacts and mitigation measures are also described in the Water Quality and Hydrology Technical Report.

General Overview of Stormwater Runoff Impacts and Mitigation

The South/North Project intersects major rivers, minor watercourses and floodplains within the lower Columbia and Willamette River basins, including the Willamette and Columbia Rivers. Existing waterways in the South/North Project area receive large volumes of stormwater and surface runoff containing a variety of pollutants, including chemicals and nutrients from fertilizers and pesticides, roadway sediments, motor vehicles and other man-made or natural sources. Water quality in the corridor is typical of drainage basins with urban development.

Areas developed or under development increase the rate and volume of peak stormwater discharges. The peak runoff rate and volume of stormwater discharges usually increase when construction removes vegetation, compacts soils, and/or covers significant portions of a site with buildings or pavement. Typical problems associated with increases in peak discharge rates include higher flow velocities in streams, more erosion, and more frequent flooding. These problems degrade habitat areas, damage property, and require increased maintenance of culverts and stormwater facilities.

A range of federal laws, state statutes, and local and regional ordinances address hydrologic impacts from development. State and local regulations typically establish standards for controlling the peak rate of stormwater runoff. Regional standards, contained in Title 3 of Metro's *Urban Growth Management Functional Plan*, more broadly address flood mitigation, erosion and sediment control, and the protection of long term regional continuity and integrity of water quality and flood management areas. Federal National Flood Insurance Program criteria and Executive Order 11988 regulate development in flood prone and floodplain areas.

Potential sources of water quality degradation include pollutants from chemicals and nutrients from natural or man-made sources. Eroded sediments and other pollutants can be carried by stormwater to downstream receiving waters. Resulting water quality issues can impair the beneficial use of local waterways for recreation, wildlife habitat, and watering of livestock or other farm animals.

Water quality impacts are generally regulated by federal and state guidelines, usually through required water quality standards for receiving waters quality and limitations on the generation and release of urban pollutants.

Stormwater detention treatment facilities can be used to mitigate the effects of long-term and short-term hydrologic and water quality impacts changes. State and local regulations establish standards for detention stormwater treatment and other methods of stormwater control which can be applied as conditions of approval during local permitting proceedings. Mitigation for hydrologic and impacts is usually accomplished by reducing or attenuating peak runoff rates, by either detaining (store and release), retaining (store but do not release) through stormwater detention, or infiltrating runoff from a developed site. Stormwater detention provides water quality benefits because storage promotes settlement of suspended sediments and other pollutants. Stormwater detention and water quality facilities are typically combined to use land more efficiently. "Dry" ponds, bioretention ponds, "wet" ponds, constructed treatment wetlands, retention ponds, biofiltration swales, biofiltration swales filter strips, underground

vaults, bioslopes, and constructed wetlands dry wells are typically used stormwater treatment facilities. The Council finds that a range of measures are available and site-specific mitigation for hydrologic and water quality impacts will be refined and selected during the Final Design and local permitting processes.

All of these facilities detain stormwater by releasing runoff through a regulating structure, such as an orifice or weir. Stormwater detention provides water quality benefits because storage promotes settlement of suspended sediments and other pollutants. Stormwater detention and water quality facilities are typically combined to use land more efficiently.

Source control Best Management Practices (BMPs) are intended to mitigate pollutants generated through normal operation and use of buildings, roadways, and other urban facilities. The Council finds that water quality degradation resulting from erosion and sedimentation and the release of pollutants can be minimized through the use of BMPs during construction. Construction BMPs include use of barrier berms, silt fencing, temporary sediment detention basins, plastic covering for exposed ground, vegetative buffers (hay bales), and restricting clearing activities to dry weather periods to contain sediment on-site. Further requirements could include diapering of all dump trucks to avoid spillage, and cleaning of heavy equipment tires and trucks before they are allowed to drive off-site. A variety of special BMPs can also be used at crossings or adjacent to streams or watercourses during construction.

In general, the Council finds that water quantity and water quality and hydrology impacts created by the construction and operation of the CRC Project can be substantially mitigated by complying with the following: DEQ water quality standards; Army Corps of Engineers Section 404 permit regulations; Department of State Lands regulations for instream activities; NMFS conservation measures specified in the project Biological Opinion; Metro Title 3 regional standards; and City of Portland erosion control and stormwater regulations. These rules and regulations outline Best Management Practices to prevent or limit pollutants from entering surface waters through urban drainage systems. These types of measures could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the local permitting process.

Stormwater Runoff Impacts and Mitigation Options with the Expo Center/Hayden Island Segment

Within the Expo Center/Hayden Island segment, specific water bodies include the Columbia Slough, the Columbia River and North Portland Harbor. As described in the Water Quality and Hydrology Report, the Columbia Slough is a slow-moving, low-gradient drainage channel running nearly 19 miles from Fairview Lake in the east to the Willamette River in the west. Water levels are managed with pumps, weirs, and levees. The levee system protects most of the floodplain in the vicinity of I-5 against flooding. Within the project area, the Columbia Slough is currently on Oregon's 303(d) list because it does not meet water quality standards for four parameters.

The I-5 crossing of the Columbia Slough is in a highly urbanized area. Riparian habitat along the slough has largely been replaced by buildings and paved surfaces compared to historic conditions. Riparian areas along the Slough are generally not adequate to provide shade, bank

stabilization, sediment control, pollution control, or stream flow moderation. Within the project area, I-5 is elevated on embankments or structures and, in general, the highway drainage systems do not handle runoff from outside the right-of-way.

I-5 crosses the Columbia River near river mile 106.5. North Portland Harbor, the portion of the Columbia River running south of Hayden Island, lies within the project area. Runoff from I-5 on Hayden Island drains directly into the Columbia River and North Portland Harbor. The east portion of Hayden Island is highly developed, with large hotels, a shopping center, residential communities, and other commercial activities. The western portion of the island is undeveloped and is comprised of pasture, woods, and wetland areas. Within the project area, the Columbia River is currently on Oregon's 303(d) list because it does not meet water quality standards for six parameters. DEQ does not differentiate between the North Portland Harbor and the Columbia River when compiling the 303(d) list.

Project data show four outfalls that drain to the Columbia River/North Portland Harbor within the project area. On Hayden Island, runoff from I-5 discharges directly to the Columbia River through roadside grates located along the entire span. Runoff from the bridge is not treated prior to release to the river.

As summarized in the Water Quality and Hydrology Report, the differences in long-term effects on water quality between the Columbia River Crossing Project and the No-Build Alternative are substantial. Although the Project would increase the total amount of pollutant generating impervious surfaces in the Columbia Slough Watershed and the Columbia River Watershed, the amount of untreated impervious surface would drop dramatically compared to existing conditions and the No-Build Alternative. This is because, with the Project, stormwater runoff from the entire Contributing Impervious Area (CIA) would be treated, while stormwater runoff from most of the existing impervious surfaces does not currently undergo stormwater treatment.

Based on the information contained in the Water Quality and Hydrology Report, the Council concludes that no adverse hydrologic or water quality impacts are expected in the Expo Center/Hayden Island Segment. It finds that the Project would increase overall impervious surfaces by about 28 acres, which could result in increased stormwater runoff rates and volumes and increase the amount of pollutants in stormwater. Without mitigation, this would affect the hydrology of project waterways. However, the Columbia Slough and the Columbia River are large water bodies and the project-related increase in stormwater volume would not result in a measurable increase of flows in these surface waters. Additionally, stormwater treatment design for the project corridor includes a number of stormwater treatment and/or infiltration facilities to reduce pollutants (including sediments and metals). Therefore, although the impervious surface area will increase by about 28 acres, untreated pollution generating surface area would be reduced from 219 acres to 0 acres.

The Council finds that, as described in the Water Quality and Hydrology Report, the Project will provide treatment not only for the new impervious area, but also for runoff from existing impervious surface area that does not currently receive treatment. The Council concludes that the project will provide treatment of approximately nine times the area of additional

impervious surface being added as part of the Project and will result in overall positive effects to the water quality and hydrology of receiving waters. Stormwater runoff would be treated in compliance with current standards before being discharged to project area water features.

The Council recognizes that specific and detailed mitigation erosion control and water quality measures will be required for the construction of the LRT facilities and highway improvements in the Expo Center/Hayden Island segment. The project team has prepared a draft stormwater management design in order to evaluate general feasibility and water quality effects associated with the Project. For the portion of the CRC Project in Oregon, the draft was prepared to meet the stormwater management requirements of ODOT and the City of Portland. The draft design includes gravity pipe drainage systems that would collect and convey runoff from the new bridges, transit guideway, and road improvements. Stormwater treatment facilities would reduce total suspended solids (TSS), particulates, and dissolved metals to the maximum feasible extent before runoff reaches surface waters.

The following stormwater treatment devices are included in the draft stormwater management design:

- Bioretention ponds – 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 – shallow, permanent, vegetated ponds that function like natural wetlands. They remove pollutants through such means as sedimentation, microbial activity, and uptake by plants.
- Soil-amended biofiltration swales – channels with mild slopes and shallow depths of flow. The channels are dry between storm events and they treat runoff by filtration as runoff flows through the vegetated surface and amended soils.
- Soil-amended filter strips – similar to grass swales, filter strips are intended to treat sheet runoff from an adjacent roadway surface.
- Bioslopes – like filter strips, are intended to treat sheet runoff from an adjacent roadway surface. The percolating runoff flows through a special mixture of materials, which promotes the absorption of pollutants.

Based on the draft stormwater management design, the Council finds that a range of measures are available to mitigate stormwater impacts and site-specific mitigation for stormwater quantity and quality impacts associated with the LRT and highway improvements, including the bridge construction across the North Portland Harbor and the Columbia River. These measures will be refined and selected during the FEIS and local permitting processes.

6.3.6 Criterion 8: Historic and Cultural Resources

“Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.”

Historic and cultural resource impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section following a more general discussion of historic and cultural resource impacts and mitigation. Historic and cultural resource impacts and mitigation measures are also described in the Historic Built Environment Technical Report (Historic Report), and the Archaeology Technical Report (Archaeology Report).

General Overview of Historic and Cultural Resource Impacts

Section 106 of the National Historic Preservation Act of 1966, as amended, and Executive Order 11593 require that a federal agency consider the effect of a federally assisted project on any historic district, sites, buildings, structures, objects or any archaeological sites listed in or eligible for inclusion in the National Register of Historic Places (NRHP).

Throughout earlier phases of the Columbia River Crossing Project, as with previously approved segments of the South/North Project, alternatives and options have been developed, evaluated, narrowed and refined. A significant objective in the narrowing and refinement of alternatives and options has been to avoid where practicable, or to minimize where avoidance is impracticable, potential impacts to historic and cultural resources. During preliminary and final engineering, further design work will be completed that would further attempt to avoid, minimize and/or mitigate adverse impacts to historic and cultural resources. Under federal procedures, the resulting impact analyses and commitment to feasible mitigation measures will be completed in coordination with the Oregon State Historic Preservation Officer (SHPO) and the Advisory Council for Historic Preservation (ACHP). A Memorandum of Agreement between FTA, FHWA, SHPO and ACHP and others will be executed to define how the Project will mitigate adverse effects to historic and cultural resources.

Project staff, in consultation with Oregon's SHPO, made a determination of the "area of potential effect" for that portion of the CRC Project within Oregon. The criteria of effect and criteria of adverse effect as set forth in the National Historic Preservation Act are highlighted below. The Council agrees with and adopts these criteria for purposes of measuring compliance with Criterion 8.

An undertaking has *an effect* on an historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the *National Register*. For the purpose of determining effect, alteration to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.

An undertaking is considered to have an *adverse effect* when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association. Adverse effects on historic properties include, but are not limited to:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the *National Register*;

- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, lease or sale of the property.

The Historic Report includes an analysis of historic resources and historic districts within the Expo Center/Hayden Island segment to determine the National Register of Historic Places status. It also assesses short and long-term impacts of the Project on historic, cultural and archeological resources. The Council accepts the methodology for determining “adverse effect” established in the Historic Report, and it adopts and incorporates by reference herein the facts and conclusions set forth in that document.

The City of Portland has completed an inventory of cultural resources and designated significant resource sites in its comprehensive plan. Some resources, which are inventoried in the local comprehensive plans under LCDC Goal 5, are not necessarily defined as “significant” through the NEPA process. Conversely, the federal environmental documents include discussion of some resources that are not inventoried or protected in Portland’s plan. Criterion 8 only requires identification of adverse impacts on significant historic and cultural resources *protected* in acknowledged comprehensive plans.

General Discussion of Historic and Cultural Resource Mitigation Measures

The Historic Report outlines general measures to avoid, minimize or mitigate for long-term impacts and short-term construction impacts. It also includes a more specific discussion of mitigation measures for resources that may be adversely affected by the CRC Project. The Council finds the following to be examples of avoidance, minimization and mitigation options:

1. Demolition of resources could be minimized in some instances through refinement in the design of the Project in a specific area.
2. Demolition could also be avoided through relocating the resource.
3. If these options are not feasible, recordation and salvage of the resource could mitigate for its loss.
4. Loss of access or isolation of resources could be minimized through design treatments such as creation of alternative access points, more visible signage, or traffic control to facilitate accessibility.
5. Noise and vibration impacts to resources could be minimized through design treatments and vibration suppression.
6. Visual impacts could be mitigated through enhanced design treatments. Station and shelter design, construction materials, and street improvements could be chosen to complement existing building and street settings. Stations could be moved to avoid placement in front of historic resources. Where possible, overhead wiring could be attached to existing support structures.

7. Areas with a high probability of archaeological resources have been identified. A professional archaeologist would be on site to monitor construction activities in these specified areas.

The Council finds that the discussion of general mitigation measures included within the Historic Report provides a good base for more detailed mitigation commitments in the FEIS.

Federal, State and Local Review Processes to Reduce Resource Impacts

Federal and State Processes

Section 106 of the National Historic Preservation Act of 1966, described above, defines the federal review process designed to ensure that historic properties are considered during federal project planning and execution. The process is administered by the ACHP and coordinated at the state level by the SHPO. An agency must afford the ACHP a reasonable opportunity to comment on the agency's project. Section 106 requires that every federal agency take into account how each of its undertakings could affect historic properties.

For the purposes of Section 106, any property listed in or eligible for listing in the National Register of Historic Places is considered historic. The process has five steps as follows: 1) identify and evaluate historic properties; 2) assess effects of the project on historic properties; 3) if an adverse effect would occur, then consultation with the SHPO and other interested parties would occur, and if necessary, a Memorandum of Agreement would be developed which defines what will be done to reduce, avoid or mitigate the adverse effects; 4) ACHP comment; and 5) proceed with the project, incorporating the mitigation in the Memorandum of Understanding.

At the state level, the historic preservation process is defined in ORS Chapter 358 and in the Land Conservation and Development Commission's Goal 5. The state process is implemented by the local jurisdictions through the adoption of historic preservation identification and protection plans in their individual comprehensive plans. The state process limits local preservation options. Under current law, local protection of historic properties requires owner consent. However, local governments may preserve properties listed on the National Register. Within the City of Portland, demolition must be reviewed and may be denied.

State law in ORS Chapter 358 and LCDC's Goal 5 rule, OAR 660-023-0200, encourage the preservation, management, and enhancement of structures of historic significance. It authorizes local governments to adopt or amend lists of significant historic resource sites. However, owners of inventoried historic resources must be notified and may refuse local historic resource designation at any time prior to adoption of the designation. No property may be included on the local list of significant historic resources where the owner objects. Moreover, a property owner may remove from the property a local historic property designation that was imposed by the local government.

OAR 660-023-0200(7) encourages local governments to adopt historic preservation regulations regarding the demolition, removal or major exterior alteration of all designated historic resources. It encourages consistency of such regulations with the standards and guidelines recommended in the Standards and Guidelines for Archaeology and Historic

Preservation published by the US Secretary of the Interior. Further, OAR 660-023-0200(9) prohibits local governments from issuing permits for demolition or modification of an inventoried significant historic resource for at least 120 days from the date a property owner requests removal of historic resource designation from the property. It requires that local governments protect properties that are listed on the National Register, including demolition review and design review.

Local Process

The City of Portland has a local process in place to address alteration or demolition of historic and cultural resources that are identified as significant and protected in local comprehensive plans. This process could be applied to address and to reduce adverse impacts to affected historic and cultural resources.

As described below, certain protected historic resources in the City of Portland would be adversely affected. City review processes to address and to reduce adverse impacts to such resources are provided in the City's Zoning Code at Chapter 33.445, Historic Resources Protection, and Chapter 33.846, Historic Reviews.

Under these chapters, two levels of historic resource designation are created: Historic Landmarks and Conservation Landmarks. The Historic Landmark designation offers the highest level of protection for resources of citywide significance. Resources in this designation have access to incentives for historic preservation, including transfer of development rights and the right to a more flexible range of uses (such as multi-family use in a single family zone; reuse of institutional and business buildings in residential zones for commercial or institutional purposes; and streamlined review procedures). However, owners doing projects that utilize incentives must consent to designation and agree not to demolish or modify the building without City approval.

Conservation Landmarks are available for resources whose significance is local rather than citywide. Although part of the city's inventory, these sites generally are not qualified to be Historic Landmarks.

The City has the option to deny demolition only for those resources designated as landmarks that have taken advantage of one or more of the preservation incentives offered by the code or are listed on the National Register. A condition for use of the incentives is the owners entering into a covenant with the city agreeing not to modify or demolish the resource without city approval. Also, demolition delays have been adjusted to meet the requirements of state law. The delay period is 90 days for Conservation Landmarks and 180 days for Historic Landmarks and resources in the Historic Resources Inventory. These delay periods start the day an application for demolition is received by the city.

Identified Significant and Protected Historic and Cultural Resources in the Expo Center/Hayden Island Segment

The Historic Report and the Portland Comprehensive Plan identify three significant and protected historic resources in the Expo Center/Hayden Island Segment.

- The northbound structure of the I-5 bridge (built in 1917); listed in the National Register of Historic Places (NRHP) in 1982.
- The carousel located at the Jantzen Beach Shopping Center; listed in the National Register of Historic Places.
- The Columbia Slough and Levee System as contributing elements of the Columbia Slough Drainage Districts Historic District. The State Historic Preservation Office determined this resource eligible in 2005.

Additionally, the 1960 Pier 99 commercial building has been determined to be NRHP-eligible for two reasons: (1) it is a good example of a Mid-Century Modern Commercial building designed and constructed in the “Googie” style; and (2) it was designed by Oregon architect John Storrs, whose innovative designs were an important contribution to the Northwest Regional style of architecture. However, the Pier 99 commercial building is not currently identified as a significant and protected resource in the Portland Comprehensive Plan.

The Archaeology Report states that no archaeological resources have previously been recorded within the Columbia River Crossing area of potential effect on the Oregon shore. The high degree of commercial development, along with a century of roadway construction and improvement within the area of potential effect, contributes to a low potential for historical archaeological features and deposits on the Oregon shore. Although the City of Portland Comprehensive Plan does not specifically identify and protect archeological resources, federal regulations, particularly Section 106 of the National Historic Preservation Act (NHPA), are applicable to such resources through the federal NEPA process.

Mitigation Options for Identified Historic and Cultural Resource Impacts in the Expo Center/Hayden Island Segment

Property acquisitions and physical changes are the primary source of long-term and direct effects to known and potential historic resources. Based on the findings in the Historic Report, the Council concludes that the CRC project will require the removal of the northbound bridge, which is included in the National Register of Historic Places and considered a significant resource in the Portland Comprehensive Plan. This northbound bridge structure has been a critical part of the transportation system and historic landscape for both Oregon and Washington since 1917.

The Council finds that a Memorandum of Agreement (MOA) to implement Section 106 of the National Historic Preservation Act will dictate the mitigation of effects to historic properties. Mitigation measures for the I-5 bridge are summarized below.

The Washington Department of Transportation (WSDOT) and ODOT would ensure that all efforts will be attempted to find an alternative use through a bridge marketing plan, including separating and relocating individual spans if relocation of the bridge in its entirety is not feasible. If it is not feasible to pursue moving and relocating the structure for adaptive reuse, documentation may be updated, including applicable photography and drawings. If appropriate, decorative or interpretive structural elements would be offered to local historical

societies/museums or other interested parties. As the bridge is a critical component of the regional historic landscape, contributions would be made to interpretive programs and small projects which will result in documentation, waysides, exhibits, or other means of communicating the structure's history and meaning to the general public.

Based on the findings in the Historic Report, the Council concludes that the Columbia River Crossing project would have no adverse effects on the carousel located at the Jantzen Beach Shopping Center.

The project has an effect on the NRHP-eligible Columbia Slough Drainage Districts Historic District, but that effect is "not adverse." The Oregon Slough Levee is part of an extensive, historic system of engineered improvements to the area's drainage. A small portion of the levee, approximately 330 linear feet extending east of I-5, would need to be demolished and rebuilt in order to accommodate the ground improvements needed to stabilize soils below the I-5 ramps and bridges. There would also be modest modifications made to portions of two additional contributing properties: the North Denver Avenue Cross Levee and Union Avenue/Martin Luther King Fill/Cross Levee. Although localized alterations to contributing elements would occur, the integrity of each of the levees, as well as the overall system, would be maintained.

The Pier 99 Building would be displaced due to the construction of a ramp on I-5 between Marine Drive and Hayden Island. This would be an adverse effect. Although this building is not identified as significant or protected by the Portland Comprehensive Plan, it is identified as an NRHP-eligible structure. There is little likelihood that the structure can be relocated given the structural design and condition of the building. Documentation, including applicable photography and drawings, will be sought. If appropriate, decorative or interpretive building elements would be offered to local historical societies and museums.

Based on information in the Archaeology Report, the Council finds that long-term curation of any artifacts or samples recovered during archaeological investigations or during construction of the project will be determined in consultation with agencies, property owners, and appropriate tribes. Long-term curation of recovered materials is an essential element of archaeological investigations and is required as part of federal and state permitting processes.

6.4 Ruby Junction Maintenance Facility Findings and Mitigation Measures

As indicated in Section 2.3 of these findings, the Council authorized the modification and expansion of the previously approved Ruby Junction Maintenance Facility in 2008 to accommodate additional light rail vehicles associated with the Portland to Milwaukie Project. In its 2008 LUFO findings supporting that action, the Council noted: “The Ruby Junction expansion also is expected to serve additional light rail vehicles needed for future LRT expansion to Vancouver, Washington and potentially Oregon City.”¹⁹ Accordingly, the 2008 LUFO was approved with the expectation that the Ruby Junction Maintenance Facility would at some future time serve light rail vehicles associated with the CRC Project. With this 2011 LUFO, that expectation becomes a reality. As implied in the 2008 LUFO findings, the Council finds that such use can be fully accommodated within the location boundaries established in the 2008 LUFO.

Section 6.5 of the 2008 LUFO findings identified the impacts relevant to LCDC Criteria 3-8 that were expected to occur at the Ruby Junction Maintenance Facility as a consequence of expansion of that facility within the newly established location boundaries. Because all activity associated with the CRC Project will occur within the 2008 boundaries, the Council finds that additional impacts beyond those identified in the 2008 LUFO findings are not likely. The Council finds that increased light rail activity within the previously established boundaries will not result in any additional displacements or adverse economic, social or traffic impacts beyond those contemplated in 2008. For reasons stated in the 2008 findings, it also finds that use of the facility by light rail vehicles serving the CRC Project will not increase noise in the vicinity of the facility or alter its findings with respect to natural hazards, natural resources, stormwater runoff or historic or cultural resources. The Council continues to adhere to those 2008 findings, which it incorporates herein by this reference.

¹⁹ 2008 LUFO Findings of Fact and Conclusions of Law at page 91.

7.0 Compliance with Substantive Criteria (3-8) Short Term (Construction) Impacts

7.1 Introduction

This section summarizes the short-term impacts associated with construction of the light rail and highway improvements in the Expo Center/Hayden Island Segment. The primary objectives of including short-term, construction impacts in the LUFO findings are to:

- Identify the location, importance and duration of potential, major construction impacts; and
- Identify potential mitigation measures (in general terms) for major impacts.

Linear projects such as light rail transit are typically divided into various segments or line sections for construction of the trackway, structures, stations and related work. In sections where the track is located within a separate right-of-way, extensive clearing and grading may be required. During the grading phase, culverts and other permanent drainage structures will be installed. Underground utility services may be relocated during the grading phase to avoid interference with light rail construction.

Following the grading and preliminary site work, installation of light rail utility duct banks, catenary pole foundations, platform foundations, and major structures such as bridges will begin. Bridgework will be accompanied by foundation construction that may involve pile driving or other specialized operations. Other activity outside the trackway also may occur during this period, such as construction or relocation of roadways and construction of traction power substations and signal buildings.

The next construction phase involves the installation of track work, catenary poles, catenary wire, signals, communications cables and other system-wide elements. Once all elements of the LRT system are complete, integrated testing and start-up will begin.

For both the light rail transit and highway improvements, construction of the bridges over the Columbia River will be the most substantial element of the Project, and this element sets the sequencing for the other Project components. The main river crossing and immediately adjacent highway improvement elements would account for the majority of the construction activity necessary to complete the Project. Construction of the I-5 Columbia River bridges is expected to last approximately four years. The general sequencing of constructing the bridges would likely entail the following steps:

- Initial preparation – mobilize construction materials, heavy equipment and crews; prepare staging areas; install temporary piles to support work and anchor barge platforms
- Installation of drilled shafts – install drilled shafts to support the bridge pier columns
- Shaft caps – construct and anchor concrete foundations on top of the drilled shafts to support column piers

- Pier columns – construct or install pier columns on the shaft caps
- Bridge superstructure – build or install the horizontal structure of the bridge spans across the piers; the superstructure would be steel or reinforced concrete; concrete could be cast-in-place or precast off-site and assembled on-site.

Interchanges on each end of the bridge would first be partially constructed so that all I-5 traffic could be temporarily rerouted onto the new southbound (western) Columbia River bridge. Constructing the southbound approaches for the Hayden Island interchange (and SR 14 interchange in Washington) would require approximately 3 years. Certain portions of the Hayden Island interchange (and SR 14 interchange) must be completed before traffic can be moved onto the new southbound lanes and construction of the remaining northbound lanes and interchange ramps can proceed. Once I-5 traffic in both directions is rerouted to the new western I-5 bridge, the new northbound segments of the Hayden Island interchange (and SR 14 interchange) would be constructed.

The Marine Drive interchange construction would need to be coordinated with construction of the southbound lanes coming from Vancouver. While this interchange can be constructed independently from the work described above, the completion and utilization of the ramp system between Hayden Island and Marine Drive requires the work to occur in the same period.

Constructing the Project would entail many different activities, some of which would disrupt traffic. Typical construction methods would require shifting I-5 traffic onto temporary alignments, narrowing lanes and shoulders to accommodate equipment and workers, shortening merge and exit distances, reducing posted speed limits, and closing or detouring some traffic movements. For I-5, it is anticipated that three southbound and three northbound lanes would be maintained during all weekdays, except when the final changeover occurs between the old bridges and the new bridges. Local streets and driveway accesses may be closed temporarily and traffic detoured. All parcels impacted by temporary access closures or detours will have alternate access routes.

The following summarizes the types of activities anticipated to construct the CRC project:

- Over-water bridge construction. This work would include the steps outlined above.
- Over-water bridge demolition of the existing I-5 bridges. The components of the existing I-5 bridges would be dismantled and removed. The main components include the bridge decks, the counterweights for the lift span, towers, decks trusses, piers and piles.
- Highway and over-land bridge construction. The reconstruction of mainline I-5 and associated interchanges and local roads would involve a sequence of activities that would be repeated several times, including on-land bridge and retaining wall construction, the excavation of embankments, and laying the pavement driving surface.

Construction would require staging areas to store construction material, to load and unload

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trucks, and for other construction support activities. The existing I-5 right-of-way would likely accommodate most of the common construction staging requirements. However, some construction staging would likely be needed outside the existing right-of-way, and temporary property easements from adjacent or nearby property owners may be required.

7.2 Short Term Construction Impacts and Mitigation Measures

7.2.1 Criterion 3: Neighborhood Impacts

“Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process or, if reasonable and necessary, by affected local governments during the local permitting process.”

“A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.”

“B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.”

The Columbia River Crossing Project will result in adverse short-term economic, social and traffic impacts through disruptions to existing land uses. However, these impacts will be temporary in duration and should end when the construction activities are completed. Construction of light rail facilities and highway improvements will adversely impact local economic and social interests located adjacent to or nearby construction or staging areas by interfering with residences and businesses, disrupting traffic and pedestrian movement, displacing parking, altering accesses, and causing noise, vibrations, dust, congestion, increased truck traffic near residences and businesses, and visual impacts. Rerouting, detours and lane closures will create temporary additional traffic through neighborhoods, with associated noise, dust and congestion. Construction machinery, trucks, and general construction activities will be temporary negative visual features of the project. Businesses that would be likely to feel the greatest impact are those that would experience the longest construction periods, those that have many other convenient competitors and those that are most dependent upon convenient access.

Economic and Social Impacts

Throughout the Expo Center/Hayden Island segment, construction will have short-term and temporary impacts to businesses and neighborhoods of the nature described above. During the FIES and preliminary engineering phase, specific mitigation plans will be developed to address short-term economic and social impacts to businesses and residences. These measures will include maintaining access to existing uses and providing screening to minimize dust and visual impacts. Wherever possible, the Project will provide alternative access and ensure that access is maintained to all properties during construction. Businesses that require access at all times and generate many trips (e.g., delivery services, drive-ins) may be inconvenienced. Utility services also may be interrupted as a result of construction. In the event that access or utility service to a residence or businesses would be temporarily disrupted, advance notice would be provided and the length of the disruption would be minimized to the extent practical.

Temporary construction impacts on neighborhoods could result from increased traffic congestion, truck traffic, noise, vibration and dust. Temporary street closures, traffic reroutes and detours could increase traffic within neighborhoods and impede access to community facilities. These short-term impacts include partial closures of streets, temporary rerouting or relocation of driveways, noise impacts from pile driving and bridge pier construction, and impaired access for elderly and mobility-impaired residents.

For neighborhoods affected by construction, the Council finds that TriMet and ODOT can work with neighborhood representatives to identify issues of concern and potential mitigation measures. Potential mitigation measures for short-term impacts include:

- Developing construction management plans for incorporation into contracts following close coordination with neighborhood and business associations and with representatives of public facilities/utilities located adjacent to the alignment/corridor
- Providing on-going coordination during construction to keep affected neighborhood and business area representatives informed about the schedule and location of construction work and anticipated modifications to access
- Limiting construction hours for certain activities in sensitive areas
- Providing fencing around construction and staging areas

Construction activities also could reduce accessibility to police, fire departments and other public safety and emergency service providers. Construction activities will, at times, impede the movement of emergency vehicles by temporarily narrowing or reducing the number of travel lanes or by detouring traffic and road segment closures. To ensure the most effective, continuous access to construction site vicinity uses for public safety and emergency service providers, the Council finds that the following measures could be employed:

- Develop construction management plans, for incorporation into construction contracts, in close coordination with affected police and fire departments and other emergency service providers
- Involve emergency service providers in planning for traffic management during construction in order to identify alternate emergency routes in advance of construction
- Maintain regular coordination with emergency service providers during construction to give them advance notice of when, where and for how long traffic capacity constraints on streets will be employed, and to plan for how local emergency access will be maintained

In summary, the Council finds that numerous measures are potentially available to mitigate impacts to businesses and neighborhoods. Potential mitigation measures beyond those listed above include:

- Management of construction activities to reduce dust, noise and vibration
- Fencing and buffering to reduce construction impacts in sensitive areas
- Use of berms, hay bales, plastic sheeting and other similar measures to reduce surface erosion and runoff into water bodies and storm sewers
- Provision of temporary alternative parking and pedestrian access

Traffic Impacts

Construction of the LRT and highway improvements in the Expo Center/Hayden Island segment would result in temporary impacts to local and regional traffic operations. These impacts would include increased congestion on several major traffic facilities in the corridor including I-5 and, potentially I-205, impacts resulting from traffic relocations or detours, full or partial street closures, and increased truck traffic associated with construction activity. Impacts could also result from the intrusion of non-local traffic into residential areas as a result of temporary street closures and traffic detours, disruptions to vehicular and pedestrian access to businesses and community services, and the temporary loss of on- or off-street parking.

A major element of the Project would be construction of new bridges over North Portland Harbor and the Columbia River to accommodate vehicular, light rail, and non-motorized traffic coupled with a partial or complete reconstruction of I-5 from south of the Victory Boulevard Interchange to the new bridges. Complete reconstruction of freeway interchanges at N Marine Drive and Hayden Island would be included. Another major element of the Project would be construction of the light rail station on Hayden Island. High levels of truck traffic are anticipated in connection with earthwork and the delivery of materials at the bridge crossings, freeway mainline segments, and interchanges. Several construction staging areas would be needed.

Construction in the vicinity of Marine Drive is expected to include partial closure of this street and/or development of detour routing to accommodate vehicular traffic, particularly trucks moving between the freeway and the Columbia Corridor and Rivergate industrial areas.

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Temporary access may need to be provided to Delta Park and the residential/business areas on the east side of the freeway and to the Expo Center on the west side. Existing transit, bicycle, and pedestrian connections must also be maintained, including access to the Expo Center light rail station and the 40-mile loop trail.

Construction activities on Hayden Island include reconstruction of the existing I-5 interchange, including the development of a collector-distributor system of auxiliary freeway lanes, modifications to local traffic circulation, and a new light rail station and trackage. Temporary access routes to and from I-5 would need to be maintained to ensure continual multimodal access to the island for residents and businesses, as well as connections on the island between areas to the east and west of the freeway. A high level of truck activity associated with the freeway, bridge, ramp and construction of local facilities is anticipated on Hayden Island.

Transit impacts during construction could include service delays, relocation or temporary elimination of bus stops, street detours, and deterioration in reliability for bus routes using certain roadways and facilities within the corridor. Short-term construction would impact bus operations along I-5 and on Hayden Island.

Mitigation Strategies for Construction Impacts to Traffic, Transit and Bike and Pedestrian Mobility

As highlighted above, short-term construction impacts will likely take the form of roadway closures, detours and/or lane reductions, increased truck traffic, pedestrian access restrictions and local access restrictions. Mitigation measures for construction impacts to traffic and highways could include a variety of activities, ranging from scheduling construction activities to minimize conflicts during peak travel periods to using alternative construction techniques or equipment. The Council finds that measures to mitigate the short-term traffic impacts in the Expo Center/Hayden Island Segment could include, but are not limited to, the following:

- Work with appropriate jurisdictions to obtain approval of traffic control plans.
- Develop and implement a transportation management plan with affected businesses and community interests. This plan would address a variety of traffic, transit, and alternative mode strategies to minimize the transportation impacts of project construction. The plan would also identify detour routes where necessary to maintain traffic movement. This would be particularly important during construction of the Marine Drive interchange that serves the Port of Portland.
- Wherever possible or practical, limit or concentrate work areas to minimize disruptions to vehicular traffic and bus and pedestrian circulation, as well as to business access.
- Identify, provide and/or advertise temporary parking locations to replace parking temporarily displaced by construction.
- As appropriate, develop and implement functional and reasonable alternative construction techniques to minimize traffic impacts. These techniques might include activities such as limiting construction to non-daylight hours in certain locations. Use

of two or three shifts per day to reduce construction time could be implemented in critical traffic areas, subject to development of adequate traffic control plans, noise control measures, and budget and schedule allowances.

The Council also finds that TriMet has years of experience helping communities and small businesses overcome the challenges of transit construction activities. Light rail guideway construction may require rerouting the buses on Hayden Island. Minor rerouting of buses would be necessary as new ramps and access points are opened at the Hayden Island interchange.

TriMet and other organizations could conduct a large communications campaign to inform the public about transit changes. The temporary routing, potential for more crowded buses and slower travel times can be communicated through TV, radio, web site, newspaper or other multimedia instruments to broadcast rider alerts to potential impacted customers.

Keeping businesses open and accessible during light rail construction in the Expo Center/Hayden Island segment would be a top priority. During previous light rail transit construction projects, TriMet has taken steps to keep construction disruption to a minimum while maintaining access to businesses, and responded rapidly to concerns and potential issues.

Measures to minimize construction impacts to bicycle and pedestrian mobility through the project areas will also be implemented during construction. Such measures could include:

- Coordination with local jurisdictions and bicycle and pedestrian advocacy groups to disseminate information about construction activities and associated temporary closures and detours near construction zones.
- Temporary enclosures to maximize the safety of bicyclists and pedestrians traveling beneath structures under construction.
- Additional signage and/or lighting along popular bicycle and pedestrian routes that may experience an increase in vehicle traffic due to traffic detours.
- Traffic calming measures in work zones to improve safety for bicyclists, or alternate routes on parallel streets where convenient and effective.

The Council finds that while tolling of I-5 during construction is permissible under federal statutes, no recommendations or decisions about tolling during construction have yet been made. Tolling during construction could serve as a demand reduction measure to reduce traffic during the construction phase. The Council finds that the Oregon and Washington Transportation Commissions will make decisions on this issue following consultation with the Project's local partners and a public outreach and education process.

Criterion 4: Noise Impacts

“Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the

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NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.”

As with any large project, construction of light rail and highway improvements and bridges involves the use of heavy equipment and machinery that result in intense noise levels and occasionally high vibration levels in and around the construction site. Sections of the LRT alignment and highway improvements in the Expo Center/Hayden Island segment are adjacent to noise sensitive uses such as houseboats and hotel rooms.

As described in the Noise Report, four general construction phases would be required to complete the project: 1) land preparation, 2) constructing new structures, 3) miscellaneous construction activities, and 4) demolition activities.

Major noise-producing equipment used during the preparation stage could include concrete pumps, cranes, excavators, haul trucks, loaders, tractor-trailers and vibratory equipment. Maximum noise levels could reach 82 to 86 dBA at the nearest residences (50 to 100 feet) for normal construction activities during this preparation phase. Major noise and vibration-producing activities would occur primarily during demolition and preparation for the new bridges. Activities that have the potential to produce a high level of vibration include pile driving, vibratory shoring, soil compacting, and some hauling and demolition activities.

The loudest noise sources during the phase of constructing new structures would include pile drivers, cement mixers, concrete pumps, pavers, haul trucks, and tractor trailers. Maximum noise levels would range from 82 to 94 dBA at the closest receiver locations.

Following the heavy construction, miscellaneous construction activities such as installation of bridge railings, signage, lighting, roadway striping, and others would occur. These less intensive activities are not expected to produce noise levels above 80 dBA at 50 feet except on rare occasions, and then only for short periods.

Demolition of existing structures would require heavy equipment such as concrete saws, cranes, excavators, hoe rams, haul trucks, jackhammers, loaders, and tractor-trailers. Maximum noise levels could reach 82 to 92 dBA at the nearest residences. Demolition would occur at various locations and times during the construction process.

The Council finds that adverse noise impacts associated with construction are temporary and can be effectively mitigated by avoiding construction on Sundays, legal holidays, and during the late evening and early morning hours in noise sensitive areas. Additionally, the Council finds that equipping motorized construction equipment with sound control devices, and developing construction contract documents that include noise limit specifications, reinforced with state/local ordinances and regulations, can be effective techniques for minimizing adverse noise impacts associated with construction.

If specific noise complaints are received during construction, the contractor could be required to implement one or more of the following noise mitigation measures:

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- Locate stationary construction equipment as far from nearby noise-sensitive properties as possible.
- Install temporary or portable acoustic barriers around stationary construction noise sources.
- Shut off idling equipment.
- Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
- Notify nearby residents whenever extremely noisy work will be occurring.
- Operate electrically powered equipment using line voltage power rather than generators.

Criterion 5: Natural Hazards

“Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Although no *landslide areas* or *areas of severe erosion potential* have been identified in the Expo Center/Hayden Island segment, construction activities at stream crossings and near water bodies could result in erosion and have detrimental effect on water quality. To avoid and minimize such impacts, the project will prepare and implement stormwater pollution prevention plans and grading plans, hydroseed, manage stockpiled fill, and employ other best management practices (BMPs) for erosion control.” Construction activities will specifically comply with:

- WSDOT Standard Specifications for Road, Bridge and Municipal Construction M 41-10
- ODOT Erosion Control Manual
- City of Vancouver VMC Chapter 14.24, Erosion Control
- City of Portland Erosion and Sediment Control Manual

Inspection and observation monitoring and reporting could be conducted throughout the project to ensure the appropriate erosion-control measures are being conducted.

The Council finds that construction-related impacts associated with landslides, earthquakes, and the 100-year floodplain are not anticipated, and potential construction-related impacts associated with erosion can be effectively mitigated for through the measures discussed above.

Criterion 6: Natural Resource Impacts

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“Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Natural resource impacts specific to the Expo Center/Hayden Island segment are addressed in the following section.

Fish and Wildlife Habitat. Short-term impacts to fisheries include the impact pile driving of temporary piles and use of barges. The installation of up to 1,500 temporary steel piles will result in behavioral disturbance and injury or death to ESA-listed and other native fish species. The Project will use hydroacoustic attenuation measures, such as bubble curtains, to reduce initial sound levels from impact pile driving, resulting in less severe impacts to fish in the project area. Through timing impact pile driving activities and use of attenuation measures, impacts to ESA-listed fish are minimized to the extent practicable. Due to the extent of in-water work and the presence of many ESA-listed fish, it is acknowledged that adverse effects to individual fish and their critical habitat are likely to occur, but the continued existence of any species will not be jeopardized. Adverse effects are avoided or minimized to the extent practicable. The Council notes that NMFS produced this finding in their Biological Opinion. In addition to this mitigation, the Council finds that the mitigation measures outlined above in Section 6.3.4 of these findings for Threatened, Endangered, and Candidate Fish are available to mitigate adverse impacts to the Expo Center/North Portland Harbor and the Columbia River and could be imposed as conditions of approval during the FEIS process and/or the local permitting process if reasonable and necessary.

The Project would temporarily impact terrestrial resources, such as migratory birds and species of interest, through noise impacts and removal or degradation of habitat. Mitigation measures to address these impacts include impact avoidance and impact minimization. Impact avoidance would be addressed by timing vegetation removal to occur outside of nesting seasons for migratory birds. Demolition of existing structures, if necessary, would likely be scheduled outside of nesting seasons for native migratory birds, to avoid direct impacts to active nests.

Impact minimization would be addressed by implementing Best Management Practices (BMPs) such as erosion and sediment control to protect riparian buffers and sensitive terrestrial habitats (for example, for riparian species such as pond turtles). Swallows may nest on the concrete piers but are assumed not to be nesting on steel portions of the existing I-5 bridges. The I-5 bridges could be inspected at least one full year prior to commencement of construction activities to determine whether any species of interest or migratory birds are using the bridges for nesting or roosting. If such species are present, exclusionary devices may be installed on the bridges during the non-nesting season to prevent them from being

1 Findings of Fact and Conclusions of Law (Columbia River Crossing Project)

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used for nesting or roosting during construction activities. If high-disturbance activities must take place during the nesting season, the Columbia River Crossing project team would coordinate with US Fish & Wildlife Service, Oregon Department of Fish and Wildlife, and Washington Department of Fish and Wildlife to establish work buffer zones around the nest(s) during nesting season.

Scenic and Open Space Areas. During construction the visual quality of views to and from the project area would be temporarily altered. Construction-related signage and heavy equipment would be visible in the vicinity of construction sites. Vegetation may be removed from some areas to accommodate construction of the bridges, new ramps, and the light rail transit guideway. This would degrade or partially obstruct views or vistas.

Nighttime construction would be necessary to minimize disruption to daytime traffic. Temporary lighting may be necessary for nighttime construction of certain project elements. This temporary lighting would affect residential areas by exposing residents to glare from unshielded light sources or by increasing ambient nighttime light levels.

Mitigation for temporary construction-related effects would include:

- Shielding of construction site lighting to reduce spillover of light onto nearby residences and businesses,
- Locating construction equipment and stockpiling materials in less visually sensitive areas, when feasible and in areas not visible from the road or to residents and businesses in order to minimize visual obtrusiveness, and
- Cover exposed soils as soon as possible with vegetation.

Riparian Areas. To address temporary loss of riparian vegetation resulting from project impacts, mitigation measures could include streambank revegetation and reshaping to restore habitat function, removal of noxious weeds in certain areas, and revegetation of disturbed areas with native species.

Wetland Areas. Construction will occur near several identified wetland areas in the Expo Center/Hayden Island segment. Temporary disturbances to wetland-related wildlife activity, hydrology, and water quality will be avoided as much as possible through the use of BMPs such as silt fences, construction fencing, and wildlife exclusionary netting during the construction process.

Park and Recreational Areas. Temporary effects to park and recreation resources include the temporary use of parkland to stage construction and store materials; increased noise, glare, dust, and vibration; and temporary closures, detours, and congestion that could delay users traveling to parks or recreational activities. Mitigation activities to address these impacts could include:

- Restoring landscaping to original condition following construction and protect remaining trees close to construction areas.
- Providing adequate signage for any limited or closed access points and detour routes.

- Adopting a joint public information campaign with parks' jurisdictions for some of the longer closures.
- Maintaining safety for bicyclists and pedestrians traveling on trails and between facilities with temporary enclosures, additional signage and lighting, etc.

Criterion 7: Stormwater Runoff

“Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Stormwater runoff impacts specific to the Expo Center/Hayden Island segment are addressed in the following section.

The in-water construction of bridge piers could stir up sediments from the riverbed, which would increase turbidity. In-water work includes the use of barges and work bridges in the Columbia River and North Portland Harbor, equipment that would be temporarily anchored to the riverbed. Temporary cofferdams would also be installed, but would not be dewatered, for the piers nearest the shoreline, where the water is shallow. Turbidity caused by any activity inside the cofferdams (including installation of permanent shafts as well as temporary piles) would be contained within the cofferdams. Sediment would be disturbed during the installation and removal of the cofferdams. During the demolition of the existing structures, riverbed sediment would be disturbed when the timber piles of the I-5 bridges are cut off below the mudline.

There are no known records of contaminated sediments in the Columbia River portion of the project area. Therefore, there is very little risk that in-water work in the Columbia River would re-suspend contaminated sediments. Contaminated sediments have been identified in the North Portland Harbor, but they are likely outside of the project footprint. If there is potential that in-water work could disturb these sediments, they would be analyzed in accordance with regulatory criteria, and if necessary, removed from the river and disposed of properly. Removed sediments may be disposed of in a permitted upland disposal site, if required.

Potential sources of toxic contaminants associated with in-water work include refueling track-mounted equipment located on the barges or work bridges, lead-based paint from the existing bridges, turbidity and concrete debris from wire-saw-cut concrete during demolition, green concrete (concrete that has not fully cured) associated with bridge construction, potential spills from construction equipment, and materials accidentally entering the Columbia River and North Portland Harbor during over-water work. Full containment of fuel, other hazardous

materials, and green concrete would be required to prevent these materials from entering the Columbia River and North Portland Harbor, in accordance with project specifications.

On land, construction activities occurring below-grade may require the removal of groundwater through pumping, a process known as dewatering. Therefore, constructing roads, transit lines, and other infrastructure below the surrounding surface can alter groundwater conditions. If there are nearby hazardous materials sites, dewatering can increase the likelihood of contaminants migrating through the groundwater and into surface waters. The following elements of the Project within the Expo Center/Hayden Island segment are relatively close to high ranking potential hazardous materials sites and near-surface groundwaters, and work at these sites would require below-grade construction techniques:

- Marine Drive Interchange
- North Portland Harbor Bridges
- Hayden Island Interchange
- Columbia River Crossing

Left unmitigated, construction of these elements could result in moderate risks for the migration of existing contamination, potentially affecting both ground and surface water quality. In addition to existing contamination, the installation of shafts and piles below ground includes the risk of introducing new contamination, for example from green concrete, into groundwater. Further discussion of contamination issues associated with below-grade construction is included in the Hazardous Materials Technical Report.

Without proper management, land-based construction activities may have temporary adverse effects on water quality in nearby water bodies. Construction involves ground disturbances that can increase soil erosion substantially, especially for construction activities along river or stream banks. The Project would involve ground disturbance near North Portland Harbor and the Columbia River within the Expo Center/Hayden Island Segments. If runoff contains extra sediment from erosion, waterways can become turbid (cloudy) and can build up excessive sediment deposits. Runoff and soil erosion can also transport pre-existing hazardous materials and construction-related hazardous materials into water bodies, some of which may dissolve in water or are water-transportable. These materials can be harmful to aquatic life.

The construction of the CRC Project would require at least one large site to stage equipment and materials, and may also need a large site for use as a casting yard for fabricating segments of the new bridges. Each site being considered, including one in Oregon, is adjacent to the Columbia River. The existing conditions on these sites range from a developed and paved port terminal to a currently undeveloped site. Staging and casting/assembly site activities may increase stormwater runoff over existing conditions and may increase pollutant levels in the runoff. However, any staging and/or casting site would be required to meet all applicable stormwater requirements, including the implementation of erosion and sediment controls. All necessary permits would be secured prior to site development and operations for any major staging or casting yard.

The Council finds that water quality degradation resulting from erosion and sedimentation and the release of pollutants can be minimized through the use of BMPs during construction. Construction BMPs include use of barrier berms, silt fencing, temporary sediment detention basins, plastic covering for exposed ground, vegetative buffers (hay bales), and restricting clearing activities to dry weather periods to contain sediment on-site. Further requirements could include diapering of all dump trucks to avoid spillage, and cleaning of heavy equipment tires and trucks before they are allowed to drive off-site. A variety of special BMPs can also be used at crossings or adjacent to streams or watercourses during construction.

Criterion 8: Historic and Cultural Resources

“Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.”

Historic and cultural resource impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section.

As discussed above in Section 6.3.6 of these Findings, three significant and protected historic resources exist in the Expo Center/Hayden Island Segment:

- The northbound structure of the I-5 bridge (built in 1917); listed in the National Register of Historic Places (NRHP) in 1982.
- The carousel located at the Jantzen Beach Shopping Center; listed in the National Register of Historic Places.
- The Columbia Slough and Levee System as contributing elements of the Columbia Slough Drainage Districts Historic District.

The impacts to the northbound structure of the I-5 bridge and to the Columbia Slough and Levee System would be permanent, as opposed to temporary. The carousel is located with the Jantzen Beach Shopping Center and would not experience any temporary effects.

Mitigation for any cultural resources impacted during construction is as described in Section 6.3.6 of these LUFO findings.







Metro | Agenda

Meeting: Metro Council
Date: Thursday, August 11, 2011
Time: 2 p.m.
Place: Metro Council Chambers

CALL TO ORDER AND ROLL CALL

1. INTRODUCTIONS
2. CITIZEN COMMUNICATIONS
3. CONSIDERATION OF THE MINUTES FOR AUGUST 4, 2011
4. ORDINANCES – SECOND READING
- 4.1 **Ordinance No. 11-1263**, For the Purpose of Amending the FY 2011-12 Budget and Appropriations Schedule to Remodel Metro Regional Center to Accommodate the Consolidation of MERC and Metro Business Services and Declaring an Emergency. **Burkholder**

Public Hearing

5. RESOLUTIONS
- 5.1 **Resolution No. 11-4280**, For the Purpose of Amending the 1998 Land Use Final Order for the South/North Light Rail Project and Adopting a Land Use Final Order the Expo Center/Hayden Island Segment of the Project Including the I-5 Columbia River Crossing Bridge and Associated Highway Improvements. **Burkholder**

Public Hearing

6. CHIEF OPERATING OFFICER COMMUNICATION
7. COUNCILOR COMMUNICATION

ADJOURN

Television schedule for August 11, 2011 Metro Council meeting

Clackamas, Multnomah and Washington counties, and Vancouver, WA Channel 11 – Community Access Network <i>Web site:</i> www.tvctv.org <i>Ph:</i> 503-629-8534 <i>Date:</i> 2 p.m. Thursday, August 11 (Live)	Portland Channel 11 – Portland Community Media <i>Web site:</i> www.pcmtv.org <i>Ph:</i> 503-288-1515 <i>Date:</i> 8:30 p.m. Sunday, August 14 <i>Date:</i> 2 p.m. Monday, August 15
Gresham Channel 30 - MCTV <i>Web site:</i> www.metroeast.org <i>Ph:</i> 503-491-7636 <i>Date:</i> 2 p.m. Monday, August 15	Washington County Channel 30– TVC TV <i>Web site:</i> www.tvctv.org <i>Ph:</i> 503-629-8534 <i>Date:</i> 11 p.m. Saturday, August 13 <i>Date:</i> 11 p.m. Sunday, August 14 <i>Date:</i> 6 a.m. Tuesday, August 16 <i>Date:</i> 4 p.m. Wednesday, August 17
Oregon City, Gladstone Channel 28 – Willamette Falls Television <i>Web site:</i> http://www.wftvmedia.org/ <i>Ph:</i> 503-650-0275 Call or visit web site for program times.	West Linn Channel 30 – Willamette Falls Television <i>Web site:</i> http://www.wftvmedia.org/ <i>Ph:</i> 503-650-0275 Call or visit web site for program times.

PLEASE NOTE: Show times are tentative and in some cases the entire meeting may not be shown due to length. Call or check your community access station web site to confirm program times.

Agenda items may not be considered in the exact order. For questions about the agenda, call the Metro Council Office at 503-797-1540. Public hearings are held on all ordinances second read and on resolutions upon request of the public. Documents for the record must be submitted to the Clerk of the Council to be included in the decision record. Documents can be submitted by e-mail, fax or mail or in person to the Clerk of the Council. For additional information about testifying before the Metro Council please go to the Metro web site www.oregonmetro.gov and click on public comment opportunities. For assistance per the American Disabilities Act (ADA), dial TDD 503-797-1804 or 503-797-1540 (Council Office).

Agenda Item Number 5.1

**Resolution No. 11-4280, For the Purpose of Amending the
1998 Land Use Final Order for the South/North Light Rail
Project and Adopting a Land Use Final Order the Expo
Center/Hayden Island Segment of the Project Including the I-5
Columbia River Crossing Bridge and Associated Highway
Improvements.**

Metro Council Meeting
Thursday, August 11, 2011
Metro Council Chamber

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE 1998	)	RESOLUTION NO. 11-4280
LAND USE FINAL ORDER FOR THE)	
SOUTH/NORTH LIGHT RAIL PROJECT AND	)	INTRODUCED BY COUNCILOR REX
ADOPTING A LAND USE FINAL ORDER FOR	)	BURKHOLDER
THE EXPO CENTER/HAYDEN ISLAND)	
SEGMENT OF THE PROJECT INCLUDING THE)	
I-5 COLUMBIA RIVER CROSSING BRIDGE)	
AND ASSOCIATED HIGHWAY)	
IMPROVEMENTS)	

WHEREAS, the Oregon Legislature enacted Oregon Laws 1996, Chapter 12 (the Act), establishing procedures for developing the South/North Light Rail Project through adoption by the Metro Council of a Land Use Final Order (LUFO); and

WHEREAS, in accordance with section 4 of the Act, the Oregon Land Conservation and Development Commission adopted criteria to govern Council review of an application for a LUFO for the South/North Light Rail Project, or any segment of it, on May 30, 1996; and

WHEREAS, the Metro Council endorsed a Locally Preferred Alternative (LPA) for the I-5 Columbia River Crossing Project by Resolution No. 08-3960B (For the Purposes of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions) , adopted July 17, 2008, that includes extension of South/North Light Rail from the Expo Center to Vancouver, Washington; and

WHEREAS, among the conditions of Council endorsement of the LPA was a list of concerns and considerations, contained in Exhibit A to Resolution No. 08-3960B, to be addressed before the Council would approve a land use final order for the project; and

WHEREAS, by Resolution No. 11-4264 (For the Purpose of Concluding that the Concerns and Considerations Raised about the Columbia River Crossing Project in Exhibit A to Resolution No. 08-3960B Have Been Addressed Satisfactorily), adopted June 9, 2011, the Council accepted the responses to the concerns and considerations, based upon the assessment set forth in Exhibit B to Resolution No. 11-4264, and the acknowledgement that further refinements and decisions, involving the Council, would be made to address the concerns and considerations during later design, engineering and financial phases of project development, with involvement of the Council and the local community and its elected representatives; and

WHEREAS, Metro's Regional Transportation Plan (RTP) calls for extension of light rail from the Expo Center to Vancouver, Washington, as part of the I-5 Columbia River Crossing Project and places the project on the RTP's Financially Constrained Roadway Network; and

WHEREAS, section 6.3.2.1 of the RTP required reconsideration of the I-5 Columbia River Crossing Project and amendment of the RTP if the number and design of auxiliary lanes on the I-5 Columbia River Bridge or approaches to the bridge are inconsistent with the description of the project in the RTP; and

WHEREAS, in accordance with section 6 of the Act, on June 23, 2011, the LUFO Steering Committee recommended that TriMet submit to Metro an application for, and the Metro Council adopt, an amendment to the 1998 South/North Light Rail LUFO to approve the light rail route, a station and highway improvements within the Expo Center/Hayden Island Segment of the South/North Light Rail Project; and

WHEREAS, in accordance with section 6 of the Act, in a letter from Matt Garrett, Director, the Oregon Department of Transportation (ODOT) recommended that TriMet submit to Metro an application for, and the Metro Council adopt, an amendment to the 1998 South/North Light Rail LUFO to approve the light rail route, a station and highway improvements within the Expo Center/Hayden Island Segment of the South/North Light Rail Project; and

WHEREAS, in accordance with section 6 of the Act, on July 13, 2011, TriMet filed an application for a LUFO for the Expo Center/Hayden Island segment of the South/North Light Rail Project with the light rail route, station and highway improvements recommended by both the LUFO Steering Committee and ODOT; and

WHEREAS, the light rail route, station and highway improvements are in the form of boundaries within which the light rail route, station and highway improvements will be located, as required by section 6 of the Act; and

WHEREAS, the number and design of auxiliary lanes on the I-5 Columbia River Bridge and the approaches to the bridge project proposed in the TriMet LUFO application are consistent with the I-5 Columbia River Crossing Project described in the RTP; and

WHEREAS, Metro published a notice in *The Oregonian*, containing all the information required by section 7 of the Act, on July 14, 2011, of a public hearing before the Metro Council to consider TriMet's LUFO application on August 11, 2011;

WHEREAS, Metro provided additional public notice of the August 11, 2011, public hearing by mailing postcards to all persons who own property within 250 feet of the proposed light rail alignment and stations and by posting notice at Metro's website, both on July 14, 2011; and

WHEREAS, Metro sent notice of the public hearing on July 15, 2011, to ODOT, Clackamas and Multnomah counties and the cities of Portland, Milwaukie, Gladstone, Gresham and Oregon City; and

WHEREAS, the Council finds and determines that *The Oregonian* is a newspaper of general circulation in the region and the above-described notices are reasonably calculated to give notice to persons who may be affected substantially by a decision to approve TriMet's LUFO application; and

WHEREAS, on July 14, 2011, Metro made available for public inspection a staff report addressing compliance of TriMet's application with the requirements of the Act; and

WHEREAS, the Council held a public hearing on the TriMet LUFO application on August 11, 2011; and

WHEREAS, the Council President made a statement at the beginning of the hearing containing the information required by section 7 of the Act; and

WHEREAS; the Council considered TriMet's application, the recommendations of the LUFO Steering Committee and ODOT, the staff report, the Findings of Fact and Conclusions of Law and all public testimony presented on the application; now, therefore,

BE IT RESOLVED THAT the Metro Council:

1. Hereby amends the 1998 Land Use Final Order (LUFO) for the South/North Light Rail Project, and adopts the LUFO for the Columbia River Crossing Light Rail Project, Expo Center/Hayden Island Segment of the South/North Light Rail Project, attached and incorporated into this resolution as Exhibit A, including the locations of the light rail route, station and highway improvements extending from the Expo Center to the Oregon-Washington line, and as shown in Exhibit A to be identical to the TriMet LUFO application.
2. Adopts the Findings of Fact and Conclusions of Law, attached and incorporated into this resolution as Exhibit B, as the Council's written findings demonstrating how the application and Council's decision comply with the applicable criteria.
3. Authorizes the Council President to sign the Final Environmental Impact Statement for the I-5 Columbia River Crossing Project.

ADOPTED by the Metro Council this 11th day of August, 2011.

Tom Hughes, Council President

Approved as to form:

Alison Kean Campbell, Acting Metro Attorney

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE 1998	)	RESOLUTION NO. 11-4280
LAND USE FINAL ORDER FOR THE)	
SOUTH/NORTH LIGHT RAIL PROJECT AND	)	INTRODUCED BY COUNCILOR REX
ADOPTING A LAND USE FINAL ORDER FOR	)	BURKHOLDER
THE EXPO CENTER/HAYDEN ISLAND)	
SEGMENT OF THE PROJECT INCLUDING THE)	
I-5 COLUMBIA RIVER CROSSING BRIDGE)	
AND ASSOCIATED HIGHWAY)	
IMPROVEMENTS)	

WHEREAS, the Oregon Legislature enacted Oregon Laws 1996, Chapter 12 (the Act), establishing procedures for developing the South/North Light Rail Project through adoption by the Metro Council of a Land Use Final Order (LUFO); and

WHEREAS, in accordance with section 4 of the Act, the Oregon Land Conservation and Development Commission adopted criteria to govern Council review of an application for a LUFO for the South/North Light Rail Project, or any segment of it, on May 30, 1996; and

WHEREAS, the Metro Council endorsed a Locally Preferred Alternative (LPA) for the I-5 Columbia River Crossing Project by Resolution No. 08-3960B (For the Purposes of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions), adopted July 17, 2008, that includes extension of South/North Light Rail from the Expo Center to Vancouver, Washington; and

WHEREAS, among the conditions of Council endorsement of the LPA was a list of concerns and considerations, contained in Exhibit A to Resolution No. 08-3960B, to be addressed before the Council would approve a land use final order for the project; and

WHEREAS, by Resolution No. 11-4264 (For the Purpose of Concluding that the Concerns and Considerations Raised about the Columbia River Crossing Project in Exhibit A to Resolution No. 08-3960B Have Been Addressed Satisfactorily), adopted June 9, 2011, the Council accepted the responses to the concerns and considerations, based upon the assessment set forth in Exhibit B to Resolution No. 11-4264, and the acknowledgement that further refinements and decisions, involving the Council, would be made to address the concerns and considerations during later design, engineering and financial phases of project development, with involvement of the Council and the local community and its elected representatives; and

WHEREAS, Metro's Regional Transportation Plan (RTP) calls for extension of light rail from the Expo Center to Vancouver, Washington, as part of the I-5 Columbia River Crossing Project and places the project on the RTP's Financially Constrained Roadway Network; and

WHEREAS, section 6.3.2.1 of the RTP required reconsideration of the I-5 Columbia River Crossing Project and amendment of the RTP if the number and design of auxiliary lanes on the I-5 Columbia River Bridge or approaches to the bridge are inconsistent with the description of the project in the RTP; and

WHEREAS, in accordance with section 6 of the Act, on June 23, 2011, the LUFO Steering Committee recommended that TriMet filed an application for the Expo Center/Vancouver segment of the South/North Light Rail Project with submit to Metro an application for, and the Metro Council adopt, an amendment to the 1998 South/North Light Rail LUFO to approve the light rail route, a station and highway improvements recommended by both the LUFO Steering Committee and ODOT within the Expo Center/Hayden Island Segment of the South/North Light Rail Project; and

WHEREAS, in accordance with section 6 of the Act, in a letter from Matt Garrett, Director, the Oregon Department of Transportation (ODOT) recommended that TriMet submit to Metro an application for, and the Metro Council adopt, an amendment to the 1998 South/North Light Rail LUFO to approve the light rail route, a station and highway improvements within the Expo Center/Hayden Island Segment of the South/North Light Rail Project; and

WHEREAS, in accordance with section 6 of the Act, on July 13, 2011, TriMet filed an application for a LUFO for the Expo Center/Hayden Island segment of the South/North Light Rail Project with the light rail route, station and highway improvements recommended by both the LUFO Steering Committee and ODOT; and

WHEREAS, the light rail route, station and highway improvements are in the form of boundaries within which the light rail route, station and highway improvements will be located, as required by section 6 of the Act; and

WHEREAS, the number and design of auxiliary lanes on the I-5 Columbia River Bridge and the approaches to the bridge project proposed in the TriMet LUFO application are consistent with the I-5 Columbia River Crossing Project described in the RTP; and

~~WHEREAS, by Resolution No. 11-4264 (For the Purpose of Concluding that the Concerns and Considerations raised about the Columbia River Crossing Project in Exhibit A to Resolution No. 08-3960B Have Been Addressed Satisfactorily), adopted June 9, 2011, the Council determined that the conditions set forth in Resolution No. 3960B had been satisfied; and~~

WHEREAS, Metro published a notice in *The Oregonian*, containing all the information required by section 7 of the Act, on July 14, 2011, of a public hearing before the Metro Council to consider TriMet's LUFO application on August 11, 2011;

WHEREAS, Metro provided additional public notice of the August 11, 2011, public hearing by mailing postcards to all persons who own property within 250 feet of the proposed light rail alignment and stations and by posting notice at Metro's website, both on July 14, 2011; and

WHEREAS, Metro sent notice of the public hearing on July 15, 2011, to ODOT, Clackamas and Multnomah counties and the cities of Portland, Milwaukie, Gladstone, Gresham and Oregon City; and

WHEREAS, the Council finds and determines that *The Oregonian* is a newspaper of general circulation in the region and the above-described notices are reasonably calculated to give notice to persons who may be affected substantially by a decision to approve TriMet's LUFO application; and

WHEREAS, on July 14, 2011, Metro made available for public inspection a staff report addressing compliance of TriMet's application with the requirements of the Act; and

WHEREAS, the Council held a public hearing on the TriMet LUFO application on August 11, 2011; and

WHEREAS, the Council President made a statement at the beginning of the hearing containing the information required by section 7 of the Act; and

WHEREAS; the Council considered TriMet's application, the recommendations of the LUFO Steering Committee and ODOT, the staff report, the Findings of Fact and Conclusions of Law and all public testimony presented on the application; now, therefore,

BE IT RESOLVED THAT the Metro Council:

1. Hereby amends the 1998 Land Use Final Order (LUFO) for the South/North Light Rail Project, and adopts the LUFO for the Columbia River Crossing Light Rail Project, Expo Center/Hayden Island Segment of the South/North Light Rail Project, attached and incorporated into this resolution as Exhibit A, including the locations of the light rail route, station and highway improvements extending from the Expo Center to the Oregon-Washington line, and as shown in Exhibit A to be identical to the TriMet LUFO application.
2. Adopts the Findings of Fact and Conclusions of Law, attached and incorporated into this resolution as Exhibit B, as the Council's written findings demonstrating how the application and Council's decision comply with the applicable criteria.
3. Authorizes the Council President to sign the Final Environmental Impact Statement for the I-5 Columbia River Crossing Project.

ADOPTED by the Metro Council this 11th day of August, 2011.

Tom Hughes, Council President

Approved as to form:

Alison Kean Campbell, Acting Metro Attorney

Exhibit A to Resolution No. 11-4280

2011 South/North Land Use Final Order Amendment

**Columbia River Crossing Project
Expo Center/Hayden Island Segment**

Adopted by the Metro Council

August 11, 2011

1. Introduction

This document constitutes a Land Use Final Order (LUFO) for the South/North Project in accordance with Oregon Laws 1996, Chapter 12 (House Bill 3478). This 2011 South/North LUFO Amendment is the fifth in a series of LUFOs adopted by the Metro Council that established or amended the light rail route, light rail stations, light rail park-and-ride lots and maintenance facilities, and the highway improvements for the South/North Project, including their locations. The four previously adopted LUFOs are as follows:

- On July 23, 1998, the Metro Council adopted Resolution No. 98-2673 (the 1998 LUFO), establishing the initial light rail route, stations, lots and maintenance facilities and the highway improvements, including their locations, for the South/North Project.
- On October 28, 1999, the Metro Council adopted Resolution No. 99-2853A (the 1999 LUFO), amending the 1998 LUFO to reflect revisions for that portion of the South/North Project extending from the Steel Bridge northward to the Portland Metropolitan Exposition Center (Expo Center), primarily along Interstate Avenue. The 1999 LUFO modified the northern light rail alignment; established, relocated or expanded light rail station locations along that alignment; and authorized park-and-ride lots at Portland International Raceway (PIR) and the Expo Center along the light rail route.
- On January 15, 2004, the Metro Council adopted Resolution No. 03-3372 (the 2004 LUFO), further amending the previous South/North LUFO resolutions to (1) establish the light rail route, stations and park-and-ride lots, including their locations, along the Interstate-205 right-of-way from the Gateway Transit Center to Clackamas Regional Center; (2) modify the route along the downtown Portland Transit Mall to extend light rail transit (LRT) to Portland State University (PSU) and establish, adjust or relocate station locations; (3) modify the 1998 LUFO for the segment from Portland to Milwaukie by revising the alignment and adding study areas; (4) remove the 1998 LUFO designations from Milwaukie to Clackamas Regional Center; and (5) complete technical amendments to the 1999 LUFO alignment to reflect the final built configuration at certain stations consistent with the Full Funding Agreement Grant approved by the Federal Transit Administration.
- On July 25, 2008, the Metro Council adopted Resolution No. 08-3964 (the 2008 LUFO), amending the 1998 and 2004 South/North LUFOs as they relate to the segment of the South/North Project extending from Portland State University (PSU) in downtown Portland through SE Portland and downtown Milwaukie to SE Park Avenue in unincorporated Clackamas County. The 2008 LUFO realigned the light rail route between PSU and SE 7th Avenue; established the route from SE Tacoma Street to SE Park Avenue; relocated light rail stations or authorized new stations along the light rail route; and established the park-and-ride lots and highway improvements for the Portland to Milwaukie segment.

This 2011 South/North LUFO Amendment (the 2011 LUFO) amends the 1998 LUFO as it relates to the segment of the South/North Project in north Portland extending northward from the Expo Center and the Interstate 5/Victory Boulevard Interchange to the Oregon/Washington state line on the Columbia River. This 2011 LUFO realigns the light rail route between the Expo Center and the Oregon/Washington state line westward from its alignment in the 1998 LUFO and it relocates the Hayden Island station west of its previous location. Over the river it provides for the light rail route to be accommodated on the lower tier of a new southbound Interstate 5 bridge. This 2011 LUFO also establishes a number of highway improvements, including new northbound and southbound Interstate 5 Columbia River bridges and removal of the existing bridges; widening of Interstate 5 in both directions between approximately N Victory Boulevard and the Oregon/Washington state line on the Columbia River; new or modified interchanges at N Marine Drive, Hayden Island and Victory Boulevard; a new integrated rail/vehicular/bicycle pedestrian bridge connecting Hayden Island with the Expo Center; and roadway realignments, widenings, modifications and new connections within the project area.

This 2011 LUFO further provides for expansion and improvement of the Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham within the facility boundaries established in the 2008 LUFO, to accommodate and maintain additional LRT vehicles associated with the Columbia River Crossing Project.

2. Requirements of House Bill 3478

Chapter 12 of the 1998 Oregon Laws (House Bill 3478) provides procedures for siting the South/North light rail route, associated light rail facilities, and the highway improvements included in the South/North Project. In brief, it provides a set of regulations for making and for appealing land use decisions related to the South/North Project as it may be amended or extended from time to time. The law includes a provision directing the Land Conservation and Development Commission (LCDC) to adopt criteria for land use final orders; a requirement that TriMet make application for land use final orders; requirements for how the Metro Council conducts its public hearings; and procedures for appeal.

Pursuant to House Bill 3478, upon application by TriMet and following a public hearing held on August 11, 2011, and in consideration of the whole record and based on a finding that there is substantial evidence supporting the proposed action, the Metro Council hereby adopts this 2011 South/North LUFO Amendment for the Project by Resolution No. 11-4280.

3. Establishment of Columbia River Crossing Project Light Rail Routes, Stations, Maintenance Facilities and Highway Improvements, Including their Locations

The Metro Council approves the light rail route, light rail station and highway improvements identified textually below and illustrated in the location boundary maps (**Figures 1.1 to 1.3**) that follow. These light rail facilities and highway improvements and their location boundaries are identical to those that the LUFO Steering Committee and ODOT recommended to TriMet and that TriMet included in its application for a LUFO amendment.

The Metro Council also approves expansion and improvement of the Ruby Junction Maintenance Facility within the location boundaries established in the 2008 LUFO to accommodate light rail vehicles associated with the Columbia River Crossing Project. See **Figure 2.1**.

The LUFO boundary maps contained in this order were prepared using cad line work of proposed improvements on top of aerial photos taken in 2005 and 2007. The maps illustrate the adopted boundaries at an approximate scale of one inch equals 400 feet. The boundaries shown on these maps represent the areas within which the light rail facilities and highway improvements may be located.

Preliminary and final engineering have not yet been completed. Preliminary and advanced preliminary engineering will continue until about October 2012, when the Project is expected to enter into its final engineering phase. With more detailed engineering and environmental information available, some variations from the illustrations in the attached figures may be needed when the project is built. Accordingly, the LUFO shows a larger, more generalized boundary than that actually needed for the track alignment, station and highway improvements to accommodate such variations. Final location of the light rail facilities and highway improvements anywhere within the boundaries found on the LUFO maps would be consistent with this LUFO.

The 1998 LUFO established a light rail alignment that included a segment extending from downtown Portland across the Steel Bridge and through northeast and north Portland to the Expo Center and the Oregon/Washington state line. The 1999 LUFO amended the light rail alignment for that portion located between approximately the Steel Bridge and the Expo Center.

This 2011 LUFO further modifies the 1998 LUFO by:

- 1) Relocating the light rail alignment and Hayden Island station farther to the west;
- 2) Relocating the light rail alignment leading into Vancouver, Washington onto the lower tier of a new southbound Interstate 5 bridge;
- 3) Providing significant highway improvements between approximately N. Victory Boulevard and the Oregon/Washington state line on the Columbia River, including but not limited to new northbound and southbound Interstate 5 bridges to accommodate highway, rail, pedestrian and bicycle travel; widening of northbound and southbound Interstate 5 to accommodate three travel lanes and two auxiliary lanes; and interchange and roadway modifications and improvements and new roadway.

In the 1998 LUFO there were two segments that, together, provided LRT service between the Expo Center and the Oregon/Washington state line on the Columbia River. These segments were the North Portland segment and the Hayden Island segment. In the 1999 LUFO, the Metro Council renamed the portion of the North Portland segment extending from south of the Columbia Slough near N Columbia Boulevard to the Expo Center the "Expo Center

Segment.” This 2011 LUFO amendment retains the name “Expo Center Segment” and extends it to N Marine Drive, where the Hayden Island Segment begins. This 2011 LUFO amendment also extends the Expo Center and Hayden Island segments east of Interstate 5 approximately 2,500 feet to include all areas identified for highway improvements. For convenience purposes, these two segments are consolidated and addressed as a single segment (Expo Center/Hayden Island).

Light Rail Alignment and Station

From the Expo Center station, the light rail alignment proceeds northward under N Marine Drive and onto a new, integrated light rail/vehicular/bicycle/pedestrian bridge crossing over the North Portland Harbor onto Hayden Island west of I-5. The alignment then continues northward towards Vancouver, Washington, crossing over N Hayden Island Drive onto the lower deck of the new southbound Interstate 5 bridge.

A single light rail station is located in the Expo Center/Hayden Island Segment. The Hayden Island Station will be elevated and positioned adjacent to I-5, over or near Tomahawk Island Drive. Tomahawk Island Drive will be extended under I-5 to provide a third east/west street connection for Hayden Island.

There are no new park-and-ride lots or maintenance facilities within the Expo Center/Hayden Island Segment.

Highway Improvements

The highway improvements in the Expo Center/Hayden Island Segment include the following:

1. New northbound and southbound I-5 Columbia River bridges and removal of the existing I-5 Columbia River bridges. The new southbound bridge is a two-tier bridge with highway on the upper deck and light rail on the lower deck. The new northbound bridge is a two-tier bridge with highway on the upper deck and bicycle and pedestrian facilities on the lower deck. Each new bridge will include three travel lanes and two auxiliary lanes.
2. Widening of I-5 in both the northbound and southbound directions from N Victory Boulevard to the Oregon/Washington state line. Northbound, I-5 will widen from three travel lanes at N Victory Boulevard to three travel lanes and two auxiliary lanes on the new northbound I-5 Columbia River bridge. Southbound, I-5 will narrow from three travel lanes and two auxiliary lanes on the new southbound I-5 Columbia River bridge to three lanes south of N Victory Boulevard.
3. A newly designed I-5/Marine Drive interchange, including ramps connecting I-5 with N Marine Drive and NE Martin Luther King Jr. Boulevard.
4. A newly designed I-5/Hayden Island interchange including relocated northbound and southbound exit and entrance ramps.

5. A new integrated light rail/vehicular/bicycle/pedestrian bridge west of I-5 connecting Hayden Island with the Expo Center and N Expo Road.
6. Realignment and widening of NE Martin Luther King Jr. Boulevard between the new I-5/Marine Drive interchange and approximately N Hayden Meadows Drive.
7. Realignment and widening of N Marine Drive between N Gantenbein Avenue and N Vancouver Way.
8. Modification, widening and extension of N Vancouver Way between east of N Haney Drive and approximately the light rail alignment west of I-5.
9. Realignment and widening of NE Union Court between N Hayden Meadows Drive and N Vancouver Way.
10. A new northbound connection between NE Martin Luther King Jr. Boulevard and N Vancouver Way and a new southbound connection between NE Martin Luther King Jr. Boulevard and NE Union Court.
11. Realignments, widening and roadway modifications to N Jantzen Avenue, N Jantzen Drive and N Hayden Island Drive.
12. Modification, widening and extension of N Tomahawk Island Drive from east of N Jantzen Drive to the west of I-5.
13. Construction of a new roadway west of I-5 and the light rail alignment between N Jantzen Avenue and N Hayden Island Drive.
14. A new public road extending N Expo Road westward to N Force Avenue.

See **Figures 1.1 to 1.3** of the LUFO for the boundaries within which the above described light rail facilities and highway improvements would be located.

Ruby Junction Maintenance Facility

The Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham was first authorized in 1980 as part of the Portland to Gresham light rail project. The facility includes light rail tracks, vehicle storage spaces and maintenance bays, an operation center, and related facilities necessary to maintain light rail vehicles.

As part of the 2008 LUFO amendments for the Portland to Milwaukie Project, the Metro Council approved the modification and expansion of the Ruby Junction Maintenance Facility and adopted location boundaries for it. See **Figure 2.1** of this 2011 LUFO. This LUFO authorizes the use of that facility to serve light rail vehicles associated with the Columbia River Crossing Project. Such use was expressly anticipated in the 2008 LUFO findings. Because use and improvement of the facility in connection with the Columbia River Crossing

project will occur within the location boundaries approved in 2008, no location boundary amendments are necessary.

4. Interpretation of Terms

As it did in the 1998, 1999, 2004 and 2008 LUFOs, the Metro Council interprets the terms "light rail route", "stations", "lots", "maintenance facilities" and "highway improvements" as it did in its previous South/North LUFOs, to have the following meanings:

- "**Light rail route**" means the alignment upon which the light rail tracks will be located. The light rail route will be located on land to be owned by or under the operating control of TriMet.
- "**Stations**" means those facilities to be located along the light rail route for purposes of accessing or serving the light rail system. Stations include light rail station platforms; kiss-and-ride areas; bus transfer platforms and transit centers; vendor facilities; and transit operations rooms.
- "**Lots**" means those parking structures or surface parking lots that are associated with a station, owned by or under the operating control of either TriMet or another entity with the concurrence of TriMet, and intended primarily for use by persons riding transit or carpooling. Parking structures may include some retail or office spaces in association with the primary use.
- "**Maintenance facilities**" means those facilities to be located on land to be owned or controlled by TriMet for purposes of operating, servicing, repairing or maintaining the light rail transit system, including but not limited to light rail vehicles, the light rail tracks, stations, lots, and ancillary facilities and improvements. Maintenance facilities include maintenance facility access trackways; storage tracks for light rail vehicles; service, repair and maintenance shops and equipment; office facilities; locker rooms; control and communications rooms; transit district employee and visitor parking lots; and storage areas for materials and equipment and non-revenue vehicles.
- "**Highway improvements**" include new roads, road extensions or road widenings outside existing rights-of-ways that have independent utility in themselves and are not needed to mitigate adverse traffic impacts associated with the light rail route, stations, lots or maintenance facilities.

Also consistent with its previous South/North LUFOs, the Metro Council determines that implementation of the South/North LUFO under sections 8(1)(a) and (b) of Chapter 12 of the 1996 Oregon Laws (HB 3478), including the construction, operation and maintenance of the light rail route, stations, lots and maintenance facilities and the highway improvements for the Project, necessitates and requires development approval of certain associated actions and the permitting of certain associated or ancillary facilities or improvements. These associated actions or ancillary facilities or improvements generally are required: (1) to ensure the safe and proper functioning and operation of the light rail system; (2) to provide project access; (3) to improve traffic flow, circulation or safety in the vicinity of the Project; or (4) to mitigate adverse impacts caused to the adjoining roadway network resulting from the alignment, stations, lots or maintenance facilities. For these reasons, these actions, facilities or improvements are integral and necessary parts of the Project.

The Metro Council further determines that the associated actions and ancillary facilities or improvements for the South/North Project include, but are not limited to: ties, ballast, and other track support materials such as tunnels and bridges; modifications to existing tracks; retaining walls and noise walls; culverts and other drainage systems; traction electrification equipment including substations; light rail signals and communications equipment and buildings; lighting; station, lot and maintenance facility accesses, including road accesses, pedestrian bridges and pedestrian and bicycle accessways; roadway crossing protection; and the provision of pedestrian paths, bike lanes, bus stops, bus pullouts, shelters, bicycle storage facilities and similar facilities. They also include temporary LRT construction-related roadways, staging areas and road or lane closures; roadway reconstruction, realignment, repair, widening, channelization, signalization or signal modification, lane reconfiguration or reduction, addition or modification of turning lanes or refuges, modification of traffic circulation patterns, or other modifications or improvements that provide or improve Project access, improve traffic flow, circulation or safety in the vicinity of the Project, facilitate or are necessary for the safe or proper functioning and operation of the Project, or are necessary to mitigate adverse traffic impacts created by the Project; modifications of private roadways adjoining the Project; permanent road, lane or access closures associated with and necessitated by the Project; and other associated actions or associated or ancillary facilities or improvements related to the Project.

5. Applicable Land Use Criteria

On May 30, 1996, pursuant to Section 4 of House Bill 3478, LCDC established the criteria to be used by the Metro Council in making land use decisions establishing or amending the light rail route, stations, lots and maintenance facilities, and the highway improvements for the South/North Project, including their locations. The approved criteria include two procedural, six substantive, and two alignment-specific standards, set out below. Compliance with these criteria must be demonstrated.

Procedural Criteria

1. Coordinate with and provide an opportunity for Clackamas and Multnomah counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.
2. Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots, vehicle maintenance facilities and the highway improvements, including their locations.

Substantive Criteria

3. Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process, or, if reasonable and necessary, by affected local governments during the local permitting process.
 - A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.
 - B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.
4. Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.
5. Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
6. Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
7. Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.

8. Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.

Alignment-Specific Criteria

9. Consider a light rail route connecting the Clackamas Town Center area with the City of Milwaukie's Downtown. Consider an extension of the light rail route connecting the City of Oregon City and the City of Gladstone with the City of Milwaukie via the Interstate 205 corridor and/or the McLoughlin Boulevard corridor.
10. Consider a light rail route connecting Portland's Central City with the City of Milwaukie's Downtown via inner southeast Portland neighborhoods and, in the City of Milwaukie, the McLoughlin Boulevard corridor, and further connecting the Central City with north and inner northeast Portland neighborhoods via the Interstate 5/Interstate Avenue corridor.

Findings of Fact and Conclusions of Law
South/North Corridor Land Use Final Order
Columbia River Crossing Project

INITIAL DRAFT
7/14/11

THIS DRAFT IS SUBJECT TO REVISION AND EXPANSION
PRIOR TO FINAL METRO COUNCIL ACTION

1. Introduction

1.1 Nature of the Metro Council's Action

This action adopts a Land Use Final Order (LUFO) for the Columbia River Crossing (CRC) Project, which is an element of the larger South/North Corridor Project. The action is taken pursuant to Oregon Laws 1996 (Special Session), Chapter 12 (referred to herein as "House Bill 3478" or "the Act"), which directs the Metro Council (Council) to issue LUFOs establishing the light rail route, stations, park-and-ride lots and maintenance facilities, and highway improvements for the South/North Project, including their locations (*i.e.* the boundaries within which these facilities and improvements may be located).^{1,2}

This LUFO is the fifth in a series of LUFOs the Council has adopted for the South/North Project. The previously adopted LUFOs are as follows:

- On July 23, 1998, the Metro Council adopted Resolution No. 98-2673 (the 1998 LUFO), establishing the initial light rail route, stations, lots and maintenance facilities and the highway improvements, including their locations, for the South/North Project.
- On October 28, 1999, the Metro Council adopted Resolution No. 99-2853A (the 1999 LUFO), amending the 1998 LUFO to reflect revisions for that portion of the South/North Project extending from the Steel Bridge northward to the Portland Metropolitan Exposition Center (Expo Center), primarily along Interstate Avenue. The 1999 LUFO modified the northern light rail alignment; established, relocated or expanded light rail station locations along that alignment; and authorized park-and-ride lots at Portland International Raceway (PIR) and the Expo Center along the light rail route.
- On January 15, 2004, the Metro Council adopted Resolution No. 03-3372 (the 2004 LUFO), further amending the previous South/North LUFO resolutions to (1) establish the light rail route, stations and park-and-ride lots, including their locations, along the Interstate-205 right-of-way from the Gateway Transit Center to Clackamas Regional Center; (2) modify the route along the downtown Portland Transit Mall to extend light rail transit (LRT) to Portland State University (PSU) and establish, adjust or relocate station locations; (3) modify the 1998 LUFO for the segment from Portland to Milwaukie by revising the alignment and adding study areas; (4) remove the 1998 LUFO designations from Milwaukie to Clackamas Regional Center; and (5) complete

¹ Metro's Regional Transportation Plan shows northward extension of light rail to Clark County Washington. However, the Metro Council's jurisdiction is limited to the Oregon portion of the South/North Project.

²Section 1(18) of HB 3478 defines the "Project" as "the portion of the South/North MAX Light Rail Project within the Portland metropolitan area urban growth boundary including each segment thereof as set forth in the Phase I South North Corridor Project Locally Preferred Alternative Report, as may be amended from time to time or as may be modified in a Final Statement or the Full Funding Grant Agreement". The Columbia River Crossing Project extends the existing light rail alignment northward from the Expo Center to the Oregon/Washington state line. The Project also provides for highway improvements on and in the vicinity of Interstate 5 (I-5) between Victory Boulevard and the state line.

technical amendments to the 1999 LUFO alignment to reflect the final built configuration at certain stations consistent with the Full Funding Agreement Grant approved by the Federal Transit Administration.

- On July 25, 2008, the Metro Council adopted Resolution No. 08-3964 (the 2008 LUFO), amending the 1998 and 2004 South/North LUFOs as they relate to the segment of the South/North Project extending from Portland State University (PSU) in downtown Portland through SE Portland and downtown Milwaukie to SE Park Avenue in unincorporated Clackamas County. The 2008 LUFO realigned the light rail route between PSU and SE 7th Avenue; established the route from SE Tacoma Street to SE Park Avenue; relocated light rail stations or authorized new stations along the light rail route; and established the park-and-ride lots and highway improvements for the Portland to Milwaukie segment.

This 2011 South/North LUFO Amendment (the 2011 LUFO) amends the 1998 LUFO as it relates to the segment of the South/North Project in north Portland extending northward from the Expo Center and from the Interstate 5/Victory Boulevard Interchange to the Oregon/Washington state line on the Columbia River. This 2011 LUFO realigns the light rail route between the Expo Center and the Oregon/Washington state line westward from its alignment in the 1998 LUFO and it relocates the Hayden Island station west of its previous location. It also provides for the rail route to be accommodated on the lower tier of a new southbound Interstate 5 bridge. This 2011 LUFO also establishes a number of highway improvements for the Columbia River Crossing Segment of the South/North Project, including new northbound and southbound Interstate 5 bridges; widening of Interstate 5 in both directions between approximately N Victory Boulevard the Oregon/Washington state line on the Columbia River; new or modified interchanges at Marine Drive, Hayden Island and Victory Boulevard; a new integrated rail/vehicular/bicycle pedestrian bridge connecting Hayden Island with the Expo Center; and roadway realignments, widenings, modifications and new connections within the project area.

This 2011 LUFO also provides for expansion and improvement of the Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham to accommodate and maintain additional LRT vehicles associated with the Columbia River Crossing Project.

This 2011 LUFO is also the latest in a long string of land use final orders dating back to 1991 to the approval of the first LUFO for the Westside Corridor Project. That LUFO, and several amendments to that LUFO which followed, expanded the Portland metropolitan region's commitment to a multi-modal transportation network including light rail transit serving populations to the north, south, east and west of the Central City, an improved state highway and local street network, and facilities to encourage walking and bicycle travel. These steps coincided with the Land Conservation and Development Commission's adoption in 1991 of the Transportation Planning Rule, which encourages and supports the availability of a variety of transportation choices for moving people that balance vehicular use with other modes to avoid principal reliance on any one mode. The Westside LUFOs, among other things, approved the extension of light rail initially through Portland, unincorporated Washington County and Beaverton and then later into downtown Hillsboro. They also approved highway

and bicycle improvements associated with the light rail projects, including the widening of US 26 and Oregon 217, new or modified freeway ramps, a new bridge crossing US 26 at Sylvan, a new collector-distributor road system west of the Sylvan Interchange, a new US 26 bridge crossing at Sylvan, the closing of some local accesses to and from US 26, local street realignments, modifications and improvements, and bicycle facility improvements extending from approximately the Oregon Zoo to Oregon 217. The South/North Project continued this commitment to a multi-modal transportation system with a series of light rail and highway improvements extending along the South/North corridor between Clackamas County and the Oregon/Washington state line.³ The Council anticipates that this 2011 LUFO amendment will not be the final step in that process, as House Bill 3478 envisions that at some future point, light rail transit will extend farther south into Oregon City.

1.2 Relationship of Council's Order to Requirements of the National Environmental Policy Act of 1969

Like the 1998, 1999, 2004 and 2008 LUFOs before it, this 2011 LUFO is adopted solely to implement the provisions in HB 3478 authorizing the Council to make land use decisions on the light rail route, stations, lots and maintenance facilities and the highway improvements for the South/North Project, including their locations. This land use decision is not required by the National Environmental Policy Act of 1969 (NEPA) or other federal law.

1.3 Requirements of House Bill 3478

Section 6(1) of House Bill 3478 requires the Council to "establish the light rail route, stations, lots and maintenance facilities, and the highway improvements for the project or project extension, including their locations." Section 6(1)(a) further provides that the locations for each of these facilities and improvements:

"shall be in the form of boundaries within which the light rail route, stations, lots and maintenance facilities, and the highway improvements shall be located. These boundaries shall be sufficient to accommodate adjustments to the specific placements of the light rail route, stations, lots and maintenance facilities, and the highway improvements for which need commonly arises upon the development of more detailed environmental or engineering data following approval of a Full Funding Grant Agreement."

Section 6(2) of the Act addresses amendments to the 1998 LUFO. It provides:

"Any siting of the light rail route, a station, lot or maintenance facility, or a highway improvement outside the locations established in a land use final order, and any new station, lot, maintenance facility or highway improvement, shall require a land use

³ The region's rail transit system now has 50 miles of light rail, with a new line south from the Central City to Milwaukie (7.3 miles) in final planning stages. The system includes a 14.7-mile commuter rail serving the southwest part of the region, opened in 2008, and four miles of streetcar with another eight miles under construction. Future light rail projects under consideration include a light rail line along the Barbur Boulevard corridor.

final order amendment or a new land use final order which shall be adopted in accordance with the process provided for in subsection (1) of this section."

Section 7 of HB 3478 requires the Council to apply land use criteria established by the Land Conservation and Development Commission (LCDC) in making decisions in a land use final order on the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, and to prepare and adopt findings of fact and conclusions of law demonstrating compliance with those criteria. *These findings serve to demonstrate compliance with LCDC's criteria for the modifications selected in this LUFO amendment.*

2. Amendments to the Light Rail Route, Stations, Lots and Maintenance Facilities, and Highway Improvements for the Project, Including Their Locations

2.1 Introduction

The Metro Council initially approved a light rail route, stations, park-and-ride lots, maintenance facilities and highway improvements for the Project, including their locations, in the 1998 LUFO. That decision established an alignment from the Clackamas Town Center through downtown Milwaukie to downtown Portland and northward to the Oregon/Washington state line on the Columbia River.

The 1999 LUFO modified the 1998 LUFO by relocating the light rail alignment farther to the west, establishing new light rail station locations, and providing an interim terminus at the Expo Center. The remainder of the Project outside that portion between the Steel Bridge and the Expo Center remained unchanged.

This 2011 LUFO modifies the 1998 LUFO by:

- 1) Relocating the light rail alignment and Hayden Island station farther to the west;
- 2) Relocating the light rail alignment leading into Vancouver, Washington onto the lower tier of a new southbound Interstate 5 bridge;
- 3) Providing significant highway improvements between approximately N. Victory Boulevard and the Oregon/Washington state line on the Columbia River, including but not limited to new northbound and southbound Interstate 5 bridges to accommodate highway, rail, pedestrian and bicycle travel; widening of northbound and southbound Interstate 5 to accommodate three travel lanes and two auxiliary lanes; and interchange and roadway modifications and improvements and new roadway connections within the Project area.

These 2011 findings replace and supersede findings supporting the 1998 LUFO as follows:

- That part in Section 6.4.8 of the 1998 LUFO findings addressing the portion of the North Portland segment between the Expo Center and N Marine Drive;
- In their entirety, Section 6.4.9 of the 1998 LUFO findings addressing the Hayden Island segment.

Further, to the extent these 2011 LUFO findings create inconsistencies with other sections of the 1998 or 1999 LUFO findings [*see, e.g.*, Sections 2.1, 6.1 and 6.3], these 2011 findings control and supersede the earlier findings.

This 2011 LUFO also authorizes use of the Ruby Junction Maintenance Facility in Gresham to serve light rail vehicles associated with the Columbia River Crossing Project.

2.2 Selected Expo Center/Hayden Island Segment Amendments

The Metro Council amends the 1998 LUFO and the 1999 LUFO to select and establish the locations of the light rail route, stations, lots, maintenance facilities and highway improvements identified below. The Council finds that its selected light rail route, stations, lots, maintenance facilities and highway improvements, including their locations, are identical to those for which TriMet requested Council approval in its "Application for South/North Land Use Final Order Amendment (Expo Center/Hayden Island Segments)", which TriMet filed on July 13, 2011 and which the Council incorporates herein by this reference.⁴ The light rail route, station, and highway improvements selected by this amendment are described textually and illustrated on the maps contained in the Council's adopted 2011 LUFO.

In the 1998 LUFO there were two segments that, together, provided LRT service between the Expo Center and the Oregon/Washington state line on the Columbia River. These segments were the North Portland segment and the Hayden Island segment. In the 1999 LUFO, the Metro Council renamed the portion of the North Portland segment extending from south of the Columbia Slough near N Columbia Boulevard to the Expo Center the "Expo Center Segment." This 2011 LUFO amendment retains the name "Expo Center Segment" and extends it to N Marine Drive, where the Hayden Island Segment begins. This 2011 LUFO amendment also extends the Expo Center and Hayden Island segments east of Interstate 5 approximately 2,500 feet to include all areas identified for highway improvements. For convenience purposes, these two segments are consolidated and addressed as a single segment (Expo Center/Hayden Island) in these findings.

The Metro Council now deems it appropriate to approve the 2011 LUFO changes for the Expo Center/Hayden Island Segment as follows:

Light Rail Alignment

From the Expo Center station, the light rail alignment proceeds northward under N Marine Drive and onto a new, integrated light rail/vehicular/bicycle/pedestrian bridge crossing over the North Portland Harbor onto Hayden Island west of I-5. The alignment then continues northward, crossing over N Hayden Island Drive onto the lower deck of the new southbound Interstate 5 bridge.

From the state line on the Columbia River, the alignment continues northward into Vancouver, Washington. Because the portion of the Project in the State of Washington is outside the jurisdiction of the State of Oregon, it is not subject to compliance with House Bill 3478 and is not addressed in the LUFO or these LUFO findings.

Light Rail Stations

A single light rail station is located in the Expo Center/Hayden Island Segment.

⁴ TriMet's application is attached as Exhibit B to Resolution No. 11-4289.

The **Hayden Island Station** will be elevated and positioned adjacent to I-5, over or near Tomahawk Island Drive. Tomahawk Island Drive will be extended under I-5 to provide a third east/west street connection for Hayden Island. The Hayden Island Plan calls for retail development, a mixed-use station community, and a well-connected street system to be developed adjacent to the station.

Park-and-Ride Lots

There are no new park-and-ride lots in the Expo Center/Hayden Island Segment.

Operations & Maintenance Facilities

There are no operations & maintenance facilities in the Expo Center/Hayden Island Segment. Maintenance will be provided at the existing Ruby Junction Maintenance Facility in Gresham, discussed in Section 2.3 below.

Highway Improvements

The highway improvements in the Expo Center/Hayden Island Segment include the following:

1. New northbound and southbound I-5 Columbia River bridges. The southbound bridge is a two-tier bridge with highway on the upper deck and light rail on the lower deck. The northbound bridge is a two-tier bridge with highway on the upper deck and bicycle and pedestrian facilities on the lower deck. Each bridge will include three travel lanes and two auxiliary lanes.
2. Widening of I-5 in both the northbound and southbound directions from N Victory Boulevard to the Oregon/Washington state line. Northbound, I-5 will widen from three travel lanes at N Victory Boulevard to three travel lanes and two auxiliary lanes on the new northbound I-5 Columbia River bridge. Southbound, I-5 will narrow from three travel lanes and two auxiliary lanes on the new southbound I-5 Columbia River bridge to three lanes south of N Victory Boulevard.
3. A newly designed I-5/Marine Drive interchange, including ramps connecting I-5 with N Marine Drive and NE Martin Luther King Jr. Boulevard.
4. A newly designed I-5/Hayden Island interchange including relocated northbound and southbound exit and entrance ramps. The redesign is intended to further the Hayden Island Plan and implement features that are supportive of transit.
5. A new integrated light rail/vehicular/bicycle/pedestrian bridge west of I-5 connecting Hayden Island with the Expo Center and N Expo Road.
6. Realignment and widening of NE Martin Luther King Jr. Boulevard between the new I-5/Marine Drive interchange and approximately N Hayden Meadows Drive.
7. Realignment and widening of N Marine Drive between N Gantenbein Avenue and N Vancouver Way.

8. Modification, widening and extension of N Vancouver Way between east of N Haney Drive and approximately the light rail alignment west of I-5.
9. Realignment and widening of NE Union Court between N Hayden Meadows Drive and N Vancouver Way.
10. A new northbound connection between NE Martin Luther King Jr. Boulevard and N Vancouver Way and a new southbound connection between NE Martin Luther King Jr. Boulevard and NE Union Court.
11. Realignments, widening and roadway modifications to N Jantzen Avenue, N Jantzen Drive and N Hayden Island Drive.
12. Modification, widening and extension of N Tomahawk Island Drive from east of N Jantzen Drive to the west of I-5.
13. Construction of a new roadway west of I-5 and the light rail alignment between N Jantzen Avenue and N Hayden Island Drive.
14. A new public road extending N Expo Road westward to N Force Avenue.
15. Removal of the existing I-5 Columbia River bridges.

See **Figures 1.1 to 1.3** of the LUFO for the boundaries within which the above described light rail facilities and highway improvements would be located.

2.3 Ruby Junction Maintenance Facility Improvements

The Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham was first authorized in 1980 as part of the Portland to Gresham light rail project. The facility includes light rail tracks, vehicle storage spaces and maintenance bays, an operation center, and related facilities necessary to maintain light rail vehicles.

As part of the 2008 LUFO amendments for the Portland to Milwaukie Project, the Council approved the modification and expansion of the Ruby Junction Maintenance Facility and adopted location boundaries for it. See **Figure 2.1** of this 2011 LUFO. This LUFO authorizes the use of the facility to serve light rail vehicles associated with the Columbia River Crossing Project. Such use was expressly anticipated in the 2008 LUFO findings. Because use and improvement of the facility in connection with the Columbia River Crossing Project will occur within the location boundaries approved in 2008, the Council finds it is not necessary to amend those boundaries.

3. South/North Project Land Use Final Order Criteria

On May 30, 1996, pursuant to Section 4 of HB 3478, LCDC established the criteria to be used by the Council in making land use decisions establishing or amending the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project or Project Extension, including their locations. The approved criteria include two procedural, six substantive, and two alignment-specific standards, set out as follows:

3.1 Procedural Criteria

1. Coordinate with and provide an opportunity for Clackamas and Multnomah Counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.
2. Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.

3.2 Substantive Criteria

3. Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process or, if reasonable and necessary, by affected local governments during the local permitting process.
 - A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.
 - B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.
4. Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.

5. Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
6. Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
7. Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
8. Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.

3.3 Alignment-Specific Criteria

9. Consider a light rail route connecting the Clackamas Town Center area with the City of Milwaukie's Downtown. Consider an extension of the light rail route connecting the City of Oregon City and the City of Gladstone with the City of Milwaukie via the Interstate 205 corridor and/or the McLoughlin Boulevard corridor.
10. Consider a light rail route connecting Portland's Central City with the City of Milwaukie's Downtown via inner southeast Portland neighborhoods and, in the City of Milwaukie, the McLoughlin Boulevard corridor, and further connecting the Central City with north and inner northeast Portland neighborhoods via the Interstate 5/Interstate Avenue corridor.

Compliance with Procedural Criteria 1 and 2 is demonstrated in Section 5 of these findings. Compliance with Substantive Criteria 3 through 8 is demonstrated in Section 6 (long-term impacts) and Section 7 (short term construction impacts) of these findings. The Council finds that Criterion 9 is not relevant to this 2011 LUFO because the South/North Project already connects Clackamas Town Center with downtown Milwaukie and this amendment does not concern light rail extensions from Milwaukie to Gladstone or Oregon City. It finds that compliance with Criterion 9 has been addressed in prior South/North LUFOs, including the 2004 LUFO. Regarding Criterion 10, the Council finds that this 2011 LUFO amendment

further connects the Central City with the Kenton and Hayden Island neighborhoods in north Portland via the existing alignment along the Interstate Avenue corridor.

For all of the reasons set out in these findings, the Council finds and concludes that these 2011 LUFO amendments comply with the applicable LCDC criteria.

4. Implementation of a Land Use Final Order

4.1 Overview of Process for Selecting Mitigation Measures

LCDC Criteria 3 through 8 require the Council to identify (1) specified adverse impacts (*e.g.*, impacts to neighborhoods and natural resources) that would result as a consequence of its decisions, and (2) "measures" to reduce those impacts which potentially could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the local jurisdiction permitting processes. Consideration of appropriate measures is consistent with local comprehensive plan policies and land use regulations which recognize that development can have adverse impacts on persons and property and which seek to reduce those impacts to the extent reasonable and permitted by law.⁵

The Council's decisions selecting the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project, including their locations, are not the final steps in the process culminating with completion of construction of the South/North Project. Subsequent to or concurrent with Council actions, Final Environmental Impact Statements (FEIS) are submitted to the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). As part of that process, mitigation plans are developed addressing mitigation of adverse impacts associated with the selected rail and highway improvements for the Project. In each case, following federal approval of the FEIS, issuance of a Record of Decision and the signing of a Full Funding Grant Agreement with FTA and FHWA, the Final Design phase will begin. During Final Design, all necessary federal and state permits for project construction are obtained.

Also during Final Design, the siting of light rail and highway improvements is subject to local permitting processes. Section 8(1)(b) of House Bill 3478 directs all affected local governments and agencies to "issue the appropriate development approvals, permits, licenses and certificates necessary for the construction of the Project or project extension consistent with a land use final order." Section 8(1)(b) further allows these affected local governments to attach approval conditions to their development approvals permits, licenses and certificates. However, any such conditions must be "reasonable and necessary" and "may not, by themselves or cumulatively, prevent implementation of a land use final order." Under Section 8(3) of HB 3478, unreasonable or unnecessary conditions would include 1) measures for which there are insufficient funds within the Project budget to pay for those measures; 2) measures that would significantly delay the completion or otherwise prevent the timely implementation of the Project; and 3) measures that would significantly negatively impact Project operations. See also *TriMet v. City of Beaverton*, 132 Or App 253 (1995). A condition prevents implementation of a LUFO if its imposition would require TriMet to finance construction of the condition at the expense of improvements funded under the Full Funding Grant Agreement or to go beyond the available federal funds and local matching funds for the Project. The Council finds that these funds constitute the envelope of available funds for the Project.

⁵Section 1(17) of HB 3478 defines "measures" to include "any mitigation measures, design features, or other amenities or improvements associated with the project or project extension."

In summary, Criteria 3 through 8 require the Council to identify measures which potentially "could be imposed" later in the process as part of an approved mitigation plan under NEPA or through local permitting (if reasonable and necessary). However, the actual determination and imposition of appropriate measures occurs only through these later federal or local processes, not through this Council action. The Council finds this approach to be reasonable and appropriate, particularly given that the LUFO is not based on final design plans. Through final design, many identified adverse impacts may be avoided, and appropriate mitigation can be better determined.

4.2 Effect of Land Use Final Order on Local Comprehensive Plans and Land Use Regulations

Section 8(1)(a) of HB 3478 requires the affected cities and counties and Metro to amend their comprehensive or functional plans, including their public facility and transportation system plans and land use regulations, to the extent necessary to make them consistent with a land use final order. Section 8(2) further provides that a LUFO "shall be fully effective upon adoption."

The legal effects of these provisions are (1) to immediately authorize, as permitted uses, the light rail route, stations, lots and maintenance facilities and the highway improvements, including their locations, as identified and approved in a land use final order, and (2) to require appropriate plan and land use regulation amendments so that local land use requirements are consistent with a land use final order.⁶ However, as noted above, the uses approved in a land use final order remain subject to local imposition of reasonable and necessary approval conditions under Section 8(1)(b).

While approval of a LUFO identifies where rail and highway improvements may go and authorizes their development at these locations subject to reasonable and necessary conditions, it does not concurrently prevent other uses allowed by existing zoning. Stated another way, a LUFO is not a right-of-way preservation tool. It does not prevent development of economically feasible uses currently permitted under acknowledged plans and land use regulations. It merely adds to the list of uses permitted on the properties affected by the LUFO without eliminating other uses from that list.

Similarly, a LUFO does not require local zoning amendments to allow more intense scales of development. Instead, it requires amendments only as necessary to authorize the approved Project elements and ancillary facilities or improvements that may be required to ensure the safe and proper functioning and operation of the light rail system or other Project elements, provide Project access, improve traffic flow, circulation or safety in the Project vicinity, or mitigate adverse impacts resulting from the Project.

⁶This may require amendments to authorize the ancillary facilities and improvements for the South/North Project.

In summary, Metro Council adoption of a LUFO has the immediate effect of authorizing, on the affected properties, the light rail and highway facilities and improvements approved in the LUFO. It also identifies the affected locations for future public acquisition for rail or highway purposes. However, LUFO adoption in no way prevents or limits currently allowed uses on these properties during the interim period pending ultimate public acquisition, nor does it mandate the rezoning of areas nearby light rail stations to achieve regional growth management objectives.

5. Compliance with Procedural Criteria (1-2)

5.1 Criterion 1: Agency Coordination

"Coordinate with and provide an opportunity for Clackamas and Multnomah Counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations."

Criterion 1 ensures Metro coordination with the Tri-County Metropolitan Transportation District of Oregon (TriMet), the Oregon Department of Transportation (ODOT), and six cities and counties that are directly affected by the Project or Project Extension. Criterion 1 further requires Metro to provide these jurisdictions and agencies an opportunity to submit testimony on the light rail and highway facilities and improvements for the Project or Project Extension, including their locations.

The light rail route, station, maintenance facility and highway improvement decisions that are the subject of this LUFO amendment fall within the jurisdictional boundaries of the cities of Portland and Gresham. The Metro Council finds that the City of Portland's planning, engineering, and other technical staff, as well as staff from TriMet and ODOT, have been actively involved in the process resulting in these proposed amendments, and that TriMet staff has met with City of Gresham staff with regard to expanding the Ruby Junction Maintenance Facility.

The Council finds that Metro coordination with TriMet, ODOT, Clackamas and Multnomah Counties and the cities of Portland, Milwaukie, Gresham, Oregon City and Gladstone has occurred both through their participation on the LUFO Steering Committee to make recommendations to TriMet on a 2011 LUFO amendment (except for Gladstone) and through invitations to these local governments and agencies to submit testimony to the Metro Council on this amendment. The Council finds that on or about June 13, 2011, TriMet staff mailed Project materials (*Proposed LUFO Steering Committee Recommendation Concerning the 2011 South/North Land Use Final Order*, dated June 23, 2011) describing all aspects of the proposed Project to ODOT and to elected officials of the cities of Portland, Milwaukie, Gresham, and Oregon City, the counties of Multnomah and Clackamas, and Metro, providing them with information regarding the proposed 2011 LUFO amendments for the Columbia River Crossing Project. The Council further finds that the LUFO Steering Committee, which includes representatives from Metro, TriMet, ODOT, Clackamas and Multnomah Counties, and the cities of Portland, Milwaukie, Gresham and Oregon City, reviewed the proposed LUFO amendments and on June 23, 2011, made recommendations to TriMet on those amendments as documented in the 2011 LUFO and as provided for in Section 6(1)(a) of House Bill 3478. Also, the Council finds that ODOT separately submitted its own recommendations to TriMet as required by Section 6(1)(a).

In addition, the Metro Council finds that notice of its August 11, 2011, public hearing to consider this LUFO amendment was mailed directly to each of the above-identified local governments and agencies identified in Criterion 1, including the City of Gladstone, thus providing those local governments and agencies with the opportunity to submit testimony to the Council on the proposed LUFO amendments at that hearing.

In adopting these 2011 LUFO amendments, the Metro Council carefully considered the recommendations of the LUFO Steering Committee and ODOT and the comments of the affected jurisdictions. The Council's decision in this 2011 LUFO amendment proceeding is fully consistent with TriMet's application, which in turn is consistent with the recommendations of the LUFO Steering Committee and ODOT.

For all of these reasons, the Metro Council finds that Criterion 1 is satisfied.

5.2 Criterion 2: Citizen Participation

"Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations."

Criterion 2 ensures that the public has an opportunity to submit testimony and be heard in the process leading to the Metro Council's selection of the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project, including their locations.

On August 11, 2011, consistent with Criterion 2, the Metro Council held a public hearing and accepted public testimony on the proposed amendments to the 1998 LUFO and the 1999 LUFO. This followed public notice, which Metro published in *The Oregonian* on July 14, 2011, which is more than 14 days prior to its hearing. The Metro Council finds that *The Oregonian* is a newspaper of general circulation and that this publication of notice in *The Oregonian* meets and exceeds the requirements for notice set out in HB 3478.

In addition to the published notice, a postcard mailing announcing the hearing was mailed to people on Metro's South/North mailing list for the Columbia River Crossing Project. This list includes owners of property within 250 feet of the light rail and highway alignments and within 250 feet of the Ruby Junction Maintenance Facility boundary.

Also, announcements of the 2011 LUFO public hearing were included on Metro's website.

Further, the Metro Council finds that there has been substantial community participation in the process leading to the selection of the proposed amendments. The Metro Council takes notice of, and incorporates by reference herein, the description of the community participation process leading up to adoption of these 2011 LUFO amendments as set out in Appendix B of the Columbia River Crossing Draft Environmental Impact Statement (May 2008).

In summary, the Metro Council finds that the holding of the public hearing on August 11, 2011, satisfies the requirement of Criterion 2. It further determines and concludes that the notices provided through publication, mailings, recorded announcements and by other means were reasonably calculated to give notice to people who may be substantially affected by the Metro Council's decision on TriMet's application.

6. Compliance with Substantive Criteria (3-8) Long Term Impacts

6.1 Introduction

The Columbia River Crossing portion of the South/North Project will extend South/North LRT from the Expo Center to the Oregon/Washington state line on the Columbia River and then farther northward into Vancouver, Washington. The total length of the LRT extension is 2.9 miles, of which 1.0 mile is within the State of Oregon. Additionally, the Columbia River Crossing portion of the Project will provide two new bridge spans over the Columbia River, enhance pedestrian and bicycle travel in the area, widen and improve I-5, and substantially improve mobility on and the connectivity of the surrounding roadway network between N Victory Boulevard and the Columbia River.

This LUFO amendment affects the Hayden Island segment and a portion of the Expo Center segment of the South/North Project, as identified by the Council in the 1998 and 1999 LUFOs. For ease of analysis, those two segments are addressed as a single, consolidated segment (Expo Center/Hayden Island) in these findings.

6.2 Supporting Documentation

In addition to the findings of fact addressing the selected light rail route, stations, maintenance facilities and highway improvements for the Columbia River Crossing Section of the South/North Project, the Metro Council believes, adopts and incorporates by reference herein the facts set forth in the following documents:

- *Columbia River Crossing Draft Environmental Impact Statement (2008)
- *Preliminary Columbia River Crossing Technical Reports (including appendices) (2011):

- *Acquisitions Technical Report
- *Air Quality Technical Report
- *Archaeology Technical Report
- *Aviation Technical Report
- *Cumulative Effects Technical Report
- *Economics Technical Report
- *Ecosystems Technical Report
- *Electromagnetic Fields Technical Report
- *Energy Technical Report
- *Environmental Justice Technical Report
- *Geology and Groundwater Technical Report
- *Hazardous Materials Technical Report
- *Historic Built Environmental Technical Report
- *Indirect Effects Technical Report
- *Land Use Technical Report
- *Navigation Technical Report
- *Neighborhoods and Population Technical Report
- *Noise and Vibration Technical Report

- *Parks and Recreation Technical Report
- *Public Services Technical Report
- *TDM and TSM Technical Report
- *Traffic Technical Report
- *Transit Technical Report
- *Utilities Technical Report
- *Visual and Aesthetics Technical Report
- *Water Quality and Hydrology Technical Report
- *Wetlands and Jurisdictional Waters Technical Report
- *Stacked Transit/Highway Bridge Memorandum
- *Highway, local road and transit roll map
- *Biological Assessment for Threatened, Endangered, and Candidate Fish
- *Draft Stormwater Management Design

Additionally, the Metro Council takes official notice of the following documents:

- *Metro Regional Framework Plan and its components, including the 2040 Growth Concept Map
- *Urban Growth Management Functional Plan (codified in Metro code)
- *2035 Regional Transportation Plan (RTP) and its components, including the Regional High Capacity Transit System Plan
- *Metro Ordinance No. 10-1241B, adopting the 2035 RTP
- *City of Portland Comprehensive Plan
- *City of Portland Transportation System Plan
- *1998 South/North Land Use Final Order Findings
- *1999 South/North Land Use Final Order Findings of Fact and Conclusions of Law
- *Metro Resolution No. 11-4264, including attached exhibits

6.3 Expo Center/Hayden Island Segment: Findings and Mitigation Measures⁷

As noted in Section 2.2 of these findings, the Expo Center/Hayden Island Segment of the South/North Project includes the following facilities in Oregon:

- For light rail, the Project extends the existing MAX light rail facilities from the Expo Center Station in north Portland northward across Hayden Island to the Oregon/Washington state line on the Columbia River. The light rail transit alignment is located to the west of the alignment approved in the 1998 South/North LUFO and includes one LRT station on Hayden Island.

⁷ The 1998 South/North LUFO was supported by “general findings” addressing impacts and measures applicable to all segments of the South/North Project (Section 6.3), and by “segment-specific findings” addressing additional impacts specific to a particular segment of the Project (Section 6.4). The 1999, 2004 and 2008 LUFO amendments incorporated the “general findings” by reference while making new segment-specific findings. Because this 2011 LUFO amendment consolidates the Expo Center and Hayden Island segments into a single segment for purposes of impact analysis, the “general findings” are not incorporated by reference but rather restated herein on a criterion-by-criterion basis. In restating these general findings, the Council relies on the factual base that was established as part of the 1998 LUFO decision.

- For the highway improvements, the Project begins just south of N Victory Boulevard and extends northward to the Oregon/Washington state line on the Columbia River. The multi-modal Project includes a new bridge crossing over the Columbia River (including the LRT extension noted above), and related highway, interchange and bicycle and pedestrian improvements.

See **Figures 1.1 to 1.3** of the LUFO for the boundaries within which these light rail facilities and highway improvements will be located.

6.3.1 Criterion 3: Neighborhood Impacts

“Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process or, if reasonable and necessary, by affected local governments during the local permitting process.”

“A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.”

“B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.”

Criterion 3 requires the Council to provide for a light rail route, stations, lots, maintenance facilities and associated highway improvements, “balancing” the need to protect affected neighborhoods from identified adverse impacts with the positive benefits provided by light rail proximity and service (including the development of an efficient and compact urban form) and by an improved highway system.

The Council finds that the Columbia River Crossing Project amending the 1998 LUFO includes both light rail facilities and associated highway improvements. These improvements were identified and analyzed as Alternative 3 in the DEIS issued in 2008. After a public hearing on the DEIS on May 29, 2008 and extensive public review, a Locally Preferred Alternative (LPA) was selected. The LPA was endorsed by TriMet and ODOT and is being advanced into the Final Environmental Impact Statement as the Preferred Alternative. The Preferred Alternative includes the light rail improvements necessary and appropriate to extend

the South/North Light Rail Project into the State of Washington and the associated highway improvements, as presented in this application.

The Council finds that the Project, as set out in the LPA and the LUFO application, will be a significant transportation improvement project in which light rail, highway, bicycle and pedestrian improvements are all associated as part of an integrated, multi-modal project. The Council finds that the affected local governments and agencies involved in this Project have expressed strong interest that the Project be a joint light rail and highway project. It finds that the associated highway improvements directly and indirectly serve the light rail improvements by accommodating the alignment (e.g., new I-5 bridges, new arterial bridge over the North Portland Harbor) or providing regional and local access to the Expo Center and Hayden Island light rail stations (e.g., I-5 interchange improvements, access and circulation improvements and roadway modifications on Hayden Island and in the vicinity of the Marine Drive interchange). The Council further finds that some of the highway improvements are needed for engineering purposes to accommodate the new bridge containing the light rail alignment and the modifications to the I-5 interchanges and their approaches. And the Council finds that the light rail and highway improvements are linked together as well in federal and state proposals for funding the Project. See Metro Resolution No. 11-4264 and Exhibit A attached thereto, incorporated herein by this reference.

Description of Affected Neighborhoods in the Expo Center/Hayden Island Segment

The consolidated Expo Center/ Hayden Island segment extends north from N Marine Drive across the North Portland Harbor and Hayden Island to the Oregon/Washington state line in the Columbia River. The segment includes portions of the East Columbia, Kenton, Bridgeton and Hayden Island neighborhoods. These neighborhoods are identified and described in the Neighborhoods and Population Technical Report, incorporated herein by reference. Major public land uses in this segment include the Portland International Raceway, the Expo Center, and Delta Park.

The *East Columbia Neighborhood* is located directly east of I-5 and extends from the Columbia Slough north to Marine Drive. East Columbia contains a variety of land uses including large recreational and entertainment uses on the western and eastern boundaries of the neighborhood. One such use is East Delta Park, which is 86 acres in size. It features the Delta Sports Complex with five lighted softball fields and a synthetic soccer field. The complex also hosts additional softball fields, seven grass soccer fields, six sand volleyball courts, a playground, picnic tables, an off-leash dog area, and nature trails. The neighborhood also includes wetlands, trucking companies, and small industrial businesses. Other amenities within the East Columbia Neighborhood are Portland Meadows Race Track and Columbia Edgewater Golf Course. Between these large tracts of land are several manufactured home parks and large tracts of industrial land.

The East Columbia Neighborhood contained an estimated 2000 US Census population of 344. The percentage of African American residents is approximately twice that of the county or city, while the percentage of Hispanic or Latino residences is substantially smaller than that of the county or city. The percentage of population 65 years of age or older is one-third of the city percentage and slightly more than one-third of the county percentage.

The *Kenton Neighborhood* is located west of I-5 and extends from Lombard Avenue to North Portland Harbor. Kenton contains a wide range of uses, including residential, commercial, industrial, and recreational. Single-family residential development is concentrated south of Columbia Boulevard, with commercial and industrial uses located to its north. Multi-family residential dwellings are scattered throughout the neighborhood, but a majority are found among densely packed commercial structures along Interstate and Lombard Avenues.

The northern portion of Kenton contains multiple community resources including Portland International Raceway, Heron Lakes Golf Course, Multnomah County Fairgrounds, and the Expo Center. The large Paul Bunyan statue at the intersection of N Interstate and N Argyle Avenues, the Kenton Neighborhood Rose Garden, and the Historic Kenton Firehouse are also important cultural resources that provide identity to the community. West Delta Park and Vanport Wetlands serve as natural resources, as does Kenton Park on Brandon Avenue. There are many historic resources including the Kenton commercial historic shopping district on Denver Avenue, the historic David Cole House on N McClellan, and the historic Kenton Firehouse on Brandon Avenue.

The Kenton Neighborhood contained an estimated 2000 US Census population of 7,086. The percentage of African American residents in Kenton is more than twice that of the county or city, while the percentage of Hispanic or Latino residents is slightly higher than that of the county or city. The percentage of population 65 years of age or older is within one percent of the city percentage and county percentage.

The *Bridgeton Neighborhood* is located east of I-5 on North Portland Harbor. It is an early Portland neighborhood with cottages built between 1915 and 1930 along the Columbia River. Residential uses are concentrated at the eastern end of the neighborhood, both on land in rowhouses and detached single-family dwellings, and on the river in floating homes. Industrial uses can be found directly adjacent to I-5 around the Marine Drive interchange. There is a small commercial node at Marine Drive and I-5. Columbia High School and its adjacent playfield act as important community resources, as do the neighboring sloughs and the Columbia River, which provide recreational uses.

The Bridgeton Neighborhood contained an estimated 2000 US Census population of only 39 within the area of potential impact from the COLUMBIA RIVER CROSSING Project. The percentage of Hispanic or Latino population is lower than the county and city, while the percentage of African Americans is double that found in Multnomah County and almost double the percentage found in Portland. The percentage of population 65 years of age or older is one-third of the city percentage and slightly more than one-third of the county percentage.

While a range of uses is located in the *Hayden Island Neighborhood*, the primary use is commercial. Jantzen Beach Center, a large commercial mall, and other retail uses are located to the west of I-5. Hotels and restaurants are also located on the island. Residential uses are located in the northwestern and eastern portions of the island. The residences in the northwestern area are manufactured homes. In the eastern portion of the island the residences

are both on the land and in the river; floating homes are located on the south side of the island and along North Portland Harbor. Small marinas are located around the island.

The Hayden Island Neighborhood contained an estimated 2000 US Census population of 2,086. The percentage of minority population and proportion of households below the poverty level is lower in the neighborhood than for the county and the region. The percentage of population over 65 years of age is considerably higher than averages for the county and the region.

The LRT alignment will generally parallel the west side of I-5 through this segment, with a station located at the east end of the Jantzen Beach Center.

Identify adverse economic, social and traffic impacts on affected neighborhoods. Identify measures to reduce those impacts.

Economic, social and traffic impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section. Economic, social and traffic impacts are also described, along with corresponding mitigation measures, in the Acquisitions Technical Report, Aviation Technical Report, Economics Technical Report, Environmental Justice Technical Report, Land Use Technical Report, Navigation Technical Report, Neighborhoods and Population Technical Report, Traffic Technical Report, Transit Technical Report, and Visual and Aesthetics Technical Report.

For the purpose of these findings, long-term adverse impacts generally are grouped under one of three headings: economic, social or traffic impacts. The Council recognizes, however, that impacts often can fall under more than one heading. For example, impacts on freight movement may be relevant as both economic and traffic impacts. Displacements have both economic and social implications. Parking can be categorized as an economic, social and traffic concern. The Council intends these findings to be interpreted broadly to allow overlap among these different categories.

Although the following list is not exclusive, the Council finds that the economic, social and traffic impacts associated with the Columbia River Crossing Project fall primarily within the following categories:

Economic Impacts

- Business displacements
- Loss of parking/access
- Tax base
- Freight movement (train, truck, water and air)

Social Impacts

- Residential displacements
- Access to community facilities
- Barriers to neighborhood interaction
- Safety and security

- Visual/aesthetic

Traffic Impacts

- Transit
- Systemwide and local traffic impacts

As noted, Criterion 3 directs the Council to balance these impacts with the need for light rail and highway improvements. Before identifying the adverse economic, social and traffic impacts on the affected neighborhoods, the Council finds it useful to briefly summarize the need for the light rail and highway improvements that comprise the Columbia River Crossing Project.

Overview of Need for Light Rail and Highway Improvements in the Expo Center/Hayden Island Segment

The Council finds that the Columbia River Crossing Project seeks to address problems relating to growing travel demand and congestion; impaired freight movement; limited public transportation operation, connectivity and reliability; safety and vulnerability to incidents; substandard bicycle and pedestrian facilities; and seismic vulnerability.

1. **Growing travel demand and congestion:** Heavy congestion on I-5 in the project area is the result of growth in regional population, employment, and interstate commerce. The existing I-5 crossing provides three lanes each for northbound and southbound travel, which can accommodate approximately 5,500 vehicles per hour in each direction. However, there are more people who want to use the crossing during peak periods than the bridges can accommodate, which results in stop-and-go traffic in the mornings and afternoons. Cars entering I-5 have little room to accelerate and merge with highway traffic (short merging lanes), and cars on I-5 have no room to pull off the highway (narrow or no shoulders) when an accident occurs or when vehicles break down. These conditions make congestion worse and decrease safety. Traffic can also become congested when the bridges' lift spans are raised to allow large river vessels to navigate underneath the bridges.
2. **Impaired freight movement:** Congestion on I-5 reduces freight mobility between regional markets in Portland and Vancouver, as well as national and international (Mexico or Canada) destinations along the I-5 corridor. Freight trucks most often travel in the middle of the day to avoid congestion, but can be delayed by bridge lifts. As hours of congestion continue to increase over time, travel times for freight trucks will continue to increase—even when traveling during the off-peak hours. This increases delivery times and raises shipping costs. It also negatively affects this region's economy. Truck-hauled freight in the Portland-Vancouver metropolitan region is expected to grow more rapidly than other forms of freight movement (such as marine-hauled freight).
3. **Limited public transportation operation, connectivity, and reliability:** Congestion on I-5 reduces bus travel speeds and reliability. Local bus services currently travel between downtown Vancouver and downtown Portland. Express bus routes serve commuters by providing service directly from Clark County park-and-rides to downtown Portland. Both

of these services travel over the I-5 bridges. Bus travel times from downtown Vancouver to Hayden Island increased 50 percent between 1998 and 2005. On average, local bus travel times are from 10 to 60 percent longer during peak periods than during off-peak periods.

4. **Safety and vulnerability to incidents:** Over 300 vehicle crashes are reported annually on I-5 in the project area, making this one of the most accident-intensive sections of I-5. This high accident rate is a result of multiple highway design features that do not meet current standards, including:
 - Close interchange spacing – Within the Columbia River Crossing Project area, I-5 has six interchanges spaced approximately one-half mile apart. The recommended minimum distance between interchanges is one mile so that cars entering and exiting the highway have enough distance to fully merge with traffic or diverge to the off-ramp before the next interchange.
 - Short on- and off-ramps – Several on-ramps are not long enough for vehicles to reach highway speed before merging with highway traffic. Off-ramps are too short for safely slowing down, and during heavy traffic, these short ramps may cause exiting vehicles to back up onto I-5. This generates traffic congestion and can cause accidents because maneuvering is difficult, especially for large trucks.
 - Vertical grade changes – A “hump” in the I-5 bridges that accommodates the Columbia River shipping channel blocks the view of roadway conditions ahead. This blocked view reduces speeds and creates potential hazards to motorists.
 - Narrow lanes and shoulders – Several portions of I-5 in the project area have narrow inside and outside shoulders, while the I-5 bridges essentially have no shoulders, with less than one foot between the outside lanes and the bridges’ side barriers. The northbound I-5 bridge also has lanes one foot narrower than the minimum standard for a highway, and no shoulders. These conditions place vehicles very close to physical barriers and other vehicles, causing motorists to slow down, and do not provide space for disabled or emergency vehicles.
 - Hazardous river navigation – The U.S. Coast Guard (USCG) allows ODOT to not raise the I-5 bridges’ lift spans during peak traffic periods because of the substantial impacts this would have on bridge traffic. This requires boats heading downstream (west) to navigate using the fixed “barge channel” near the middle of the river, and then quickly turn to line up with the narrow opening on the north end of the Burlington Northern Santa Fe (BNSF) railroad bridge, located about one mile downstream. This movement is especially difficult during high river levels.
5. **Substandard bicycle and pedestrian facilities:** The bicycle and pedestrian paths on the I-5 bridges are very narrow (four feet wide in most places, decreasing to less than four feet at some locations) and extremely close to traffic and to the steel trusses. Also, the connections to these paths at both ends of the bridges are difficult to follow, especially around the Marine Drive and Hayden Island interchanges, which at times require riders to cross active roadways. Many existing non-motorized facilities cannot be used by persons

with disabilities, and thus do not comply with the Americans with Disabilities Act (ADA) accessibility standards.

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

Economic Impacts

The overall quality of the transportation system is an important factor in the viability of the local and regional economy. For decades, transit has played an important role in maintaining the level of service and operation of the overall regional transportation system, particularly because the region has made a policy commitment to invest in transit improvements rather than expanded highway capacity. But for the overall transportation network to function efficiently, including transit service, significant highway improvements are necessary at times. This is the case with I-5, which is the principal major arterial in Oregon serving statewide transportation needs, including the movement of freight.⁸

Overall, the Columbia River Crossing portion of the South/North Project will result in positive impacts in the Expo Center/Hayden Island Segment because improved transit capacity will be available to support more intensive development in the Jantzen Beach area and the highway improvements, including the new I-5 bridges, improvements to I-5 and its interchanges, and improvements to local roadways in the area, will provide greater accessibility and mobility not just for automobile and truck traffic but also for transit riders, bicyclists and pedestrians. LRT will also offer an alternative to traveling on I-5. However, the long-term benefit must be balanced by the short-term adverse economic impacts associated with the displacement of existing businesses on Hayden Island and in and near North Portland Harbor.

Business Displacements. In every instance where the South/North Project displaces an existing commercial or industrial use, that represents an adverse economic impact. Displacements affect employment, incomes, services and taxes. Even though the adverse impacts associated with displacements in the Expo Center/Hayden Island Segment may not be significant on a region-wide or citywide level, the Metro Council recognizes and is sympathetic to the significance of each displacement at the individual business and community level. The Council understands and acknowledges that relocations can cause significant anxiety and trauma not only to the company being displaced, but also to employees who work for the company.

Given that the South/North Project as a whole, including the Columbia River Project portion of the South/North Project, serves a largely developed urban area, it is impossible to avoid displacement impacts while still providing transit accessibility and highway improvements.

⁸ I-5 serves this role for Washington and California as well, as (heading north to south) the freeway extends from the Washington/British Columbia border through major northwest metropolitan centers in Seattle, Tacoma, Olympia, Portland, Salem, Eugene and Medford into northern and southern California and their major urban centers.

To the extent feasible and practicable, the LRT route has been designed to follow existing public road and railroad rights-of-way to minimize displacement impacts. Locations for related facilities such as LRT stations, park-and-ride lots and operations & maintenance facilities also have been selected with the objective of balancing displacement and other adverse impacts with the positive benefits of LRT proximity and service. Highway improvements generally have been located within or next to existing highway right-of-way to minimize displacement impacts.

Oregon Mainland. On the Oregon mainland south of Hayden Island, the Columbia River Crossing Project would displace five businesses in the Marine Drive area: a boat sales business, a boat repair business with an auxiliary boat dock, a billboard operated as a business, and two marine businesses with a total of 25 staff and approximately \$10.6 in annual sales revenues. The boat sales business and the two marine-related businesses are dependent upon a location close to the river. Finding suitable locations for boat sales, a boat dock, and the repair and marine-related businesses may be difficult because much of the Columbia River area in the vicinity of freeway access is built up for either residential or industrial/commercial use. ODOT would provide relocation assistance to displaced businesses.

Hayden Island. On Hayden Island, the Columbia River Crossing Project would displace an estimated 39 businesses on Hayden Island with a total of 643 employees and approximately \$62.7 million in annual sales revenues. The displacements include a section of restaurant and bar establishments currently between the existing freeway and N Center Drive; a restaurant and an office supply store west of N Center Drive; eateries and a cellular services store north of N Hayden Island Drive; fast food and service establishments along N Jantzen Beach Drive; two cellular arrays run as businesses both east and west of I-5; and the Safeway store east of I-5 between the existing freeway and N Jantzen Drive.

Hayden Island is a regional draw because of the numerous big box retail establishments located west of the freeway and the Jantzen Beach SuperCenter. Although the extent of displacements caused by the project is great, these regional attractors would not be directly affected. The City of Portland has, however, documented a vision for this area in the Hayden Island Plan (City of Portland, adopted August 2009). This plan assumes redevelopment of the SuperCenter property into a Regional Retail Center (called a "Lifestyle Center") with mixed use and transit-oriented residential to the south. Redevelopment of the property is of interest to its current owners, who have entered into a design process, but planning has been put on hold because of current economic conditions. Even without redevelopment of the property, the retail uses west of the freeway could be assumed to draw regional traffic in the long run.

More important from an economic standpoint is the effect of the project on island residents as customers and/or employees of displaced businesses. The majority of businesses displaced by the project serve mainly local clientele. These include a series of delis and bars west of the freeway; local fast food and sit-down restaurants; retail; and services. The project displaces one of the two banking establishments and the only grocery store on the island. ODOT would work with affected business owners to provide relocation assistance.

The Safeway Grocery Store is the only grocery store on Hayden Island since another grocery store (Zupan's) closed several years ago. The Columbia River Crossing Project may suggest replacement sites for the relocation of Safeway, but it is up to the store owners to choose their replacement location, if any. While Safeway may not relocate on the island, it could be replaced by other grocery stores. Officials representing the Jantzen Beach SuperCenter initiated a site plan review with the City of Portland for a relocation and expansion of the Target store on the island. Plans submitted to the City of Portland's Bureau of Development Review indicate that the Target store would include a grocery and a pharmacy.

Safeway officials have indicated that it would be difficult for the store to relocate to another site on Hayden Island or in the Delta Park area because of the current lack of available sites. They may be able to locate a replacement store in either the North Portland area or South Vancouver. Alternately, Safeway may choose to remodel or expand existing stores in Vancouver or Portland. Relocation of Safeway to the north would mean a permanent loss in tax revenues for the City of Portland. Relocation to either the north or south would mean required travel on I-5 or the local traffic bridge between Hayden Island and North Portland for all customers and employees currently living on the island. Added to this is that movement to another location could reduce the viability of other Safeway stores nearby. Currently there are six other Safeway stores within five miles of the store on Hayden Island. Four of these are in Vancouver and two are in Portland.

The direct impacts on Hayden Island have the potential to significantly affect wage-earning opportunities for those seeking service industry employment. According to the Oregon Employment Department, the average salaries of most food preparation and service workers within Multnomah and Washington Counties fall within the range of \$18,000 to \$23,000 per year. Wages within this range would lift all individuals and most small families above the federal poverty guidelines and therefore would not constitute an environmental justice impact.

Measures to Mitigate Displacement Impacts. The methods used to determine displacement impacts are described in the Acquisitions Technical Report. A displacement occurs if a use, such as a building or parking lot, is demolished or moved as a result of the project, or if people or a business is no longer able to occupy the building as a result of the project. Individuals or businesses that are displaced from their real or private property would be eligible to receive relocation benefits.

Where property acquisition and residential or business displacements are unavoidable, the project would provide mitigation. These mitigation measures are addressed by federal and state regulations, which require that acquired property be purchased at fair market value and that individuals living in a residence displaced by the project be provided decent, safe, and sanitary replacement housing. Displaced households and businesses would be relocated per the Uniform Relocation and Real Property Acquisitions Policies Act of 1970, as amended (Uniform Act). Under these regulations, relocation experts would:

- explain all relocation programs to the affected businesses;
- assist in preparing and filing reimbursement claims; and

- Assist in completing forms required by the lending institutions, the Small Business Administration, and others associated with the lease or purchase of new properties.

All properties required for the Columbia River Crossing Project will be acquired at fair market value for land and improvements. If only a portion of a property is required, the acquisition price will also reflect any measurable loss in value to the remaining property due to the partial acquisition. Generally, the relocation process occurs concurrently with the acquisition of affected properties. Relocation benefits vary between residential and business properties and may include payment for actual reasonable expenses of moving a business or personal property and/or other benefits, such as rent supplements, increased interest costs on replacement dwellings, reasonable search costs for new business sites, and business reestablishment costs. Relocation assistance for businesses could include moving costs, site search expenses, business reestablishment expenses, and assistance in locating a replacement business site. The specifics of relocation assistance are determined on an individual basis and are based, in part, upon ownership or tenant status.

Each acquiring agency (TriMet or ODOT) has an established advisory services program to ensure that displaced businesses or persons receive adequate assistance in relocating to a new business site or to decent, safe, and sanitary housing, respectively, with a minimum of hardship. For displaced businesses, such services could include the hiring of an outside specialist to assist in planning the move, making the move, and reinstalling machinery and other personal property. For displaced residents, these advisory services could include supplying information concerning federal and state programs that offer assistance to displaced persons and technical help in applying for such assistance or providing transportation to displaced persons to search for or view replacement housing. These programs work to ensure that the acquiring agency takes advantage of all financial and personal resources available during the relocation process.

The displacement of publicly owned facilities, such as the ODOT permit center, could be mitigated by functionally replacing the property acquired with another facility that would provide equivalent utility. Alternately, such facilities could be provided relocation assistance in a similar fashion as displaced businesses.

In some instances there may be opportunities for minor design modifications to avoid or reduce business displacement impacts. During the preliminary and final engineering processes, engineering staff will try to minimize displacement impacts to the extent practicable through design refinements.

Although there are multiple vacant buildings on the island, including several in and around the Jantzen Beach SuperCenter, the island is limited in its capacity to provide appropriate replacement sites for the 39 businesses that would be displaced by the Project. As a result, many of these businesses may have to relocate outside the main project area. According to the Hayden Island Plan, there are plans to redevelop a portion of the Jantzen Beach SuperCenter site into a high-density mixed-use transit-oriented development supported by the new light rail station. This redevelopment would include new commercial space that could house existing businesses and attract new ones to the island. It is not known when this

redevelopment would occur, and therefore it is not known whether businesses displaced by the Project could be directly relocated to the newly constructed space.

Several measures are potentially available to mitigate for the loss of service industry jobs on Hayden Island. Many large public projects in the region set goals for hiring local contractors, utilizing apprenticeships, and otherwise cooperating with job training programs. The City of Portland has requirements for City projects that pertain to both of these measures as well as the hiring of minority, women-owned, emerging, and disadvantaged businesses. The project could adopt similar goals for construction contracting. The project could include innovative requirements in its construction contracting and contractor selection, with the intent of providing job training and a preference for local services.

Workforce practices can be used to provide experience and business for disadvantaged workers and companies. For instance, apprentices could be used for a percentage of labor during construction. Alternatively, the project could set a goal for the percentage of construction dollars contracted to DBE firms with a focus on those in within the project area.

Lastly, the project could work with TriMet to maintain the existing bus service that regularly connects Hayden Island with nearby grocery and other retail services. This may include additional routing on the island to provide greater transit access during construction. The project could also work with TriMet to maintain paratransit service for qualifying, mobility impaired Hayden Island residents.

The provision of a light rail station, the completion of Tomahawk Drive, the improved I-5 access and capacity of the Hayden Island interchange, and the addition of direct local access on a new local multimodal bridge would provide beneficial land use and economic impacts and would all contribute to the viability and success of the redevelopment plans for the island and mitigate for the business displacements on the island. Additional beneficial effects would result in improvements in the local street network consistent with the Hayden Island Plan.

Loss of Parking/Access. The loss of parking, and loss or change of access can have adverse economic impacts on businesses. If the project must remove an existing access, and if that access cannot be safely and adequately relocated or reconfigured, then the entire business is assumed to be displaced. Even if alternative access is available, it may not be as convenient as the existing access and could result in some loss of business.

Oregon Mainland. On the Oregon mainland there would not be impacts to on-street parking. However, the Expo Center parking lot would be reduced by 280 parking spaces, a reduction of 13 percent of the total parking. This area would be used for landscaping and the realignment of both Marine Drive and the new Expo Center Drive. The Expo Center seldom requires the use of all 2,100 parking stalls and any impacts that could be observed during peak events would likely be offset by the new light rail transit service provided connecting the Expo Center with Vancouver.

The realignment of Marine Drive and the new Expo Center Drive would eliminate parking spaces in a parking lot located on ODOT land, which is currently leased by Diversified Marine for equipment storage. Currently there are approximately 20 unstriped parking spaces

in this parking lot. There is potential for identifying new space on the lessee's property or along property remainders for vehicle storage.

Two existing freight and truck storage businesses would experience impacts to their parcels from construction of the Delta Park to Vancouver Way connection over Martin Luther King Jr. Boulevard, and a connection between Martin Luther King Jr. Boulevard and N Haney Drive via Vancouver Way. These new connections could require relocation of existing access for both parcels. This portion of the Columbia River Crossing Project would reduce the parking capacity on the truck storage parcel south of Vancouver Way by approximately 55 to 60 vehicles, out of a total capacity of around 200 vehicles. Typical utilization is approximately 80 percent. This limits the number of vehicles able to park in the lot and could impact the viability of business at this location. The new roadway alignment bisects the existing storage lot, requiring a new access to be added for the northeastern segment cut off by the new road connecting to Marine Drive. The truck storage and distribution business north of Vancouver Way would lose approximately 50 truck parking spots, out of a total capacity of approximately 400 total spaces. The business could also lose some employee parking in one lot, though there is adequate room to relocate the displaced parking. Additionally, two fuel storage tanks and a refueling area located on the parcel would need to be relocated, potentially impacting existing parking configuration and reducing the number of available parking spaces.

The roadway realignments and extensions in the vicinity of the Marine Drive interchange associated with the Columbia River Crossing Project would improve access and circulation overall, with specific benefit for commercial vehicles accessing the freeway from Marine Drive. The realignment of Marine Drive would still provide circulation to I-5, Vancouver Way, and Martin Luther King Jr. Boulevard. Accessing the existing area of Marine Drive northeast of I-5 would require a minimum level of out-of-direction travel, but access would remain with the development of a new underpass that crosses through Werner Enterprise to Vancouver Way and on to Marine Drive.

A tire business would need to relocate its main entrance off of Vancouver Way to an existing access from N Haney Drive. A freight storage business south of Vancouver Way would need to relocate its entrance between N Haney Drive and the new connection to Marine Drive. Access would be kept open for the manufacturing facilities north of Marine Drive and west of I-5; however a local road would be constructed to preserve access to two businesses. The new Anchor Way extension under I-5 would allow traffic to circulate back onto the major roadways east of I-5 and would provide improved access to the west of I-5 for the businesses along this roadway.

The local traffic bridge connection between North Portland and Hayden Island would provide one lane in each direction over the North Portland Harbor, allowing residents and those accessing Hayden Island from the Oregon mainland an additional access option between the two areas, creating a local connection that currently does not exist. Local traffic near the arterial bridge and the Anchor Way extension could increase as drivers have the option to avoid the highway.

An aggregate gravel business's access and circulation would be modified. The access to the site would be via a driveway from the Anchor Way connection under I-5. Currently vehicles accessing I-5 from the site turn left directly onto Marine Drive. With the Columbia River Crossing Project, traffic accessing I-5 north from the site would go south on the new access road, travel along the east side of the Expo Center parking lot, would turn right on Expo Road and right again on N Force Avenue, and would finally turn right on Marine Drive, accessing I-5 via the SPUI (phased highway option) or the flyover in the Full Build option. This is illustrated in Exhibit 4-5 of the *Economics Technical Report*.

The option of constructing the Bridgeton Trail between Marine Drive and the Columbia River would require a partial acquisition of multiple industrial parcels though no displacements would occur, and no economic impacts are anticipated. Design of the trail would need to consider the potentially conflicting users of freight and recreational bicyclists and pedestrians. Internal circulation within the aggregate gravel business is currently difficult. Some backing of vehicles onto Marine Drive is needed to access certain areas of the site. Left turns are currently allowed onto Marine Drive directly from the business but can be difficult when traffic flows are heavy.

Hayden Island. There is currently no on-street parking on Hayden Island. However, parking lot impacts would be experienced for the following properties adjacent to I-5: Large hotel on N Hayden Island Drive (10 stalls removed of approximately 700); Hotel on N Jantzen Drive (8 stalls of 185); parking lot for floating homes (40 stalls of 200), Jantzen Beach SuperCenter (175 stalls of 1300+). The Jantzen Beach SuperCenter parking lot would have 175 spots permanently removed, but because of the high number of overall parking spaces in the area, the effect of this change would be small – a sufficient supply of parking would remain at the SuperCenter to serve anticipated future need most of the year, and the addition of light rail transit adjacent to the SuperCenter would help offset the small reduction in on-site parking.

Overall, access to Hayden Island would be improved by the Project. The extension of the Yellow MAX Line would provide direct transit service for residents, employees, and customers between the island and both downtown Portland and Vancouver. The two-lane local traffic bridge between Hayden Island and North Portland would also provide an off-highway option for travelers between the island and mainland Oregon. The Project includes widening two east-west local streets, extending N Tomahawk Drive under I-5, and widening N Jantzen Drive. Subsequent plans for the Jantzen Beach Super Center include rearranging the buildings around an extension of N Tomahawk Drive and the development of a new road connecting N Jantzen Drive to N Hayden Island Drive.

The widened N Jantzen Drive between the underpass with I-5 and N Hayden Island Drive to the north would acquire all the existing properties except for a fast food restaurant on the west and the hotel on the east side of N Jantzen Drive. The Project would restrict access to both the hotel and the restaurant to right-in/right-out only movements. The hotel and restaurant along N Jantzen Beach Drive could experience circulation impacts, because the entrances and areas adjacent to the road are currently the primary access and circulation for the businesses. The expansion of the sidewalk along N Jantzen Drive to the east would require reconstruction of

the guest canopy and load/unload area currently facing the street. This is the primary entrance for guests to the hotel, and alterations to the canopy could impact business operations. Access to the large hotel along N Hayden Island Drive would be reduced from three points to one new access opposite the widened N Jantzen Drive. This entrance would also serve banquet services and restaurants located on the property. All four businesses could experience slightly impaired circulation in the parking lot and increased congestion at the entrance. However, the design for N Jantzen Drive extends into the parking lot of the hotel, and could cause internal circulation issues, as the guest loading/unloading canopies and the principal entrance to the hotels would be difficult to maintain with the extension of the street.

The Columbia River Crossing Project team has coordinated with the City of Portland Office of Transportation, Bureau of Planning, the Portland Development Commission, and business owners on Hayden Island (through the development of the Hayden Island Plan and an Interchange Area Management Plan for the I-5/Hayden Island Interchange), to identify an adequate local circulation system, access spacing, and land use policies to manage demand on the interchange.

Although portions of parking lots near the Hayden Island Station could potentially be used as a de facto park-and-ride, the availability of 2900 park-and-ride spaces in Vancouver, Washington should minimize this likelihood. Because there will be a toll for vehicles to cross the bridge, the Council believes and finds that most Washington commuters travelling by light rail would park in Vancouver rather than at Jantzen Beach.

To mitigate for the adverse economic effects of the project, Interchange Area Management Plans (IAMPs) for the Hayden Island and Marine Drive interchanges are currently being developed in coordination with the City of Portland, ODOT, and other stakeholders. These efforts are building off the adopted Hayden Island Plan and the work of the Marine Drive Stakeholders Group. The IAMPs will provide a framework for access management and local circulation decisions in the context of these interchanges.

An Interstate Access Modification Request (IAMR) for the Hayden Island, Marine Drive, and Victory/Denver interchanges is also in preparation. The IAMR is a stand-alone document that includes the necessary supporting information needed for access modification requests to the Interstate System. An IAMR provides the rationale for access modifications to the Interstate System and documents the assumptions and design of the preferred alternative, the planning process, the evaluation of alternatives considered, and the coordination that supports and justifies the request for an access revision.

Tax Base. Local jurisdiction tax bases are affected in two ways by the development of large public infrastructure projects such as South/North light rail. First, and by far the greatest long-term impact, is the development and redevelopment that could occur in conjunction with the project. As this development occurs, the value of the investments are added to the tax base. The effect of this kind of impact is difficult to estimate because it is dependent upon many independent private decisions that would occur in the future. However, the Council finds that the overall impact should be positive.

The second type of impact is the direct impact to tax bases that occurs through property acquisition for construction of the project. Private property is typically acquired by the Project. Through acquisition, this property converts to public property and, as such, is removed from the tax rolls unless resold for private purchase. Often, the short term impacts are minimal, as the loss in value in the tax rolls are offset over time by the expected greater increase in value added to the tax base due to new development in the corridor, specifically in station areas.

As shown below, the Columbia River Crossing Project will have a negative economic impact on the tax base through the displacement of business uses from the tax rolls. However, the Council finds that tax base impacts associated with displacement may be shorter-term because the availability of light rail and highway improvements is expected to spur redevelopment of the commercial area around the Hayden Island Station and could enhance property values and the tax base on a long-term basis.

Oregon Mainland. The five businesses displaced have an estimated right-of-way value of \$4.1 million, a property tax impact of \$27,000, which is 0.01% of Multnomah County budgeted 2008 property tax revenue.

Hayden Island. The 39 businesses to be displaced have an estimated right-of-way value of \$33.3 million, a property tax impact of \$219,000, which is 0.10% of Multnomah County budgeted 2008 property tax revenue.

Freight Movement. The area encompassed by the South/North Corridor is of critical importance to the movement of commodities within and through the Portland metropolitan area. The freight movement system in the South/North Corridor is comprised of two primary transportation modes: freight railroads and trucking. Additionally, along the Columbia River, the movement of commodities also relies on water freight movement and air transportation.

There are no rail lines crossed by LRT or the highway improvements in the Oregon portion of the Expo Center/Hayden Island Segment, so there will be no impact on *rail freight movement*.

Truck traffic relies heavily on the major streets and highways in the South/North Corridor and the region, including I-5. The Project is expected to improve traffic conditions in the corridor compared to No-Build and therefore will improve conditions for truck traffic, as addressed in the *Traffic Technical Report*. Daily truck travel demand would be similar for the No-Build and the Project because the movement of freight is substantially related to economic conditions in the region, and freight moved by trucks is not likely to shift travel modes due to congestion. However, truck demands by time of day would likely change because there would be fewer congested hours with the Columbia River Crossing Project, resulting in more trucks during the commuter peak and midday hours.

The Project would result in higher volumes of trucks during midday operations compared to the No-Build Alternative. The reduction in congestion and truck travel occurring throughout the day would mean more flexibility in truck scheduling and improved reliability of truck

shipments. Exhibit 7-10 of the Traffic Technical Report summarizes truck volumes by time of day.

Adverse impacts to truck movements in the South/North Corridor include both potential delays due to increased congestion or out-of-direction travel associated with light rail, and the possible loss of on-street loading zones. Localized delays to peak-period truck activity could occur due to increased congestion that would result from reductions in roadway/intersection capacity associated with light rail operations. However, the overall improvement to traffic conditions in the corridor mitigates the localized delays that would occur from light rail.

The roadway realignments and extensions in the vicinity of the Marine Drive interchange associated with the Project would improve access and circulation overall, with specific benefit for commercial vehicles accessing the freeway from Marine Drive. The realignment of Marine Drive would still provide circulation to I-5, Vancouver Way, and Martin Luther King Jr. Boulevard. Accessing the existing area of Marine Drive northeast of I-5 would require a minimum level of out of direction travel, but access would remain with the development of a new underpass that crosses under I-5 to Vancouver Way and on to Marine Drive

The Council finds that the project would improve truck traffic through better local intersection operations and fewer hours of congestion on I-5 compared to the No-Build alternative.

Segments of two navigable waterways are located within the South/North Corridor: the North Portland Harbor and the main Columbia River channel. The United States Coast Guard (USCG) has jurisdiction over navigation within these waterways, and construction of a bridge across these waterways will require the USCG's approval of a bridge permit under Section 9 of the Rivers and Harbors Act of 1899 and the General Bridges Act of 1946, as amended.

The CRC project would have a positive effect on marine commerce on the Columbia River. The existing I-5 bridge structures each have nine piers which result in navigation "channels" between the piers. Three such channels are used for navigation:

- A wide span with approximately 60 feet of mid-span vertical clearance;
- A high span with approximately 70 feet of mid-span vertical clearance; and
- A lift span with approximately 40 feet of mid-span vertical clearance when closed and 180 feet when open.

The wide span is the main channel used for navigation, but during high-water many barges need to use the high span, or require bridge lifts at the lift span. In 2004, there were 604 bridge openings. The proposed I-5 bridges would be high enough to allow the vast majority of vessels to pass without bridge openings. With the exception of a small number of specialized vessels that use the river infrequently, the majority of vessels require vertical clearances of less than 90 feet from the surface of the water to the bottom of the bridge deck. The project team, in consultation with the Coast Guard, established a 95-foot minimum vertical clearance for structures built without a lift span. Vertical clearances greater than 95 feet would raise the bridge structure into restricted airspace for flight navigation. The 95-foot clearance with the LPA will be fixed, not subject to lift restrictions, and accommodate all recreational and commercial vessels. Infrequent trips of marine contractor's cranes will not be accommodated.

Their cranes or cargo may be broken down, at a cost, to meet proposed clearances. Reduced clearances resulting from the project will be mitigated by significantly improved navigational safety.

Currently, bridge openings are restricted to non-peak roadway commute hours. Thus, the new spans would provide more flexibility in operating schedules for marine commerce. The new spans would also eliminate some of the "S-Curve" marine movements currently required for marine traffic to pass under the highway and railroad bridge structures at their highest elevation.

Six piers would support the bridge structures, which is three fewer than exist on the current bridges, thus widening the horizontal clearance of navigation channels. The bridge span length would be 465 feet, with 390 feet of clearance for marine travel between the pile caps, which would be an increase over the width of the "main channel" by 127 feet and a decrease of the "barge channel" width by 121 feet. The current main channel width is 263 feet, and the barge channel has a horizontal clearance of 511 feet. The longer span lengths in the main channel would provide more room for boat captains to maneuver between the piers and improve the inherent safety of marine navigation.

The North Portland Harbor does not include a designated shipping channel, and is largely travelled by recreational boaters and those accessing the water-oriented uses along the Harbor. All of the new structures would have at least as much vertical clearance over the river as the existing North Portland Harbor bridge.

The Council finds that the project will improve marine navigation due to the removal of the "S-Curve" maneuver that currently exists, the removal of bridge lifts and associated restrictions, and the reduction in the number of piers in the river.

Two airports are located near the Columbia River Crossing Project area. Portland International Airport (PDX) is located about three miles southeast of the project on the Oregon side of the Columbia River. It is the major regional airport and serves large commercial passenger and freight service, private aircraft, and the Air National Guard. Planned expansions include both potential runway extensions and the addition of a new runway.

Pearson Field is located directly east of the project on the Washington side of the Columbia River. It serves primarily small piston-engine aircraft weighing 10,000 pounds or less. Because developed urban uses and the Vancouver National Historic Reserve (VNHR) surround it, there are no plans to expand facilities or operations at this airfield.

The lift towers of the existing bridge currently intrude 98 vertical feet into protected airspace for Pearson Field and are an aviation hazard. To avoid the towers, aircraft must use special departure and arrival procedures. The new bridge designs will not include lift towers. The bridges would be located slightly farther from the airfield, and so would intrude less into Pearson Field airspace.

The Council finds that the project will improve aviation safety and efficiency due to the removal of lift spans in Pearson Field's airspace. At worst, the project will have no negative impact to air freight.

Other Economic Impacts. Other economic impacts include the disruption of business during construction, possible loss of property values, possible inability to sell a business or secure loans to pay off mortgages or other business debts due to proximity to the light rail alignment or related light rail facilities, and utility relocations. Construction impacts are addressed in the Short-Term Impacts portion of these findings. The Council finds that generally, there is no required mitigation for temporary economic loss or business interruption during construction of a public project. However, for this specific project, the Council finds that TriMet would be willing to provide staff assistance to impacted property owners in assisting the property owners with their loan refinancing and/or loan application processes. Programs to help businesses affected during construction would include some combination of the following: business planning assistance, marketing and retail consulting, and promotions to generate patronage in construction areas. These programs would be provided by TriMet; similar programs have been employed on recent light rail extension projects. The Council also finds that there may be reductions in property values, but it believes and finds that most of these properties will increase in value over the long term following construction. The Council finds that no mitigation is necessary for possible temporary reductions in property value.

The project will require relocation of certain utility facilities and lines. Utility relocations typically are addressed during preliminary engineering and final design. The Council finds that the costs of relocating utilities impacted by the project are addressed, and can be paid, as provided in existing law.

For some, bridge tolling may constitute an adverse economic impact. Tolling of interstate facilities must be consistent with Title 23 U.S.C. Section 129, the federal law that specifies the circumstances under which interstate facilities may be tolled. The CRC Project qualifies, though tolling on I-205 does not. The Council finds that at this point that tolling will be necessary both to manage congestion and as part of a funding package for the CRC Project along with federal and state funding. It also finds that tolling would likely be beneficial for freight-dependent businesses and businesses that rely on just-in-time deliveries, because the predictability of travel times would improve. However, the greater the toll, the higher the operating costs for truck movements. For other kinds of businesses, tolling will be an additional expense. However, timesavings associated with improved mobility on I-5 will help mitigate that impact.

Concerns have been raised that tolling the I-5 bridge could divert traffic onto the I-205 bridge, increasing congestion and causing added delays on that bridge and its approaches from I-84 and I-205. The Tolling Study Report, released in January 2010, indicates and the Council finds that at the Columbia River, there is an approximate 4.5% shift of auto trips on an all day basis from I-5 to I-205 as compared to a Build-No Toll scenario. More diversion to I-205 is predicted in the off-peak hours when capacity is available than during peak hours. On I-205 south of I-84, the models estimate that diversion will be approximately 1% on an all day basis as compared to the no-build.

While the Tolling Study found, under most of the I-5 only toll scenarios, that the majority of drivers would not change their travel patterns and that most diversion would occur in off-peak hours, the Council finds that the full extent of diversion onto I-205 and associated impacts from tolling on I-5 are not fully known at this time. This will require additional study and analysis as the Project advances. In particular, more refined analysis of traffic demand and patterns will be developed prior to setting the toll rates, and tracking of travel demand and patterns after completion of the Project will allow for adjustment over time. In addition to adjusting the toll rates over time, there will also be adjustments as appropriate to transit service and fares and demand management programs such as incentives for carpooling and vanpooling. These adjustments will mitigate the effects of tolling on travel patterns.

The Council heard testimony questioning the adequacy of the models used to forecast toll traffic and revenues. While the Council recognizes the importance of funding for this Project, it finds that the LUFO process under HB 3478 is a land use decision-making process established to address land use impacts and provide land use authorization for the Project. See HB 3478, Sections 3, 4, 6(1), 7. It finds that the criteria established by LCDC are criteria established for making land use decisions. It further finds that the LUFO process and the LCDC criteria do not address how a project gets paid for and that project funding is not a land use issue.⁹ The Council understands that in order to be eligible to obtain federal funding, it must demonstrate that the Project is consistent with land use requirements. These findings demonstrate such compliance.

As explained in the social impact findings below, the Project may affect localized access to properties by police, fire and ambulance vehicles. However, the project should not otherwise increase these governmental services. The Council has seen no evidence to this effect, and it finds that any significant increase in police, fire or emergency medical services as a result of the project is speculative. The Council concludes that no mitigation is necessary in this regard.

Conclusions on Economic Impacts

While the Council is sensitive to the displacement of businesses and loss of existing jobs associated with the Columbia River Crossing Project, the Council finds that, on balance, the Columbia River Crossing Project will result in positive economic impacts in the East Columbia, Kenton, Bridgeton and Hayden Island neighborhoods, particularly because the extension of light rail transit to Hayden Island and northward into Vancouver, Washington will further support commercial development at the Jantzen Beach Center and because highway improvements, including new I-5 bridges with greater capacity, improved I-5 interchanges at Hayden Island, Marine Drive and Victory Boulevard, and better roadway connections to I-5 and between Hayden Island and N Marine Drive will improve access and circulation for companies and businesses in the area. Furthermore, the improvements to I-5

⁹ Although the provisions in OAR Chapter 660 do not apply, the Council understands that provisions addressing the timing and financing of transportation improvements are not considered to be land use decisions. See, e.g., OAR 660-012-0040(5).

will substantially reduce delay and improve the movement of freight between Oregon and Washington, improve navigation along the Columbia River, and remove hazards to air navigation associated with the existing I-5 Interstate Bridge lift towers.

The Council also finds that the Project would result in short-term economic benefits with the increase in employment resulting from the construction of the LRT facilities and highway improvements in the Expo Center/Hayden Island segment. The Council finds that there will be a short-term decrease in the tax base due to business displacements. However, the availability of light rail is expected to spur redevelopment of the commercial area around the Hayden Island Station and could enhance property values and the tax base on a long-term basis.

Based on information in the Columbia River Crossing technical reports, the Council finds that adverse economic impacts associated with light rail transit and highway improvements can be mitigated through a variety of means, including relocation assistance programs for displaced businesses and coordination with local jurisdictions and stakeholders. The Council finds that the bridge has been designed to avoid any need for bridge raising or lowering to accommodate river traffic on the Columbia River, and also designed to avoid interference with air navigation using Portland International Airport or Pearson Field Airport in Vancouver.

Tolling issues have yet to be fully resolved and could impact larger portions of the region than just the I-5 corridor. Coordination between the states and regionally among the affected South/North Project local governments could help lead to a more generally accepted resolution of this concern.

Social Impacts

The Council finds that the social impacts of the South/North Project are generally positive in the Expo Center/Hayden Island Segment. Light rail will provide quicker, more reliable and more comfortable transit access to the substantial commercial and employment base at the Jantzen Beach commercial center and to residents of Hayden Island. The highway improvements will improve access and circulation on I-5 and local roads in the area, improving safety, reducing congestion, and increasing mobility of motorists, freight traffic, bicyclists, and pedestrians along the I-5 corridor.

Residential Displacements. As with business displacements, the Council recognizes that in every instance where the South/North Project displaces an existing household, that represents an adverse social impact, and the Council is sympathetic to the significance of each residential displacement. The Council understands and acknowledges that relocations can cause significant anxiety and trauma to families, uprooting them from neighborhoods, schools and friends and imposing change on them.

Given that the South/North Project serves a largely developed urban area, it has been impossible to avoid residential displacement impacts while still providing transit accessibility. To the extent feasible and practicable, the LRT route follows existing public road and railroad rights-of-way to minimize displacement impacts. Locations for related facilities such as LRT stations and park-and-ride lots have also been selected with the objective of balancing

displacement and other adverse impacts with the positive benefits of LRT proximity and service.

The methods used to determine displacement impacts are described in the Acquisition Technical Report and in the discussion of economic impacts above. The same methods applicable to business displacements are relevant to determination of residential displacement impacts and are incorporated by reference. Additionally for residential displacements, federal and state guidelines determine the standards and procedures for providing replacement housing, based on the characteristics of individual households. Eligibility for relocation benefits would be determined after the issuance of the NEPA Record of Decision (ROD) and once the project is granted approval to begin right-of-way acquisition. Relocation assistance could include replacement housing for displaced persons, moving costs, and assistance in locating replacement housing.

Oregon Mainland. Impacts summarized in this section include those between the southern terminus of the project at Victory Boulevard and the south shore of North Portland Harbor. Most of the permanent property impacts in this portion of the project area are due to the highway portion of project, specifically, the realignment of Marine Drive and the addition of local street connections near the Marine Drive interchange.

The transit alignment over North Portland Harbor would result in the displacement of one floating home associated with the parcel adjacent to and west of I-5. The remaining portion of this parcel, not impacted by transit, would be permanently acquired for the highway alignment, which would displace a single-family home with two households on land and two additional floating homes in the harbor. A total of five households would be displaced in this portion of the project area.

Hayden Island. Impacts summarized in this section include those on Hayden Island and associated portions of North Portland Harbor. The permanent acquisition of property would be required in this area to accommodate the reconstruction of the Hayden Island interchange and the extension of light rail over Hayden Island.

The project would have 32 residential displacements on Hayden Island. Twelve of the 32 residential displacements on Hayden Island would be from Row 9 of the Columbia Crossings Jantzen Bay moorage in North Portland Harbor east of I-5. Two of the homes were identified by survey as also containing businesses that would be displaced, as would an additional floating home in this moorage that is used solely for a business. These business displacements are included in the business displacement section of this document. The remaining 20 residential displacements on Hayden Island would occur at rows A, B, and the east side of row C in the Jantzen Beach Moorage, Inc. located in North Portland Harbor west of I-5.

Mitigation of residential displacements could include minor redesign of the project during preliminary and final engineering to avoid or reduce displacements. Some displacements could be mitigated by taking only a portion of the property and/or structure and by modifying the remaining property and/or structure to allow continued occupancy. Where displacements are unavoidable, the project will provide compensation to property owners based on fair

market value and a comprehensive relocation program. The compensation/relocation program for residential properties operates in the same manner as described above for business relocations.

It has been FHWA's and FTA's long-standing policy to actively ensure nondiscrimination under Title VI of the Civil Rights Act. Title VI-related impacts include those impacts which are specific to a protected population under the 1964 Civil Rights Act. Under Title VI and related statutes, each federal agency is required to ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion. Some of these populations (such as the elderly) are not covered by EO 12898, which specifically addresses disproportionately high and adverse effects to minorities and low-income populations.

The Council finds that for the Expo Center/Hayden Island Segments, the data on residential displacements does not suggest disproportionate or discriminatory impacts to environmental justice populations.

Access to Community Facilities. The Columbia River Crossing portion of the South/North Project will improve mobility for Hayden Island residents to travel to and from community facilities and employment centers outside their neighborhood. This is a particular benefit given the absence of other convenient travel options besides the automobile. The Hayden Island Station will improve transit access to the substantial concentration of jobs and commercial services at the Jantzen Beach Center. It will also provide improved transit accessibility and links for Hayden Island residents to local and regional employment centers, community facilities and recreational destinations along the South/North and East/West MAX lines, including employment centers and community facilities in the downtown areas of Portland, Milwaukie, Gresham, Beaverton and Hillsboro. The highway improvements will improve local access and circulation in the area and improve mobility along I-5.

Construction of the Project would displace the Safeway grocery store and pharmacy, which are the only grocery store and pharmacy on the island and are important community resources. While ODOT can suggest replacement sites for the relocation of Safeway, it is up to the store owners to choose their replacement location, if any. While Safeway may not relocate on the island, it could be replaced by other grocery stores. Officials representing the Jantzen Beach SuperCenter initiated a site plan review with the City of Portland for a relocation and expansion of the Target store on the island. Plans submitted to the City of Portland's Bureau of Development Review indicate that the Target store would include a grocery and a pharmacy. During construction, the project would work with TriMet to maintain the existing bus service that regularly connects Hayden Island with nearby grocery and other retail services. This would include additional routing on the island to provide greater transit access during construction. DOTs would also work with TriMet to maintain paratransit service for qualifying, mobility-impaired Hayden Island residents.

Displacement of the Safeway grocery store and pharmacy may disproportionately impact low-income residents who use these services and do not own cars. This impact would be mitigated by the addition of light rail to Oregon and Vancouver.

The displacement of the Safeway store would also displace an extremely active bottle return center. The store managers report over \$10,000 each week paid out through the returns. Although it limits each patron to only \$7.20 in returns per day, this bottle return center provides an opportunity for individuals to generate income. There are other locations where bottles can be returned on the island and in north Portland. Many of these smaller establishments (such as convenience marts) also enforce limits on the number of bottle returns per visit. However, as long as these businesses continue to operate and proper access to them is maintained, displacement of the return center at Safeway would not result in a high degree of impact.

To mitigate for the displacement of the Safeway bottle return center, the project could provide some written and posted guidance before the closure of the Safeway return center. The guidance would provide community members with alternate bottle-return locations, and directions for getting to these locations. In the event that there would be no other return center on the island, the project could work with an appropriate business site to provide this service.

Barriers to Neighborhood Interaction. The Council finds that the LRT alignment will not result in barriers to neighborhood interaction, primarily because the alignment in large measure parallels the I-5 freeway that already functions as an edge and boundary to the local neighborhoods. Similarly, the Council finds that the highway improvements generally improve existing roadways that either already create barriers to neighborhood interaction (e.g., I-5) or provide convenient access and circulation within and between the affected neighborhoods. The bicycle and pedestrian lanes on the new northbound I-5 bridge will improve interaction between north Portland and Vancouver, Washington neighborhoods.

Safety and Security. The Council is sensitive to the importance of safety and security in neighborhoods affected in particular by the light rail components of the South/North Project. For the South/North Project as a whole to succeed, passengers must feel safe using the stations and trains. The Council finds that with appropriate location and design, and with implementation of system-wide transit security measures as described below, safety and security would not be adversely affected by any of the LRT stations or park-and-ride facilities.

The extension of light rail north from its existing terminus at the Expo Center would cross several intersections at grade. Train frequency in the peak periods is estimated to have 7.5-minute headways with greater headways during off-peak periods. Positive traffic control such as signalization, signage and pedestrian treatments would be used to enhance the safety of other vehicles, pedestrians and bicyclists traveling near light rail vehicles. Transit security on vehicles and at stations and park and ride lots would also be addressed during the design, construction, and operational phases of the project. Examples of safety and security measures which may be designed into the project include:

- Physical barriers such as medians, fencing, landscaping, or chain and bollard (short, vertical posts) to help channel automobiles, pedestrians and bicyclists
- Signage, tactile pavers, audio warnings, and pavement markings at track crossings to alert individuals they are approaching tracks

- Active treatments such as flashing lights, bells, and illuminated and audible warning devices in traffic signals
- The creation of inviting, well-lighted platforms and station areas
- Maintaining clear sight lines for oncoming trains
- Implementing a public safety education campaign before the start of rail service

TriMet has adopted a system-wide Transit Security Plan that applies community policing techniques to transit security. Elements of the Transit Security Plan that will be incorporated into the design and operation of the light rail line serving the Expo Center/Hayden Island Segments include: increased in-house training of transit district employees in crime prevention; a high level of coordination with local law enforcement agencies and personnel; improved facility design and operation standards to increase visibility and security enforcement levels, and investment in new tracking and surveillance technology.

The Council further finds that security lighting will be provided at station platforms and that landscape design will ensure consideration of safety and security. Additional potential mitigation measures include emergency call boxes and monitoring/surveillance cameras.

Strategies such as crime prevention through environmental design (CPTED) and the use of police, private security patrols, and security cameras could be employed as appropriate to make the light rail facilities as safe and secure as possible. The existing policies and procedures developed by TriMet and FTA for operations during a potential catastrophic event and to prevent terrorist activities would be expanded to include the Columbia River Crossing Project. Finally, design criteria such as platform location and length, pedestrian crossings, and alignment design would be used to ensure that the project operates safely.

Localized access to properties by fire, police and ambulance vehicles could be affected by changes in local street configurations throughout the corridor. The current level of design reflects consideration of access by emergency vehicles (e.g., street and bike path dimensions, proximity to emergency facilities, primary access routes for emergency vehicles, etc.)

The Council finds that, with appropriate design and implementation of systemwide transit security measures identified above, safety and security will not be adversely affected by the LRT station in the Expo Center/Hayden Island Segment. The Hayden Island Station will be elevated to the level of I-5. The final design of the LRT station will include careful consideration of security concerns. Security lighting and landscape design will ensure consideration of safety and security.

Visual/Aesthetic. The Columbia River Crossing Project will result in impacts to visual and aesthetic resources in the Expo Center/Hayden Island Segment as a consequence of introducing:

- Cut/fill slopes, bridges, overhead structures, sound/retaining walls, catenary poles and overhead wires;
- A light rail station at Hayden Island;
- New I-5 bridges and interchanges;

- New North Portland Harbor bridges;
- Improvements and modifications to existing structures, roads, vegetation, topography;
- Disruptions of existing visual resources, viewpoints, view corridors and vistas; and
- New views.

Impacts to the Columbia River main channel would be mostly positive. Potential impacts would include:

- Removal of the visually complicated truss structures and lift towers of the existing I-5 bridges, which obstruct views from the river, from the Interstate bridges themselves, and from the shoreline. This action would remove an important contributor to the area's historic context (the I-5 bridges) and a character-defining aspect of interstate travel.
- From I-5, views of the Portland and Vancouver skylines, distant shorelines, rolling hills, and mountain profiles would generally improve. Toward I-5, views of open water and shorelines from shoreline-level and elevated viewpoints would also generally improve.
- Removal of the lift towers would be interpreted to have a generally positive visual impact on views from downtown Vancouver.
- Modifications to interchanges would increase heights at the Marine Drive and Hayden Island interchanges, where new ramps and elevated roadways would be higher than any existing facilities in these immediate areas. Even at these interchanges, the degree of change is expected to be moderate, since these areas are already and would continue to be large urban interchanges.
- Removal of the existing bridge structures that currently obstruct views of much of the area immediately beneath the bridges, along the river. This would provide for more light and vegetation under the bridges. These elements would all provide positive visual changes to the immediate area and adjacent areas.

North Portland Harbor would experience moderately negative visual impacts from the addition of piers for the light rail transit bridge and collector/distributor ramps; these would clutter views along the slough and reduce views of open water.

Given the types of visual impacts summarized in the *Visual and Aesthetics Technical Report*, the Council finds that the following strategies can be used to reduce adverse visual impacts to affected neighborhoods:

- Planting vegetation, street trees, and landscaping for screening or visual quality. The project will adhere to a green-over-grey approach for treatment of many new structures, using climbing vines and non-invasive ivies, where practicable.
- Designing landscape plans and other visual treatments consistent with adopted guidance and plans.
- Shielding station and facility lighting from nearby residences and the night sky.
- Minimizing structural bulk, such as for ramps and columns.
- Designing architectural features to blend with the surrounding community context.

- Placement of public art (to be relocated when necessary and added as part of transit stations and gateways).
- Where practicable, integrating lighting with facilities in a manner that produces a positive visual and aesthetic impact, reduces night sky light pollution, reduces possible light trespass into residential units, and contributes to crime prevention through environmental design (CPTED).
- Utilizing the UDAG Design Guidelines, as well as design guidelines of the City of Portland and Tri-Met.
- Selecting new and replacement pole and utility cabinet locations, colors, and styles in relation to their context and in accordance with municipal lighting standards.

In each affected neighborhood, the Council recognizes that potential mitigation measures will vary to fit neighborhood scale, character and concerns. In some neighborhoods, potential measures could improve the visual character of impacted areas. In other areas, the Columbia River Crossing portion of the South/North Project will be a prominent visual feature even with mitigation.

The area from Victory Boulevard, the Expo Center and Marine Drive north to Hayden Island and the Columbia River consists primarily of a major interstate freeway with connecting arterials, a busy, auto-dominated commercial strip, and large, dramatic expanse of open water. The area from Victory Boulevard to Marine Drive has industrial, recreational, and transit developments scattered throughout the area amid large tracts of open space. Commercial development patterns on Hayden Island have obscured natural features to the point where any connection to water or natural landforms is not visually apparent unless one is on the shoreline. Throughout this segment, many signs and utility poles; constant, fast traffic and noise; scattered moderate and large-scale commercial structures; and the artificial landforms associated with I-5 create a coarsely textured, complex environment with a confusing visual character. The breadth and openness of the Columbia River provides visual contrast to an otherwise cluttered visual environment.

Dominant visual features in this segment include I-5, Delta Park, the Vanport wetlands, the North Portland Harbor, Jantzen Beach Center, the historic I-5 truss bridge between Hayden Island and Vancouver, Washington and the wide, flat and open stretch of the Columbia River. The river is a significant regional resource and the dominant visual element within this segment because of its large scale and openness. It also serves as a dramatic gateway between Oregon and Washington.

LRT improvements in the Expo Center/Hayden Island Segment include a good deal of bridging. The bridges over the North Portland Harbor would remove structures, including floating homes and vegetation, along both banks of the harbor, and interrupt views south from Hayden Island to the west hills. The light rail alignment then parallels the west side of I-5, removing commercial structures along that side of the freeway

In general, the Council finds that the impacts to views would vary within the Columbia River Crossing portion of the project area. Impacts to the Columbia River main channel would be mostly positive, as described above. Impacts to North Portland Harbor would be moderately

negative, with the addition of more bridges across the harbor. Impacts to the area from Victory Boulevard to Marine Drive would be low.

The Council finds that possible measures that could mitigate the adverse impacts of the new bridges on views include those described above. Appropriate conditions can be imposed through the local review process consistent with Section 8(1)(b) of HB 3478 to avoid or mitigate adverse impacts on designated scenic resources and viewpoints.

Other Social Impacts. Other social impacts include loss of property values, property acquisitions not requiring displacements, loss of trees along roadsides and in neighborhoods, increase in electric and magnetic fields (EMF) and perceived reductions in "quality of life" associated with light rail transit and highway improvements, both during construction and in the long term. Construction impacts are addressed in the Short-Term Impacts portion of these findings. The Council finds that there may be reductions in property values, especially during the construction phase, but it believes that most of these properties will increase in value following completion of construction. The Council also finds that residing immediately next to the alignment or a station may result in some property owners experiencing perceived reductions in quality of life. Others may see a reduction in quality of life associated with increased density that might result from the proximity of rail to an area. These are very subjective matters that can vary from individual to individual. Landscaping and noise barriers might help mitigate adverse impacts. Where trees are removed, potential mitigation includes equivalent tree replacement. Extension of the light rail system would generate EMF and could increase exposure, however, in those locations where people could be exposed (within and near the light rail right-of-way, near substations, or in the light rail vehicles), EMF emissions would be below exposure guidelines. Because light rail electric power substations tend to generate the highest EMF intensities in the field measurements, the substations have been designed and sited to minimize exposure to users of the system, the general public, and sensitive users.

Social benefits include cleaner air by providing improved transit access in the region, resulting in less automobile driving than would otherwise occur and less congestion and air pollution. Cleaner air also is provided by decreasing congestion through improvements to the highway system. Social benefits also include improved quality of life from lower and more reliable transit travel times, resulting in more time for people to spend doing things other than commuting.

A greenhouse gas emissions analysis was prepared for the Columbia River Crossing Project and is detailed in the Energy Technical Report. The report includes a macroscale analysis to provide a picture of the regional emissions, as well as a microscale analysis that focuses more on the project area. The Project is expected to reduce regional emissions by approximately 130 metric tons of CO₂e /day, which equates to a reduction of approximately 0.5 percent. For the 12.2-mile length of I-5 surrounding the CRC project area, the Project is expected to reduce emissions by roughly 21 metric tons of carbon dioxide equivalent during the AM and PM peak periods, or 5.4 percent.

The differences in long-term effects on water quality between the Project and the No-Build Alternative are substantial. Although the total amount of pollution generating impervious

surface would slightly increase for the Project, the amount of untreated impervious surface would drop dramatically compared to existing conditions and the No-Build Alternative. This is because under the Project, stormwater runoff from all new or reconstructed impervious surface area would be treated, while stormwater runoff from most of the existing PGIS does not currently undergo stormwater treatment.

Payment of the new highway toll would require a higher proportion of income for lower income drivers than for higher income drivers. The Council finds, however, that when considered in combination with the other elements of the project, the impact would not be high and adverse. In exchange for the toll, travelers would receive the benefits of shorter highway travel times, lower congestion, extended light rail transit service, more reliable commute trips, reduced crashes, no bridge lift interruptions, increased access to employment, housing, education and services, and improved biking and walking facilities. There would also be toll-free options for crossing the river, including transit, carpooling, biking or walking, and crossing on I-205. The toll rate is also reduced during the off-peak travel times.

The project team reviewed the available research to inform the environmental justice impact evaluation. Several academic studies have been conducted on equity and tolling. The Washington State Department of Transportation (WSDOT) also conducted research on tolling equity for various projects.

The University of Washington and the Washington State Transportation Center published in 2009 a research paper entitled “The Impacts Of Tolling On Low-Income Persons In The Puget Sound Region.” The paper starts with the assertion that “Tolls may be progressive, regressive, or neutral, depending on the social and geographic characteristics of the town or region and the structure of the tolling regime. The distributional effects must be evaluated on a site and project specific basis.”

In “International Experiences with Congestion Pricing” (May 1993), Anthony May considered the equity component of congestion pricing. He cited older studies that argue that congestion pricing is a regressive measure that has greater impacts on lower-income drivers, but indicated this population is more likely to travel by bus or foot. May concluded that the most inequitable effects are dependent on the pricing scheme implemented and would likely impact a small percentage of lower-income drivers. He suggests that the only way to address the issue of equity is to invest some of the toll revenue in public transport rather than solely to improve the road infrastructure. The Project includes substantial improvements to transit as well as bicycle and pedestrian facilities.

Existing electronic toll collection systems with transponders present various hurdles for low-income users. One must normally either pay a deposit or link the account to a credit card or bank account. Some low-income populations may not be able to purchase a transponder. Not being able to purchase a transponder due to large set-up fees or lack of a credit card and/or bank account would be an adverse impact on those low-income populations affected. A similar barrier may exist when new tolls are instituted in areas where some groups and individuals lack the English language skills to understand the complex tolling system. These impacts would be mitigated through outreach and special programs.

Several strategies would mitigate the potential impacts of tolling on low-income populations. Since toll transponders are unfamiliar to most Oregon and southwest Washington residents, educational materials can be made available that explain how tolling and transponders work. All such communications would be made available in selected non-English languages, as appropriate. C-TRAN offers programs that assist low-income populations and people with disabilities to obtain a reduced transit fare. TriMet offers similar programs that assist senior and disabled populations using transit.

Conclusions on Social Impacts. The Council finds the social impacts of the Columbia River Crossing project are generally positive in the affected East Columbia, Kenton, Bridgeton and Hayden Island neighborhoods. There are 46 potential residential displacements in these segments.

Relative to access to community facilities, the project would displace the only grocery store and pharmacy (Safeway) on Hayden Island. The displacement could also affect low-income populations that use the bottle return center. However, the Council finds that the improved transit access, improvement of the local street network, and a bridge providing local multimodal access to and from the island, as well as the other mitigation measures mentioned above, would mitigate the displacement of the Safeway.

Relative to barriers to neighborhood interaction, the Council finds that the LRT alignment will not result in barriers to neighborhood interaction, primarily because the alignment in large measure parallels the I-5 freeway which already functions as an edge and boundary to the Hayden Island Neighborhood. Similarly, the highway improvements generally expand or improve existing roadways.

Relative to safety and security impacts, the Council acknowledges and supports TriMet's continuing efforts to improve passenger and community safety throughout its service area. The Council finds that TriMet is committed to making continued improvements to help maintain a safe and effective transit system, and it finds that the measures identified above improve public safety.

Relative to the visual impacts, the Council finds that the project would result in positive and negative impacts. The negative impacts could be mitigated by the measures addressed above, including following existing design guidelines from the City of Portland and TriMet when designing the light rail and highway improvements.

Traffic Impacts

The *Transit Technical Report*, *Traffic Technical Report* and Section 3.1 Transportation of the Draft Environmental Impact Statement (DEIS) evaluate the Project's impacts to the highway and street network. Traffic impacts from transit and highway improvements and potential mitigation are summarized below.

Transit. The Council finds that the light rail route and station on Hayden Island will provide light rail proximity and service to the substantial employment and commercial base located at the Jantzen Beach Center. Additionally, through improved high capacity transit service, island

residents will have improved accessibility to local and regional employment centers, community facilities and recreational destinations throughout the Portland metropolitan region.

Currently, travel options to and from Hayden Island are limited and often congested, and under the DEIS No-Build alternative, these options would get much worse over time. Light rail will provide a convenient, reliable alternative mode of travel.

The Columbia River Crossing Project would more than double the number of transit passenger trips over the I-5 crossing, compared to the 2030 No-Build Alternative. For weekdays, there would be 20,600 bridge crossings on transit, compared to 10,200 trips under the 2030 No-Build Alternative. Of the transit passengers crossing the Columbia River, 18,700 would be on light rail transit (91 percent) and 1,900 would be on buses (9 percent).

One of the major contributing factors to reliable transit service is reserved or separated right-of-way for transit vehicles. Transit vehicles operating in mixed traffic are subject to delays caused by accidents, breakdowns, congestion, and in the case of existing I-5 Columbia River bridges, bridge openings. With a separated right-of-way and separated bridge crossing on the lower deck of the new southbound I-5 bridge, transit service between Portland and Vancouver, Washington will become faster and more reliable. For example, a transit trip between Hayden Island and Vancouver would save an estimated five minutes in comparison with the No-Build Alternative, while a trip between Pioneer Square and Clark College would save 28 minutes (dropping from 72 minutes with the No-Build to 44 minutes with LRT).

Additionally, most of the intersections within the South/North Corridor through which light rail vehicles will operate have traffic signals preempted for LRT, have gated crossings for LRT, or have LRT separated from other traffic. In summary, the Columbia River Crossing portion of the South/North Project will provide significantly more reliable transit service than the No-Build Alternative, and a significant portion of the corridor's transit riders will experience the improvement in reliability with light rail.

Transit improvements in the Expo Center/Hayden Island segments of the South/North Project could affect traffic congestion in two basic ways. First, these improvements could divert trips from automobiles to transit, resulting in reduced systemwide vehicular travel. Second, transit facilities could also affect localized traffic operations on highways and streets in the study area.

The LRT alignment will have an at-grade crossing with the extension of N Vancouver Way, at the south end of the local multimodal bridge. Traffic analysis performed for the *Traffic Technical Report* models that this intersection will operate acceptably (meeting City of Portland Bureau of Transportation standards) in design year 2030. Light rail will be grade-separated on Hayden Island, with no traffic impacts on the island. The LRT alignment will bridge over N Jantzen Avenue and N Jantzen Drive, and Hayden Island Drive and N Tomahawk Island Drive (to be constructed as part of the project). Given the design, the Council concludes that the Columbia River Crossing transit portion of the South/North Project will not result in adverse traffic impacts in the Expo Center/Hayden Island Segment.

The traffic analysis model shows only one intersection in Oregon as not meeting the appropriate jurisdictional standards. The intersection, Going Street and Interstate Avenue, will not meet Portland Bureau of Transportation standards in 2030. Potential mitigation could be to optimize the light rail transit pre-emption at the intersection, install advanced signal controllers to manage light rail transit pre-emption, and change the westbound right lane into a through/right choice lane to allow traffic to continue westbound.

Regarding traffic safety, light rail transit is designed to be safe through methods and devices such as speed control, signalization, gated crossings, and pedestrian movement controls. In general, light rail vehicle speeds match road vehicle speeds where the vehicles run in adjacent lanes. Light rail vehicles operate in accordance with normal traffic control devices (traffic signals) as supplemented by specific light rail signals where needed. Specific train warning signals may be provided as needed. Pedestrian movements are governed by pedestrian signals at signalized intersections. At gated intersections, pedestrian movements are controlled by the gates and warning signals. At non-signalized, non-gated pedestrian crossings, barriers ("z-crossings") may be used to focus pedestrian attention on the direction of approaching light rail vehicles. The project could provide pedestrian access to stations by establishing "through-walking areas"—clear pathways free of street furniture or other impediments—adjacent to the planned station locations. The project would strive to maintain the width of these areas at approximately 7 to 8 feet in busy pedestrian locations and 6 feet in areas with lower levels of pedestrian traffic. For bicycles, station areas could include bicycle facilities, which could include secure storage areas. The Council concludes that these methods and devices provide for a safe multi-modal environment.

Highway Improvements. Since the stated purpose from the DEIS of the Columbia River Crossing project is "to improve I-5 corridor mobility by addressing present and future travel demand and mobility needs in the CRC Bridge Influence Area," most project impacts to traffic are positive. The associated highway improvements in the segment are provided as part of the Columbia River Crossing Project in order to improve transportation performance compared to the No-Build alternative.¹⁰

In 2030 the traffic models predict 15 hours of congestion per day (northbound and southbound) on I-5. With the Columbia River Crossing Project, there would be just 3.5 to 5.5 hours of congestion in 2030. During the peak period, the Project would increase the number of people over the I-5 crossing northbound in 2030 from 26,500 with No-Build to 35,300 (in vehicles), and from 2,200 to 6,100 (on transit).

Local street traffic performance is monitored and measured by the City of Portland and ODOT based on established performance standards for the facilities under their respective

¹⁰ House Bill 3478, Section 8(1)(a), directs all affected local governments and special districts to amend their comprehensive or functional plans, including transportation system plans, "to the extent necessary to make them consistent with a land use final order." As noted below and in Section 1.3 of these findings, most of the highway improvements included in the Project are already identified and authorized in the City of Portland's acknowledged Transportation System Plan. As such, they already have land use approval. They are addressed in these findings because they are included as part of the Columbia River Crossing Project which, as an element of the South/North Project, requires findings of compliance with the applicable criteria for any "highway improvements". For these improvements, no further local planning action is necessary to make them consistent with this 2011 LUFO. For those highway improvements that are not already part of Portland's Transportation System Plan, the city will need to amend its plan to comply with Section 8(1)(a).

jurisdictions. Local street congestion is most intense near the I-5 ramps and is influenced by the travel direction and length of time that I-5 is congested during each weekday. This section summarizes existing local street performance at selected study intersections. Results are reported for the AM and PM peak hours of travel.

The Project would address most of the non-standard geometric and safety design features currently existing on the I-5 mainline and ramps within the main project area. Improvements would be made to the existing short on-ramp merges/acceleration lanes and off-ramp diverges/deceleration distances, short weaving areas, substandard lane widths, vertical and horizontal curves that limit sight distance, and narrow or non-existent shoulders. The Project would remove both Interstate Bridge lift spans. In addition, the Project would substantially reduce traffic congestion compared to No-Build conditions.

As the number of vehicular collisions in the main project area is related to the presence of non-standard geometric design and safety features, which is exacerbated when traffic levels are at or near congested conditions, the Project would substantially improve traffic safety in the area. It is estimated that the Project would reduce average annual yearly collisions in the main project area from 750 under the No-Build Alternative to between 210 and 240.

This estimate was calculated by making the assumption that the highway geometric and safety improvements would result in a highway corridor that performed at least as good as an average, similar type of urban interstate facility in Oregon. The collision rate for similar urban, interstate facilities is approximately 0.55 collisions per million vehicle miles travelled (MVMT). Applying this rate (with an allowance for a higher collision rate during congested periods and during late evening and early morning hours) to the forecasted traffic volumes over a year period generated an estimated annual collision total of between 210 and 240.

The Portland local street system is divided by I-5, with community connections across I-5 limited to the following interchange and non-interchange crossing locations: Skidmore Street, Alberta Street, Killingsworth Street, Ainsworth Street, Rosa Parks Way, Lombard Street, Columbia Boulevard, Schmeer Road, Victory Boulevard, Martin Luther King Jr. Boulevard, Pier 99 Street, Jantzen Street, and Hayden Island Drive (overcrossings for non-motorized travel also exist at Failing Street and Bryant/Saratoga Streets). In addition to the interchanges, several local streets and nearby intersections are affected by traffic operations in the I-5 corridor.

Under 2030 No-Build conditions, 25 intersections were analyzed, one of which would not meet applicable performance standards during the morning peak hour - the intersection of Fremont Street with Martin Luther King Jr. Boulevard. During the afternoon/evening peak hour, five intersections would not meet applicable performance standards: Martin Luther King Jr. Boulevard with Fremont and Alberta Streets, Interstate Avenue with Argyle and Going Streets, and Marine Way with Vancouver Avenue.

With the Project, Portland's local street operations would improve along the I-5 corridor relative to No-Build conditions. For example, at the I-5 interchange with Marine Drive, 2030 afternoon peak intersection performance would improve from V/C 0.82 (LOS F) with the No-

Build Alternative to V/C 0.42 (LOS B) with the Project. This indicates that the Project would improve mobility and accessibility to this freight and employment corridor during the afternoon peak. Similar findings were observed during the morning peak. The Project with highway phasing would improve the 2030 p.m. peak V/C to 0.64 (LOS B) from 0.82 (LOS F).

With the Project improvements, the total number of local intersections and ramps would increase to 38, primarily as a result of additional intersections associated with the local roads in the Hayden Island and Marine Drive interchange areas. During the 2030 morning peak hour, 37 of these 38 intersections and ramps are expected to operate within acceptable standards, while one would fail to meet standards. The intersection of Interstate Avenue with Going Street is expected to fail to meet applicable performance standards and to require mitigation. During the 2030 afternoon/evening peak hour, with Project improvements, all intersections would operate within acceptable standards. Potential mitigation for the Interstate Avenue and Going Street intersection (also described above in the Transit section) could be to optimize the light rail transit pre-emption at the intersection, install advanced signal controllers to manage light rail transit pre-emption, and change the westbound right lane into a through/right choice lane to allow traffic to continue westbound.

The existing pedestrian and bicycle facilities throughout the Columbia River Crossing main project area are outdated, potentially unsafe, and confusing to navigate. The width of the shared-use pedestrian and bicycle facility on the I-5 bridge is non-standard (generally no wider than 4 feet) and separated from traffic by the bridge girders and non-standard low barriers. The mixing of pedestrians and bicycles in this narrow facility can cause safety problems. The Project would improve bicycle and pedestrian facilities in the area, as described in the *Traffic Technical Report*, resulting in greater use of the facilities and safety improvements.

Several pedestrian and bicycle forecasting scenarios predict that pedestrian and bicycle travel demands would increase substantially if a new I-5 bridge is constructed with sufficient multimodal facilities. Pedestrian travel across the bridge would be expected to increase from 80 daily pedestrians today to between 600 and 1,000 daily walkers in 2030, an increase of 650 to 1,150 percent. The number of bicyclists predicted to use the crossing would increase from 370 today to between 900 and 6,400 riders in 2030, an increase of between 150 and over 1,600 percent.

The majority of the Project transit and highway improvements are identified in Metro's Regional Transportation Plan and in the City of Portland Transportation System Plan (TSP) and are therefore consistent with those transportation system plans. Below is a list and description of the RTP and TSP projects for which the Project would build the improvements:

Regional Transportation Plan (Metro)

- **RTP Project 10893: Improve I-5/Columbia River Bridge (Victory Boulevard to Washington State Line);** *Replace I-5/Columbia River bridges and improve interchanges on I-5.* New bridges will replace the existing I-5 bridges and the

following I-5 interchanges in Oregon will be improved: Victory Boulevard, Marine Drive, Hayden Island/Jantzen Beach

- **RTP Project 10902: MAX Light Rail: Yellow Line: CRC/I-5 North Extension** *CRC: Expo to Vancouver, north on Main to Lincoln.* Light rail will be extended from the Expo Center MAX station in Portland to a station and park-and-ride lot at Clark College in Vancouver.
- **RPT Project 11032: Ruby Junction light rail operating base expansion: LRV maintenance and storage facility, including expansion on the west side of Eleven Mile Avenue.** *Capital cost is included in Milwaukie and CRC projects.* Ruby Junction maintenance facility in Gresham will be expanded to accommodate a new operations facility, new storage tracks and additional light rail vehicles.

Transportation System Plan (Portland)

- **TSP Project 30018: Hayden Island: Street Network Improvements.** *Provide a street network plan for improvements that implement the Region 2040 connectivity standards and improve multi-modal access for Hayden Island.* The Hayden Island Street Plan is described in more detail in the Hayden Island Plan which was adopted into the City Comprehensive Plan in August 2009. The Hayden Island Plan recommends amending the TSP to implement the street network as shown in the document. The Columbia River Crossing Project would build these improvements consistent with the Hayden Island Street Plan.
- **TSP Project 30020: I-5 (Columbia River-Columbia Blvd): Bridge Widening** *Improve I-5/Columbia River bridge (local share of joint project) based on recommendations in I-5 Trade Corridor Study. Project addresses a high congestion location.* The Columbia River Crossing Project would build these improvement
- **TSP Project 30033: Light Rail Extension - Phase 2.** *Extend light rail service from Expo Center to Vancouver WA.* The Columbia River Crossing Project would build these improvements.
- **TSP Project 40080: Marine Dr. (6th - 33rd & Gantenbein - Vancouver Way) Bikeway** *Retrofit bike lanes to existing street and complete off-street paths in missing locations.* The Columbia River Crossing Project would build these improvements.

The CRC project also includes improvements to the local street system east and west of the Marine Drive interchange and a new bridge over North Portland Harbor to the west of I-5 that would carry light rail vehicles as well as local motor vehicle and bicycle/pedestrian traffic between Marine Drive and Hayden Island. The local street improvements east and west of the Marine Drive Interchange will improve local access to and from the Expo Center and Hayden Island light rail stations and are necessary as well to accommodate the design of the new I-5 bridges and the modified interchanges.

The physical and operational elements of the Columbia River Crossing Project provide the greatest Transportation Demand Management (TDM) opportunities by promoting other modes to fulfill more of the travel needs in the project corridor. These include:

- Major new light rail line in exclusive right-of-way, as well as express bus and feeder routes.
- Modern bicycle and pedestrian facilities that accommodate more bicyclists and pedestrians, and improve connectivity, safety, and travel time.
- Park and ride lots and garages.
- A variable toll on the highway crossing.

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

- Replacement or expanded variable message signs or other traveler information systems in the Project area.
- Expanded incident response capabilities.
- Queue jumps or bypass lanes for transit vehicles where multi-lane approaches are provided at ramp signals for entrance ramps.
- Expanded traveler information systems with additional traffic monitoring equipment and cameras.
- Active traffic management

Conclusions on Traffic Impacts. The Council finds that the transit and highway improvements summarized above will substantially improve traffic operations in 2030 compared to the No-Build Alternative and that adverse traffic impacts associated with extending light rail transit through this Segment can be mitigated. The Council finds that the potential mitigation for the Interstate Avenue and Going Street intersection would mitigate for the reduction in intersection performance as a result of the project. Potential mitigation could be to optimize the light rail transit pre-emption at the intersection, install advanced signal controllers to manage light rail transit pre-emption, and change the westbound right lane into a through/right choice lane to allow traffic to continue westbound.

The Council finds that transit improvements will increase transit ridership, decrease transit travel times, and improve accessibility to local and regional employment centers, community facilities and recreational destinations throughout the Portland metropolitan region.

Relative to general transit safety and transit impacts on bicycle and pedestrians, the Council finds that the impacts could be mitigated through the measures described above. Relative to impacts from highway improvements, the Council finds that most impacts from the Columbia River Crossing portion of the North/South project would be positive and would improve transportation performance in the Hayden Island/Expo Center segment.

Provide for a light rail route and associated facilities, balancing the need for light rail proximity and service to areas that are capable of enhancing transit ridership; the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and the need to protect affected neighborhoods from the identified adverse impacts.

The South/North Steering Committee initially assembled in the 1990s to recommend the federal Locally Preferred Strategy adopted the following goal for the project¹¹: *To implement a major transit expansion program in the South/North Corridor that supports bi-state land use goals, optimizes the transportation system, is environmentally sensitive, reflects community values and is fiscally responsive.* That "LPS Steering Committee" also adopted the following objectives for the project:

1. Provide high quality transit service;
2. Ensure effective transit system operations;
3. Maximize the ability of the transit system to accommodate future growth in travel;
4. Minimize traffic congestion and traffic infiltration through neighborhoods;
5. Promote desired land use patterns and development;
6. Provide a fiscally stable and financially efficient transit system; and
7. Maximize the efficiency and environmental sensitivity of the engineering design of the proposed project.

The project goal and objectives closely parallel the emphasis of Criterion 3(A) for this Land Use Final Order. The effectiveness evaluation of the South/North Project relative to meeting the objectives is summarized below.

Ability to Provide High Quality Transit Service. The Council finds that the portions of South/North Project already constructed or currently under construction provide a significant amount of light rail coverage between the Portland downtown and Milwaukie and Clackamas Town Center to the south and between the Portland downtown and the Expo Center to the north. The Columbia River Crossing Project provides the missing piece to the original transit concept by extending LRT coverage into Vancouver, Washington. It finds that the South/North Project, including the Columbia River Crossing Project, provides improved reliability over the No-Build Alternative. Factors that affect reliability include the amount of reserved right-of-way, percent of protected trunk-line intersections and percent of passengers on exclusive transit right-of-way.

The Council finds that the Columbia River Crossing Project will result in improved peak-hour in-vehicle and total weighted travel times between Portland and Vancouver, Washington compared to the No-Build Alternative. It will increase transit trips within the South/North Corridor and increase the transit mode split for peak-hour radial trips.

Moreover, compared to an expanded all-bus system, the Council finds that the Columbia River Crossing Project will

- Increase transit trip production in the Project Transit Corridor by 150 percent compared to existing conditions by the year 2030;
- Increase weekday transit ridership into on the Interstate Max Yellow Line by 21,400 trips (150 percent) compared to the No-Build Alternative;

¹¹This Steering Committee was assembled under requirements of federal law. It differs from the LUFO Steering Committee assembled to comply with House Bill 3478.

- Double the number of transit passenger trips over the I-5 Columbia River crossing, compared to the 2030 No Build alternative
- Decrease rush-hour transit travel times between Pioneer Courthouse Square and Clark College in Vancouver by 28 minutes compared to the No Build alternative; and
- Increase the percent of transit trips between the project corridor and downtown Portland from 21% in 2005 to 39% in 2030.

Ensure Effective Transit System Operations. By locating the South/North light rail alignment on the downtown Portland transit mall, all alignment alternatives have allowed for easy transfers to other transit routes serving most of the metropolitan region. The Council believes that this improved transit access has enhanced transit ridership, and it so finds.

Maximize the Ability of Transit to Accommodate Growth in Travel Demand. In 1998 the Council determined that the South/North Project had the greatest ability to accommodate growth of the various DEIS alternatives studied. The Columbia River Crossing portion of the South/North Project would increase LRT place miles (“place miles” are transit vehicle capacity for each vehicle type multiplied by vehicle mile travelled) by 58% and would increase total bus and LRT place miles by over 2% compared to No-Build.

Minimize Traffic Congestion and Traffic Infiltration Through NeighboIn 1998 the Council determined that the South/North Project would help slow the rate of traffic congestion and related problems, compared to the No-Build Alternative. It would:

- Remove almost 133,000 vehicle miles of travel per average weekday from the corridor road system;
- Eliminate 16 lane-miles of congested roadways; and
- Avoid 4,500 hours of traffic delays each weekday (compared to the No-Build Alternative in the year 2015).

By slowing the rate of traffic congestion growth, avoiding delay, and reducing the number of vehicle miles of travel per average weekday as compared to the No-Build Alternative, the South/North Project will minimize traffic congestion. The Council found that the slowing of congestion and reductions in vehicle miles of travel also would reduce the amount of traffic infiltrating Portland and Clackamas County neighborhoods by causing fewer vehicles to be on the roads than would otherwise occur in the absence of light rail transit.

The Council now finds that with the Columbia River Crossing Project, in comparison with a No-Build Alternative and with the highway improvements that are included in the Project, will result in a 57 percent decrease northbound and a five percent decrease southbound in rush-hour automobile travel times between Columbia Boulevard in Portland and SR 500 in Vancouver. It also finds that the Project will reduce the duration of congestion from 15 hours per day in the No-Build to between 3.5 and 5.5 hours per day with the improvements being made for automobile, transit and truck travel.

Facilitate Efficient Land Use Patterns. The Council finds that light rail has influenced the quality of access to vacant developable and redevelopable parcels of land in the South/North Corridor. It finds that light rail transit throughout the South/North corridor has supported the region's growth management strategy and the urban growth boundary (UGB) by:

- Providing access to vacant and redevelopable infill properties;
- Providing transportation capacity to the Portland Central City that will enable the region's core to accommodate the expected high growth levels;
- Providing the high quality transit needed to make the Clackamas Regional Center and Milwaukie Regional Center function in accordance with the growth strategy;
- Establishing new station communities which can be developed as mixed-use areas; and
- Instituting a pattern of growth that conforms to the goals, objectives and policies of local land use and infrastructure plans.

The Council finds that the Columbia River Crossing Project will further facilitate efficient land use patterns by promoting denser, transit-oriented development on Hayden Island. This shift in land use patterns from the existing auto-oriented development is consistent with the Hayden Island Plan.

Balance the Efficiency and Environmental Sensitivity of the Engineering Design. Indicators of environmental sensitivity include displacements, noise and vibration impacts, parkland impacts, floodplain impacts, wetland impacts and historic and archaeological resources impacts. These impacts are addressed in other findings, set out below, addressing the relevant LCDC criteria applicable to this proposal. For the reasons stated in the findings addressing those other criteria, the Council concludes that the positive impacts of the Project outweigh the negative environmental impacts.

Social Equity Considerations. In addition to the LPS Steering Committee objectives listed above, the Council believes and finds that social equity considerations should be taken into account. When it adopted the initial South/North LUFO back in 1998, the Council found the percentage of minority populations in nearly one half of the neighborhoods in the South/North Corridor to be higher than the regional average of 8.6 percent. Nearly two-thirds of corridor neighborhoods have a percentage of low-income households that is higher than the regional average (1990 US Census). The Council also found that the South/North Project would serve both low-income and minority neighborhoods. The Council concluded that the South/North Project will not adversely affect low income or minority neighborhoods disproportionate to the benefits they will receive with improved transit access. Indeed, it found that the project will substantially benefit a much larger segment of the populations of these affected areas, including low-income, transportation-disadvantaged, minority and elderly populations, than are otherwise directly adversely affected by the project. The Council continues to abide by these findings.

Overall Conclusions Regarding Neighborhood Impacts (Transit)

In summary, the Council finds and concludes that the selection of the light rail route and the Hayden Island station, including their locations, within the area constituting the Columbia River Crossing project has included a balancing of:

- the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership;
- the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and
- the need to protect affected neighborhoods from identified adverse impacts.

The Council finds and concludes that the Columbia River Crossing portion of the South/North Project will enhance transit service to areas all along the South/North Corridor, with particular benefits to Hayden Island and Vancouver, Washington. The Council finds and concludes that this Project will improve connections and mobility throughout the Portland metropolitan region, including to areas along the existing eastside and westside MAX light rail lines; that the presence of light rail transit north of the Expo Center into Vancouver, Washington will encourage and support new and efficient development, consistent with Region 2040 Growth Concepts, that will benefit the affected local communities and the region; and that the improved accessibility provided by extending the South/North Project, and its many benefits, north to Hayden Island and Vancouver, Washington, especially when compared with the No-Build Alternative, combined with available measures to mitigate adverse impacts created by the Project, result in a substantial net benefit to the affected local communities, the region, and the states of Oregon and Washington.

For the reasons stated herein, the Council finds that it has considered the adverse economic, social and traffic impacts of the Columbia River Crossing Project and balanced these impacts against the Project's benefits. It finds and concludes that the northern extension of the South/North light rail line to Hayden Island and Vancouver, Washington will make a significant positive contribution to the quality of life in the Portland region, through improved mobility, decreased congestion, improved air quality, reduced energy consumption, and decreased reliance on the automobile, which will benefit Oregonians now and well into the future. It further finds that light rail transit can, has, and will continue to stimulate and enhance development of an efficient and compact urban form in appropriate locations identified for such development. It also finds that with mitigation imposed as part of the NEPA process or during local permitting processes, most of the adverse consequences identified in these findings can be reduced or avoided. Potential mitigation measures are identified in findings.

Provide for associated highway improvements, balancing the need to improve the highway system with the need to protect affected neighborhoods from the identified adverse impacts.

The Columbia River Crossing Project includes a broad spectrum of highway improvements including new I-5 bridges across the Columbia River, widening of and interchange improvements along I-5, and improvements to highways accessing I-5, the Expo Center and Hayden Island. The Council finds that these highway improvements are in addition to other highway improvements that the Council previously approved for the South/North Project, including highway improvements in SW Portland, SE Portland and Milwaukie. All other street and highway changes, such as intersection modifications, installation of traffic signals, access changes, etc. are ancillary to light rail improvements or proposed as mitigation to address specific adverse impacts of the South/North Project, and are not classified as highway improvements.

The Council finds that the need to construct new I-5 bridges is the principal catalyst behind the Columbia River Crossing Project and that light rail transit is a fundamental component of the bridge project. It finds that the Columbia River Crossing Project is a combined transit/highway project that represents a consensus among affected local government officials. It finds that without the identified highway improvements, the light rail improvements would not and could not go forward independently and that without the rail component, the highway improvements would not independently be going forward. For this project to work, both components are required. Additionally, the Project will facilitate bicycle and pedestrian travel across the Columbia River, thereby being a truly multi-modal project. The Council further finds that the combining of rail and highway improvements is not unique to the region. Indeed, it finds that the Westside Corridor Project, which extended light rail transit from downtown Portland to downtown Hillsboro, was a combination rail and highway project that was approved through a series of LUFOs adopted in the early and mid-1990s.

The Council finds that construction of new I-5 bridges, including a southbound bridge carrying light rail transit and a northbound bridge accommodating bicycle and pedestrian traffic, is necessary to maintain and improve an adequate interstate highway system. It finds that I-5 is the principal arterial serving the west coast states of Oregon, Washington and California, and the principal facility serving the interstate movement of freight by truck travel in these states. It finds that the existing I-5 bridges are severely congested during peak travel hours and severely hindered by their need to close traffic for periods at a time to allow ships and boats to pass underneath. All of this impedes mobility and delays the timely and efficient movement of freight between Oregon and Washington.

The Council also finds that the other identified highway improvements are necessary to complement the I-5 improvements and allow for an efficient local transportation system and access to/from I-5, the Hayden Island LRT station, and residential, commercial and industrial areas in the project area.

The improvements at Victory Boulevard interchange would improve safety and lengthen short, substandard on- and off-ramps. All movements within the Marine Drive Interchange would be reconfigured to reduce congestion and improve safety for trucks and other motorists entering and exiting I-5. Trucks currently account for 8 to 10 percent of the daily vehicles that cross the I-5 bridges. At the Marine Drive Interchange, trucks account for greater than 20 percent of the daily vehicle composition. During the hour when the highest numbers of

trucks are using the Marine Drive Interchange (9-10 a.m.), trucks account for approximately 30 percent of vehicles in the interchange. So by virtue of the improvements, the proposed design for the Marine Drive Interchange improves truck mobility. The improvements would allow the movements with the highest volumes in the interchange to move freely without being impeded by stop signs or traffic signals.

All movements for the Hayden Island Interchange would be reconfigured. The new configuration would be a split tight diamond interchange. Ramps parallel to the highway would be built, lengthening the ramps and improving merging speeds. Improvements to Jantzen Drive and Hayden Island Drive would include additional through, left-turn, and right-turn lanes. A new local road, Tomahawk Island Drive, would travel east-west through the middle of Hayden Island and under the I-5 interchange, improving connectivity across I-5 on the island and improving access to and from the Hayden Island LRT station.

The Columbia River Crossing Project would also include local street improvements on the Oregon mainland, which would improve access between I-5 and local roads in the area. The project would build a local multimodal bridge that would provide access to and from Hayden Island and the Hayden Island station for vehicle traffic, bicycles and pedestrians separate from the I-5 mainline.

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

The proposed Marine Drive Interchange area would be entirely grade-separated, with the local road network and multi-use paths running below the interchange. Pedestrian and bicycle improvements at the Marine Drive Interchange would include a multi-use path constructed from the Marine Drive Interchange, over Hayden Island and the Columbia River. The path would be a minimum of 16 feet wide between its barriers and would direct users with pavement markings and signage. Larger curves would provide improved sight distance and flow, and path components would meet ADA accessibility standards.

Sidewalks would be constructed on most reconstructed streets throughout the project area. To improve east-west connections on Hayden Island, a 6- to 8-foot-wide sidewalk would be provided along Jantzen Drive and Hayden Island Drive. A 6-foot minimum width sidewalk would be provided along Tomahawk Island Drive. Crosswalks would be provided at all intersections and would meet ADA accessibility standards. The island streets would also include 6-foot bicycle lanes wherever improvements are made. All of the improvements would facilitate access to the light rail system.

The new northbound bridge over the Columbia River would also accommodate a multi-use pathway under the highway deck. This path would be 16 to 20 feet wide, located within the superstructure above the bridge columns and below the bridge deck. The multi-use path would separate pedestrians and bicyclists from vehicle noise and avoid proximity to moving vehicles.

The Council finds that the local improvements summarized above would improve the flow of traffic in the I-5 corridor, would improve intersection performance on local intersections compared to No-Build and would improve bicycle and pedestrian mobility and safety.

The Council finds that the local multimodal bridge that provides local access to/from Hayden Island would benefit residents of the island, providing an alternate access to the island.

The Council finds that although there are adverse impacts associated with the highway improvements of the Project, many of the impacts can be sufficiently mitigated, as addressed in the NEPA documentation. The Council finds that the benefits of the Project including improved I-5 and local intersection performance, decreased congestion in the corridor, improved bicycle and pedestrian mobility and safety, and others as addressed in this document herein, outweigh the impacts and that the Columbia River Crossing Project would cause a net positive impact to residents.

Overall Conclusions Regarding Neighborhood Impacts (Highway)

Overall, the Council finds that these highway improvements, taken together, will have a positive impact on interstate and local travel and on interstate and local commerce. They will enhance nearby neighborhoods and improve opportunities for pedestrian, bicycle and vehicle circulation to and around the Expo Center, Jantzen Beach Center, Hayden Island and Vancouver, Washington. While the expansion of and modifications to the local highway network may result in some adverse impacts identified and discussed above, the Council believes and concludes that on balance, these highway improvements will be a substantial benefit to the City of Portland, the Metro region, the State of Oregon, and their residences and businesses, in terms of accessibility, mobility, improved movement of commerce, and improved bicycle and pedestrian transport. The Council concludes that the benefits of these improvements strongly outweigh the adverse impacts that are associated with them.

6.3.2 Criterion 4: Noise Impacts

“Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.”

Noise is a form of vibration that causes pressure variations in elastic media such as air and water. The ear is sensitive to this pressure variation and perceives it as sound. The intensity of these pressure variations causes the ear to discern different levels of loudness, and these differences are measured in decibels, or dBs. Vibrations can also be carried through the ground, in which case they are described in terms of vibration velocity levels in dB referenced to one micro-inch per second. As with air or water borne vibrations, ground vibrations have a threshold of human perception. Because air and ground borne vibrations have similar properties and are measured in similar ways, the Council finds that vibration impacts are appropriately considered with noise impacts in these findings.

Noise and vibration impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section. Noise and vibration impacts also are identified, along with corresponding mitigation measures, in the Noise and Vibration Technical Report (Noise Report).

Identification of Noise and Vibration Impacts in the Expo Center/Hayden Island Segment.

The guidelines and standards for analyzing and mitigating transit noise and vibrations are different from those used for analyzing and mitigation highway noise. For transit noise, the guidelines and standards are established by the FTA while for highway noise, the guidelines and standards are established by the FHWA and ODOT. Because of the different guidelines and standards, the noise and vibration impacts of the transit and highway improvements in the Expo Center/Hayden Island Segment are addressed separately.

Transit Noise and Vibration Impacts and Mitigation Options

The noise criteria in the FTA Guidance Manual are founded on well-documented research on community reaction to noise and are based on change in noise exposure using a sliding scale. The amount that a transit project is allowed to change the overall noise environment is reduced with increasing levels of existing noise.

The FTA Noise Impact Criteria groups noise sensitive land uses into the following three categories:

Category 1: Buildings or parks where quiet is an essential element of their purpose.

Category 2: Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.

Category 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, office buildings, and other commercial and industrial land uses.

There are two levels of impact included in the FTA transit noise criteria.

Severe Impact: Severe noise impacts are considered “significant” as this term is used in NEPA and implementing regulations. Noise mitigation will normally be specified for severe impacts unless there is no practical method of mitigating the noise.

Impact: In this range, often called a “moderate” impact, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These other factors can include the predicted increase over existing noise levels, the types and number of noise-sensitive land uses affected, existing outdoor-indoor sound insulation, and the cost-effectiveness of mitigating noise to more acceptable levels.

Transit noise can take several forms. These include LRT-induced noise impacts resulting from changes to roads and to motor vehicle traffic volumes; wayside LRT noise impacts; LRT wheel squeal impacts; noise from ancillary LRT facilities; and LRT vibration impacts and mitigation.

LRT-induced road traffic noise is generally associated with park-and-ride lots. There are no new planned park-and-ride lots in the Expo Center/Hayden Island Segment. There are, however, numerous highway improvements proposed for this segment. Their noise impacts are addressed below.

Wayside LRT noise is modeled based on measurements of existing LRT systems, the length and speed of trains, rates of acceleration and deceleration, location of special trackwork, auxiliary equipment and other factors. Options generally available to mitigate wayside LRT noise impacts include sound walls, crossover relocation and reduced LRT speeds. Within the Expo Center/Hayden Island Segment, wayside LRT noise impacts floating homes within the North Portland Harbor. These noise impacts are addressed below

Wheel squeal noise is generated by train wheels as they traverse a curve. Whether wheel squeal occurs and how loud it is depends on many factors, including the material used to make the rail, the level of wheel/rail contact point lubrication, the sharpness of the curve, train speed and wheel profile. There are several locations in the South/North Corridor where track curvature is acute enough to create wheel squeal impacts. However, none of these are located within the Expo Center/Hayden Island segment.

Where wheel squeal noise is generated, the noise impacts can be reduced or eliminated using the following general techniques:

- Dampening the wheel or using resilient wheels;
- Lubricating the wheel surface that slides against the rail;
- Using track designed to dampen squeal on sharply curved sections of the alignment.

If any wheel squeal impacts remain following the use of these mitigation measures, the use of barriers near affected receivers could be considered.

Noise from ancillary facilities includes noise from crossing bells and electrical substations located adjacent to the LRT trackway and LRT switching gear and transformers. Substation noise can be mitigated by designing and building substations to meet federal noise criteria for transit system ancillary facilities. Noise levels less than 60 dBA, which is a level typical of many residential areas, is expected at one foot from the exterior substation wall. This noise level can be reduced by as much as 10 dBA through the use of enhanced substation housing where substations are located near sensitive receivers. No noise impacts from crossing bells or substations are expected in the Expo Center/Hayden Island segment.

LRT vibration impacts resonate from the wheel/rail interface and are influenced by wheel/rail roughness, transit vehicle suspension, train speed, track construction and the geologic strata underlying the track. Vibration from a passing light rail train moves through the geologic strata into building foundations, potentially causing the buildings to vibrate. Ground-borne vibration is of such a low level that there is almost no possibility of structural damage to buildings near the alignment. The main concern of ground-borne vibration is that it can be annoying to building occupants. The primary options available to mitigate vibration impacts include: incorporating state-of-the-art vehicle specifications; keeping special trackwork (such as crossovers) as far as possible from sensitive receptors; using either spring-loaded frogs in tie-and-ballast track sections or flange-bearing rail in paved track sections where special trackwork cannot be moved; and installing ballast masts (in tie-and-ballast sections) or

vibration isolation technology, such as “whisper rail,” “booted” track-type support systems or resilient supported rail (for paved track sections). Small speed reductions may be able to reduce impacts to acceptable levels in a few locations, provided the speed reductions do not affect service schedules. There are several locations in the South/North Corridor where LRT vibration impacts occur. However, none of these are located within the Expo Center/Hayden Island segment.

The FTA has developed impact criteria for acceptable levels of ground-borne vibration that would apply to the light rail component of the Project. Exhibit 2-3 of the Noise Report summarizes the FTA impact criteria for ground-borne vibration as it affects most buildings. Exhibit 2-8 shows the ground-borne vibration and noise impact criteria for special buildings such as concert halls, TV and recording studios, auditoriums and theaters.

Overall, noise levels in the Expo Center/Hayden Island Segment of the project area are currently dominated by motor vehicle traffic on I-5 and Portland International Airport aircraft. Existing noise levels in this area exceed traffic noise criteria for 96 noise-sensitive receptors. As discussed in the Noise Report, the first three banks of floating homes in the vicinity of the new light rail alignment would be relocated due to project construction, and therefore those homes were not analyzed for project-related noise impacts. Of the floating homes that will remain, analysis identified 8 floating homes where noise levels are predicted to meet or exceed the moderate FTA noise impact criteria. The impacts occur at the row of homes nearest the future tracks, where light rail operations are predicted to produce a noise level of 61 dBA Ldn, which just meets the 61 dBA Ldn impact criteria. Noise from future light rail operations is well below the traffic noise levels at all other noise sensitive properties in the Expo Center/Hayden Island Segment, including the manufactured home residential area along the Columbia River.

Potential mitigation measures evaluated for reducing noise impacts from light rail for the project include 1) sound barriers, 2) track lubrication at curves, 3) special trackwork at crossovers and turnouts, 4) reduced train speed, and 5) building sound insulation. No light rail vibration impacts requiring mitigation were identified in the Expo Center/Hayden Island Segment. The eight light rail noise impacts at the floating homes would be best mitigated with the installation of sound barriers along the elevated light rail structure. A 3- to 4-foot acoustical absorbent sound wall or 6-foot reflective sound wall would be effective at reducing noise levels at these homes by 7 to 10 dBA.

Traffic Noise Impacts and Mitigation Options

Traffic and construction noise analyses are required by law for federal projects that 1) involve construction of a new highway, 2) substantially change the horizontal or vertical alignment, or 3) increase the number of through traffic lanes on an existing highway. Oregon policies also require the review and consideration of noise abatement on projects that substantially alter the ground contours surrounding a state highway.

FHWA and ODOT impact criteria for noise studies depend on existing land use or planned and permitted future land use. Existing land uses in the Expo Center/Hayden Island Segment include commercial, industrial, park/open space and residential. Most of the land uses near the LRT and highway improvements are commercial/industrial and park/open space. There is a large group of floating homes located along the southern edge of Hayden Island on both sides of I-5. Other residential land uses include the Red Lion Jantzen Beach Hotel, the Oxford

Suites, and the Courtyard by Marriott. There is also a large group of single and multi-family residential units east of I-5 along N Hayden Drive and N Tomahawk Drive.

As described in the discussion of transit noise impacts above, existing noise levels in the project corridor were modeled and noise levels currently exceed FHWA and ODOT traffic noise criteria for 96 noise-sensitive receptors located in the Expo Center/Hayden Island Segment. These receptors include floating homes, the south portion of Delta Park and at the Red Lion Columbia Center Hotel, which include all rooms facing toward I-5

The project includes removal of the floating homes closest to the I-5 crossing of the North Portland Harbor and the addition of 3.5 foot safety barriers along all sides of all elevated roadway structures. The combined effect of displacing noise sensitive properties nearest the project roadways, and the addition of the safety barriers, would result in no newly impacted noise-sensitive receptors in Expo Center/Hayden Island Segment. In addition, those receptors currently impacted will not experience substantial increases in the severity of those impacts.

Overall Conclusions Regarding Noise Impacts and Mitigation Options

Based on the information in the Noise Report, the Council finds and concludes that sound wall options are available and have been recommended to mitigate the identified light rail noise impacts in the Expo Center/Hayden Island Segment. Based also on information in the Noise Report, with the removal of some existing noise-sensitive receptors and the addition of safety walls, no new highway noise impacts are expected in the Expo Center/Hayden Island Segment. The final decision and recommendation to include the approved mitigation will be made during the final design process.

6.3.3 Criterion 5: Natural Hazards

“Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Natural hazard impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section. Natural hazard impacts, and associated mitigation measures, also are described in the Geology and Groundwater Technical Report (Geology Report) and the Water Quality and Hydrology Technical Report (Hydrology Report).

Overview of Natural Hazards Impacts in South/North Corridor and Mitigation Measures

The South/North Project, including the Columbia River Crossing portion, lies within the Portland Basin, a basin characterized by relatively low topographic relief with areas of buttes and valleys containing steep slopes. Much of the overall South/North Project alignment crosses developed land. Long-term impacts to the geologic environment consist of relatively minor changes in topography and drainage patterns, minor settlement of near-surface

materials, and potential changes in slope stability and erosion. These impacts could occur as a result of excavation, placement of structures and fills and clearing and grading.

The geology and soils in the area of the South/North Project are typical of the Portland Basin. Soils within the South/North Corridor developed on flood and alluvial deposits. Where undisturbed, they are generally sandy to clayey loam and are well to poorly drained. However, much of the area is classified as urban land, where the original soils have been extensively modified or covered. Associated with the channel deposits, areas of highly organic silt and clay and deposits of peat may be encountered and require special construction techniques. Expansive (high shrink-swell) soils are present in the corridor.

The potential for major landslides within the South/North Corridor is very limited because the topography within the corridor is relatively gentle, and the geologic conditions are generally favorable.

The Pacific Northwest is a seismically active area and subject to earthquakes. Oregon has the potential for three types of earthquakes: crustal, intraplate and subduction zone. Although earthquake prediction is an inexact science, it is reasonable to assume that earthquakes will occur in Oregon.

Studies of relative earthquake hazards have been completed for much of the Portland area. These studies show that much of the South/North corridor lies in areas with relatively high potential for earthquake damage. Project design and estimated construction costs reflect the need to conform to the relevant seismic standards for capital construction.

To mitigate earthquake hazards, TriMet and ODOT will adhere to applicable Federal, State and local building codes or standards for bridges and structures in the South/North Project.

Groundwater may be encountered at shallow depths along sections of the corridor that cross the flood plains of rivers and creeks. Other areas of shallow groundwater levels may exist locally, controlled by local variations in soil type and drainage.

Additionally, the study area intersects major rivers, minor water courses and floodplains within the lower Columbia and Willamette River basins. Floodplains are valuable natural resource areas providing fish and wildlife habitat, flood control, stormwater storage, water quality enhancement, sediment and erosion control, and educational, recreational, research, and aesthetic uses. Executive Order 11988 directs federal agencies to conduct their activities in ways designed to reduce the risk of flood loss; to minimize the impact of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains.

Natural Hazard Impacts within the Expo Center/Hayden Island Segment

As shown in Exhibit 3-12 of the Geology Report, no specific *landslide areas* or steep slopes (greater than 25 percent) are identified in the Expo Center/Hayden Island Segment. As noted above, the potential for major landslides within the South/North Corridor is very limited

because the topography within the corridor is relatively gentle. Although the LRT and highway improvements will cross the North Portland Harbor and the Columbia River on new bridge structures, the banks associated with the crossings are not particularly steep. As shown in Exhibit 3-4 of the Geology Report, the mapped surface unit for the bridge footprints is Quaternary alluvium and fill. In addition, historic aerial photographs for the area indicate that construction of North Portland Harbor and Columbia River bridge foundations and abutments would likely encounter fill embankments at Hayden Island. However, because steep slopes and landslides have not been identified near the proposed bridge footprints, no long-term adverse effects due to steep slopes or landslides are anticipated.

Exhibit 3-5 of the Geology Report identifies soil types within the greater Expo Center/Hayden Island Segment area, and Exhibit 3-6 describes the erosion hazard ratings for these soil types. As shown in Exhibit 3-5, the project footprint extends to areas with three soil types – Pilchuck-Urban land complex (0 to 3 percent slope); Sauvie-Rafton-Urban land complex (0 to 3 percent); and Rafton silt loam, protected. These soil types are not considered to have *severe erosion potential*.

As stated above, the Pacific Northwest is a seismically active area and is subject to *earthquake damage*. Bridges are vital links in the transportation system and are often especially vulnerable during seismic events. The Geology Report does not identify any seismically active earthquake faults in the Expo Center/Hayden Island Segment. However, several types of earthquakes could occur in the project area. In particular, there is a large, offshore fault located in the Pacific Ocean west of the I-5 crossing. Exhibit 3-16 of the Geology Report shows a map of the relative earthquake hazard ratings in the project area. These ratings take into account a variety of potential earthquake effects, with Zone A being the most hazardous areas and Zone D being the least hazardous. Earthquake effects include ground motion amplification, slope instability, and soil liquefaction, all of which have a high potential to impact public safety and cause structural damage and economic disruption. The Expo Center/Hayden Island Segment is identified in relative earthquake hazard Zones A and B.

The Hydrology Report includes background information on hydrology and floodplains in the CRC project corridor. The I-5 bridges are located at river mile 106 of the Columbia River. The Columbia River is highly constrained within the project area by existing levees and landform. In addition, 10 bridge footings are currently located below the river's ordinary high water level (OHW), and also constrict the river. The North Portland Harbor is a large channel of the Columbia River located between North Portland and the southern bank of Hayden Island. A flood control levee runs along the south bank of the North Portland Harbor and forms a boundary between the adjacent neighborhoods and the harbor.

The installation of piers within the Columbia River and North Portland Harbor would encroach upon the Columbia River's *100-year floodplain*. However, this would result in little, if any, increase in flooding risks, given the relatively small size of the bridge piers compared to the size of the Columbia River. The LRT and highway improvements in the Expo Center/Hayden Island Segment would either avoid or be elevated above the floodplain, with no significant encroachment or fill that would cause adverse flooding conditions or changes in

flood velocity. The volume of displacement presented by the piers is expected to be insignificant.

Mitigation Options for Natural Hazard Impacts in the Expo Center/Hayden Island Segments

Based on the information contained in the Geology Report, the Council finds that no *landslide areas* or *areas of severe erosion potential* have been identified in the Expo Center/Hayden Island Segment. While historical evidence of seismic activity in Oregon is minimal, recent studies indicate that western Oregon may be subject to a greater risk from *earthquake hazards* than previously thought. Site geology has a significant impact on earthquake damage. Young unconsolidated silt, sand, and clay deposits are associated with enhanced earthquake damage through amplification of shaking, settlement, liquefaction, and landsliding.

Potential mitigation measures to address geologic/soils conditions are provided in the Geology Report. During final engineering stage of the project, site-specific assessments would include additional geotechnical testing and monitoring. Soft foundation conditions, delineated by the exploration program, can be mitigated with proper designs. The site-specific assessments will also assess the use of soil stabilization techniques to minimize liquefaction of soils. Stabilization techniques include the use of compaction grouting, stone columns, and other techniques.

Mitigation measures would also apply to project structures. The project will provide seismic upgrades to existing structures, as-needed, and new and upgraded structures will adhere to the following applicable building codes and standards:

- AASHTO LRFD Bridge Design Specifications
- AASHTO Guide Specifications for LRFD Seismic Bridge Design
- WSDOT Bridge Design Manual, LRFD M 23-50 (BDM)
- ODOT Bridge Design and Drafting Manual (BDDM)
- City of Vancouver Municipal Code (VMC) Chapter 20.740.130 Critical Areas Protection- Geologic Hazards Areas

The project will use elements such as drilled shafts, driven piles, abutments and retaining walls. Structural designs will take into consideration stormwater infiltration or other future changed conditions near shallow footings, retaining walls and/or other structures that could increase the potential for soil liquefaction during a future seismic event.

Based on the facts in the Geology Report, the Council finds that long-term impacts to geology and soils in the Expo Center/Hayden Island Segment are minor and can be mitigated. Mitigation could consist of using standard engineering practices to construct stable slopes; design of bridges to meet Uniform Building Code seismic standards; and techniques such as excavation and backfilling, special footing and foundation designs, and special construction techniques such as surcharging and dewatering to address the stability of artificial fill and the high water table on Hayden Island. Additionally, the Columbia River Crossing Project would replace existing bridges with new and retrofitted structures built to modern seismic safety standards, and would stabilize weak soils along the Columbia River on Hayden Island and

around Marine Drive. The Council concludes that the proposed LRT and highway improvements would significantly improve public safety and structure stability during earthquake seismic events when compared with existing conditions.

The North Portland Harbor and the Columbia River will span the 100-year *floodplain*, but with no significant fill or encroachment into the floodplain resulting from pier placement. A minor amount of fill will be associated with the placement of piers for the new bridges. However, the Council finds that floodplain impacts, if any, would be very small given the relatively small size of the bridge piers in comparison to the Columbia River. A flood-rise analysis will be conducted during the final design to calculate the impact that piers in the water will have on flood elevation, in accordance with local regulations and Executive Order 11988 – Floodplain Management. If flood-rise exceeds the allowable limit, the rise would be mitigated through floodplain excavation (cut/fill balance) activities, and the Council finds that such mitigation is feasible

6.3.4 Criterion 6: Natural Resource Impacts

“Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Natural resource impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section. Natural resource impacts, along with associated mitigation measures, also are described in the Ecosystems Technical Report (Ecosystems Report), the Wetlands Technical Report (Wetlands Report), the Parks and Recreation Technical Report (Parks Report) and the Visual and Aesthetics Technical Report (Visual Report).

Identification of Impacts to Significant, Protected Natural Resources in the Expo Center/Hayden Island Segment

Criterion 6 of this Land Use Final Order requires identification of adverse impacts on *significant* resources (fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway) that are *protected* in acknowledged local comprehensive plans. Oregon planning under Statewide Planning Goal 5 calls for inventories and protection of significant natural resources including fish and wildlife habitat, wetlands, riparian and scenic and open space areas. Because not all natural resource sites within the project area are identified as significant by local governments in their comprehensive plans, the scope of analysis of natural resource impacts under Criterion 6 is

generally narrower than the scope of analysis contained in the federal environmental impact statements.

For the Columbia River Crossing portion of the South/North Project, the relevant acknowledged comprehensive plan is the City of Portland Comprehensive Plan. That plan includes policies and objectives to address conservation of a range of natural resources identified in Statewide Goal 5, including wetlands, riparian areas and water bodies, fish and wildlife habitat, scenic routes and viewpoints, and significant upland areas. The City has completed an inventory and analysis of natural resource sites, identified the significance of each resource site and provided varying levels of protection to specific sites through the application of Environmental Overlay zones (E-zones). The city applies two environmental overlay zones: environmental protection (ep) and environmental conservation (ec). The *environmental protection zone* provides the highest level of protection for resource areas deemed highly valuable through a detailed inventory and economic, social, environmental, and energy (ESEE) analysis. Development is largely prevented in these areas. The *environmental conservation zone* areas are also considered valuable, but can be protected while allowing “environmentally sensitive urban development.”

Within the Expo Center/Hayden Island Segment, the Council finds that the environmental conservation zone applies to the Columbia River, North Portland Harbor, Columbia Slough, and the Vanport Wetlands to identify and protect these areas for multiple resource values, including *fish and wildlife habitat, riparian corridors, open space and scenic and wetland areas*. However, the E-zone regulations are superseded by the regulations of Peninsula Drainage District #1 at the Vanport Wetlands. As identified in the Ecosystems Report, about 41 acres within the project’s footprint in the Expo Center/Hayden Island Segment are within Portland’s E-zones, and impacts to these resources are regulated.

The Council also finds that N Marine Drive is identified as a *scenic corridor* in the Portland Comprehensive Plan and the Columbia Slough has been defined as a *scenic waterway* by the City of Portland, and could be considered a recreational resource. Further, the Portland Comprehensive Plan designates the planned extension of the 40-Mile Loop *recreational trail* along N Marine Drive adjacent to the south side of the North Portland Harbor. Additionally, the Portland Comprehensive Plan designates lands within the Expo Center/Hayden Island Segment as *Open Space*. This designation provides for the enhancement and preservation of public and privately owned open, natural, and improved parks and recreational areas. Designated Open Space is found on the east side of I-5 between N Martin Luther King Jr. Boulevard and N Hayden Meadows Drive (Delta Park), and on the west side near the Expo Center exit. The Open Space designation also borders the N Columbia Boulevard interchange at the southern end of the area of primary impact. Based on these facts, the Council concludes that the natural resources highlighted above are significant and afforded some protection under the acknowledged Portland Comprehensive Plan.

Fish and Wildlife Habitat. The Columbia River and North Portland Harbor are major aquatic resources in the Expo Center/Hayden Island Segment and are recognized as significant natural resources for multiple values, including *fish and wildlife habitat*. Shorelines along both of these waterways have been substantially altered and now support

limited natural vegetation. These aquatic resources could be directly affected by one or more of the following activities: 1) in-water construction work, 2) construction in or near riparian areas, 3) re-routing of stormwater drainage from roadways and bridges, and 4) permanent structures placed in or removed from waterways.

Historically, the project area was forested, with forested wetlands along the Oregon shoreline and on Hayden Island. The Oregon shoreline was part of a large floodplain wetland system and included many sloughs, back channels, and small or seasonal lakes. Urban development has substantially degraded historic habitat in all parts of the project area, particularly for land-based species. Exhibit 3-10 of the Ecosystems Report shows the amount of different habitat types within the project area. The largest area is comprised of open water, as this classification includes the portions of the Columbia River, North Portland Harbor and Columbia Slough within the project area, and stretches up and downstream from the existing I-5 bridges to account for hydroacoustic attenuation areas. Outside of open water, the project area is almost exclusively occupied by urban habitats. Less than 2 percent of the project area is classified as either wetland or forest habitat, with most of this occurring as small patches isolated from other natural areas.

As described in the Ecosystems Report, the Columbia River and its tributaries are the dominant aquatic system in the Pacific Northwest. In the project area, river height and flow rate are influenced by tides and upstream dams. Because the project is within a heavily developed area, riparian habitat quality along the banks of the Columbia River is poor. Dikes and levees, particularly when reinforced with riprap or concrete, as is the case near the I-5 bridges, make poor quality riparian habitat. The river in this area offers pool and glide habitats for fish, though the water quality is limited for several pollutants. The I-5 bridges influence aquatic habitat conditions in the main channel and North Portland Harbor. Bridge piers in the river provide potential refuge from the current for both predatory fish and juvenile salmon.

The North Portland Harbor channel, on the south side of Hayden Island, supports several floating home communities and commercial and recreational moorages. Average depth in this channel is about 14 feet, with deeper water on the south side. The south shore supports active industrial uses. Piers and moorages line the shore, providing very low quality riparian habitat. Piers and floating homes provide shade and refuge for both predatory fish and juvenile salmon. With the exception of a few large cottonwoods along both shores of the harbor, ornamental plantings and weedy exotic species comprise most of the vegetative cover. Only the open water of the river, and to a lesser extent the harbor, provides much habitat value to wildlife. A variety of resident and migratory waterfowl are expected on both waterways, as are small mammals such as nutria and river otter.

The Ecosystems Report contains detailed information on the status of protected species in the project corridor. Bald eagles use the Columbia River and environs to forage for fish and waterfowl, but no nesting or breeding sites are known within one mile of the project. Bald eagles were removed from the federal ESA list in August 2007, but are still listed as threatened under Oregon and Washington ESAs.

Peregrine falcons are known to be present in the project area, and utilize the existing I-5 bridge structures year-round. This species was removed from the federal ESA list in 1999 and from the Oregon ESA list in March 2007.

The project area is located in the Pacific flyway, the major north-south route for migratory birds that extends from Patagonia to Alaska. Many migratory birds use the area for resting, feeding, and breeding.

The Columbia River is an important passageway for anadromous fish species moving between the ocean and upstream spawning areas, and also provides significant habitat for resident fish species. The Columbia River and North Portland Harbor are known to support listed anadromous salmonids, including Chinook salmon, chum salmon, sockeye salmon, steelhead trout, and coho salmon, which use this habitat primarily for migration, holding, and rearing. Exhibit 3.9 of the Ecosystems Report summarizes the protected aquatic species known to use or potentially be using waterways in the project area.

The Council finds that the existing I-5 highway, bridges, and interchanges are located in a highly urbanized area. The combined effect of existing transportation facilities and development patterns results in adverse impacts to aquatic, riparian, and terrestrial habitats and the species that rely on them for survival. Existing fish and wildlife habitat impacts include the following: 1) Untreated stormwater runoff has degraded water quality, 2) Columbia River bridge piers provide a refuge for fish species that prey on juvenile salmon, and 3) the bridge and roadway alignment travels through locally and regionally designated habitats.

In general, the Council finds that the long-term effects to aquatic habitat would be consistent with current conditions with the continued presence of bridge piers in the Columbia River and a major transportation structure over the river. Compared with the No-Build Alternative, the Project has fewer bridge piers; however, the piers will be bigger than those currently in place, casting larger shadows and displacing some shallow water habitat.

The Council finds that effects to riparian habitat will be negligible in the Columbia River and North Portland Harbor, as there is very little functioning riparian vegetation in the main project area. About 35 acres within Portland's E-zones would be directly impacted by light rail and highway improvements in the Expo Center/Hayden Island Segment. However, the additional acreage impacted should not adversely affect the overall function of terrestrial and riparian habitat or the long-term sustainability of plant and animal species in the project area. The project improvements will mostly be constructed within existing rights-of-way or land already developed to urban densities, areas that generally provide poor quality fish and wildlife habitat. The project will revegetate disturbed shoreline areas, minimizing long-term effects to Columbia River riparian habitat. There will be no excavation or removal of trees from the Columbia Slough riparian area. Therefore, the project will have no effect on Columbia Slough riparian habitat.

Scenic and Open Space Areas. *Scenic and open space* resources recognized in the City of Portland's *Scenic Views, Sites and Drives Inventory*, *Scenic Resource Protection Plan* include

the Marine Drive scenic corridor, the North Portland Harbor scenic corridor, the historic northbound I-5 truss and lift bridge, and the Columbia River scenic corridor. Additionally, the Columbia Slough has been defined as a scenic waterway by the City of Portland and could be considered a recreational resource.

The Council recognizes that highways and major transit facilities are highly visible public facilities that can noticeably affect the visual character of surrounding landscapes and the perception of visual resources. Such changes can be of keen interest to local residents and jurisdictions as well as to travelers using the facilities.

The Visual Report describes existing conditions and long-term effects to the viewsheds in the project corridor. A viewshed, or "landscape unit", is the portion of the landscape that can be seen from within the project area and that has views of the project area. The boundaries of a viewshed are determined by the surrounding topography, vegetation, and built environment. Two viewsheds are described for the Expo Center/Hayden Island Segment: 1) the Columbia Slough landscape unit, and 2) the Columbia River landscape unit.

Mixed industrial-commercial development, sports fields, and marinas define the visual character of the Columbia Slough landscape unit. Visual resources include the Columbia Slough Scenic Corridor, stands of mature trees, Vanport Wetlands (west of I-5), and views of the Tualatin Hills, Mount St. Helens, and the Washington Cascades. Viewer sensitivity in the Columbia Slough landscape unit is low for drivers and high for recreational users.

The river defines the visual character of the Columbia River landscape unit. Visual resources include the Columbia River and its shoreline and views of Mt. Hood and the Tualatin Hills. Viewer sensitivity and vividness in the Columbia River landscape unit is high.

The primary elements of the Columbia River Crossing Project that would affect visual quality and character are the new bridge structures across the North Portland Harbor and the Columbia River. The Council finds that the visual effects in the Columbia Slough scenic corridor would be minor.

Visual impacts to the N Marine Drive and Columbia River scenic corridors would occur from:

- The greater heights and widths of the new structures across the Columbia River;
- The widening of the I-5 corridor due to the addition of auxiliary lanes along I-5;
- The new light rail/vehicular/bicycle/pedestrian bridge between Hayden Island and Expo Center Drive; and
- The wider or higher ramps for reconfigured interchanges at Marine Drive and Hayden Island.

This section of the N Marine Drive Scenic Corridor borders the North Portland Harbor, a narrow waterway dominated on the east by the large horizontal forms of I-5 and heavy industrial activities and busy roads along its south banks. Older, wooden and metal storage and other buildings rim the bank. Views from the south and north bank of the Harbor are blocked to the east by the I-5 bridge but focus on a cluster of small docks and houseboats

nestled against the south shore of Hayden Island adjacent to the bridge. Views west down the harbor focus on the channel and on river-related commercial and industrial activities along both banks.

The new light rail/vehicular/bicycle/pedestrian bridge will cross under N Marine Drive and over the North Portland Harbor on an approximately 1000 foot structure constructed west of the existing I-5 bridge over the harbor. The LRT bridge would remove some houseboats and vegetation along both banks of the harbor. The bridge would also introduce a new overhead structure over the Marine Drive and North Portland Harbor scenic corridors. However, because the multi-modal bridge will closely parallel the existing I-5 bridge and is located in an intensively urban, industrial section of the scenic corridor, the Council finds that the project will not result in a significant adverse impact on either scenic corridor.

The reach of the Columbia River crossed by the I-5 bridges is flat, open water bordered by industrial, commercial, residential and undeveloped areas along its shoreline. The river is a significant regional resource and the dominant visual element within this segment because of its large scale and openness. The river also serves as a dramatic gateway between Oregon and Washington. The Visual Report concludes that the new bridge forms over the Columbia River and the resulting changes to views of (and from) the Columbia River would be mostly positive. Potential impacts would include:

- Removal of the visually complicated truss structures and lift towers of the existing I-5 bridges. This action would remove an obstruction of views from the higher deck and from the river. However, this action would remove an important contributor to the area's historic context (the I-5 bridges) and a character-defining aspect of interstate travel.
- From I-5, views of the Portland and Vancouver skylines, distant shorelines, rolling hills, and mountain profiles would generally improve. Toward I-5, views of open water and shorelines from shoreline-level and elevated viewpoints would also generally improve.

The Council finds that high-quality design and construction of the proposed transit and highway facilities will be important mitigation tools for visual quality and aesthetics associated with designated scenic and open space resources. The City of Portland and other stakeholders will continue to discuss the aesthetic attributes of the new bridge structures to best mitigate potential visual impacts and to create a noteworthy visual feature. The Council understands that design guidelines have been developed and will be used during the final design phases of the project to guide decisions that impact visual character and quality. It considers the design of the I-5 bridges to be a substantial visual mitigation opportunity for the project. Appropriate conditions that are reasonable and necessary and do not prevent implementation of the LUFO can be imposed through the local review process to avoid or mitigate adverse impacts on designated scenic resources and viewpoints.

Riparian Areas. As described in the discussion of fish & wildlife habitat, the *riparian area* along the North Portland Harbor and the Columbia River has been significantly altered with development. Shorelines along both of these waterways now support limited natural

vegetation. The project improvements will mostly be constructed within existing rights-of-way or on land already developed to urban densities, areas that generally provide poor quality fish and wildlife habitat. The project will revegetate disturbed shoreline areas, minimizing long-term effects to Columbia River riparian habitat. There will be no excavation or removal of trees from the Columbia Slough riparian area. Therefore, the project will have no adverse effect on Columbia Slough riparian habitat.

Wetland Areas. The Wetlands Report notes that there are large wetland systems east and west of the immediate project area in the Expo Center/Hayden Island Segment, including the Vanport Wetland, Force Lake, Smith and Bybee Lakes, and West Hayden Island wetlands. Additionally, the Columbia Slough watershed has substantial wetlands and other water present within the urban matrix. Exhibit 3.6 identifies the following field-identified wetlands in the Expo Center/Hayden Island Segment: 1) Victory interchange wetlands, 2) Schmeer Slough, 3) Walker Slough, 4) Expo Road wetland, and 5) Vanport Wetlands. The wetland delineation report was submitted for concurrence to the Oregon Department of State Lands (DSL) in 2008 and DSL has concurred with the delineation (#WD 2008-0205). In addition to field-identified wetlands, a potentially jurisdictional water area is also identified in Exhibit 3-6 of the Wetlands Report (PJWA O). The CRC project has the possibility of encroaching upon the eastern edge of PJWA O, however, lacking permission from the property owner to enter the Vancouver Way property, neither the project team nor regulatory agencies can confirm the presence or absence of jurisdictional wetlands at this location.

Based on information in the Wetlands Report, the Council finds that the project footprint would not encroach upon any identified wetlands in the Expo Center/Hayden Island Segment. The new impervious surface will not discharge untreated stormwater runoff into the wetlands and the wildlife activities that may be impacted are already negatively affected by the urbanized environment.

Park and Recreational Areas and Willamette River Greenway. Designated *park and recreational areas* close to the proposed LRT and highway improvements in the Expo Center/Hayden Island Segment include East Delta Park, the Marine Drive Multi-Use Trail and the proposed Bridgeton Multi-Use Trail. The project improvements are located outside of the boundaries of the *Willamette River Greenway*.

East Delta Park is a regional park located east of I-5 between N Denver and Martin Luther King Jr. Boulevard. East Delta Park encompasses about 85 acres and facilities include softball and soccer fields, control line flying field, sand volleyball courts, playground, and off-leash dog area on ODOT property. Approximately 0.4 acre of off-leash area associated with East Delta Park, but located in ODOT right-of-way, would be permanently acquired for the project improvements.

The Marine Drive Multi-use trail is a designated *recreational trail* along N Marine Drive. The five-mile segment extending from I-5 west to Kelley Point Park connects to the Marine Drive interchange and North Portland Harbor bridges. The 40-Mile Loop is designated a significant recreational resource and is protected in the acknowledged City of Portland Comprehensive Plan. Project improvements in the Expo Center/Hayden Island Segment would not require any

use of the trail. Based on information included in the Parks and Recreation Report, the Council finds that improvements to the bicycle and pedestrian facilities would represent a large improvement over the circuitous paths that exist today within the loops and ramps of the Marine Drive interchange. New, wide multi-use paths beneath the Marine Drive interchange would connect both sides of I-5 to the Expo Center light rail station, East Delta Park, the Marine Drive Multi-use Trail, and the crossing over North Portland Harbor to Hayden Island. Additionally, the Council finds that the new improvements to bicycle and pedestrian facilities within the Marine Drive interchange area could be connected to the proposed Bridgeton Trail sometime in the future.

Mitigation Options for Natural Resource Impacts in the Expo Center/Hayden Island Segments

The Council finds that the South/North Project will have no adverse impacts on park areas and designated recreational trails, riparian areas and identified wetland areas. Pedestrian and bicycle improvements in the vicinity of the Marine Drive interchange will substantially improve connections to the Marine Drive multi-use recreational trail.

The Council finds that the bridges across the North Portland Harbor will have an impact on the scenic and visual character of this segment. However, by locating the LRT bridges in close proximity to the existing and more dominant I-5 bridges, the Council concludes that visual impacts will be reduced. Additionally, by locating the LRT alignment to the west of I-5, views up the Columbia River from the I-5 bridges toward Mt. Hood are not affected.

Construction of the new LRT and highway bridges over the North Portland Harbor and the Columbia River could result in adverse impacts to wildlife habitat. Impacts to riparian habitat along North Portland Harbor would be limited to the loss of several relatively large cottonwood trees along the harbor shorelines. Since these trees occur in small, isolated stands surrounded by development, their loss would not adversely affect wildlife populations. Small, isolated stands of trees in an urbanized area afford relatively poor quality habitat due primarily to the lack of habitat diversity, lack of buffering from human activity and lack of movement corridors to other habitat areas.

Long-term impacts to fisheries include the removal of a small amount of channel bottom habitat due to construction of the bridge pier foundations. None of the bridge piers is expected to adversely modify critical habitat; however, elements such as cover, shelter, refuge, holding, or rearing might be adversely affected to a relatively small extent. No suitable spawning habitat, and limited rearing and holding habitat for juvenile salmonids, is present in the area of the bridge crossings. As a result of the analysis and findings presented in the *Biological Assessment for Threatened, Endangered, and Candidate Fish* and the approved Biological Opinion, the Council concludes that, with implementation of a number of conservation measures, the South/North Project would not likely jeopardize populations of threatened or endangered fish species or adversely modify their critical habitat in the project area. However, due to the extent of in-water work and the presence of many ESA-listed fish, it is acknowledged that adverse effects to individual fish and their critical habitat are likely to occur, but effects are avoided or minimized to the extent practicable. The Council notes that NMFS produced this finding in their Biological Opinion.

The Council finds that the following mitigation measures outlined for Threatened, Endangered, and Candidate Fish in the Expo Center/Hayden Island Segment are available to mitigate adverse impacts to the North Portland Harbor and the Columbia River and could be imposed as conditions of approval during the FEIS process and/or the local permitting process if reasonable and necessary:

- Implement erosion and sediment control measures to prevent sediment from entering surface waters.
- Time in-water construction activities based on discussions with NMFS and the Oregon Department of Fish and Wildlife, and take into consideration factors such as timing of fish migration and construction schedule and cost.
- Use of hydroacoustic attenuation measures to reduce impacts on the behavior of fish and sea lions.
- Conduct sediment sampling prior to construction of in-water bridge piers in order to determine the presence of and characterize potential contaminants.
- Limit the operation of equipment in the active river channel to the minimum necessary.
- Clean all equipment that is used for in-water work prior to entering the water.
- Do not store or transfer petroleum products within 150 feet of the active river channel, unless isolated within a hard zone with suitable containment measures in place.
- Assure the development and implementation of plans for the safe storage and containment of all hazardous materials used in project construction.
- Include measures in the plan for containment berms and/or detention basins, where appropriate.
- Develop a site-specific sediment control and erosion control plan prior to project implementation.

The Council finds that these types of measures could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the local permitting process.

6.3.5 Criterion 7: Stormwater Runoff

“Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Stormwater runoff impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section. Stormwater impacts and mitigation measures are also described in the Water Quality and Hydrology Technical Report.

General Overview of Stormwater Runoff Impacts and Mitigation

The South/North Project intersects major rivers, minor water courses and floodplains within the lower Columbia and Willamette River basins, including the Willamette and Columbia Rivers. Existing waterways in the South/North Project area receive large volumes of stormwater and surface runoff containing a variety of pollutants, including chemicals and nutrients from fertilizers and pesticides, roadway sediments, motor vehicles and other man-made or natural sources. Water quality in the corridor is typical of drainage basins with urban development.

Areas developed or under development increase the rate and volume of peak stormwater discharges. The peak runoff rate and volume of stormwater discharges usually increase when construction removes vegetation, compacts soils, and/or covers significant portions of a site with buildings or pavement. Typical problems associated with increases in peak discharge rates include higher flow velocities in streams, more erosion, and more frequent flooding. These problems degrade habitat areas, damage property, and require increased maintenance of culverts and stormwater facilities.

A range of federal laws, state statutes, and local and regional ordinances address hydrologic impacts from development. State and local regulations typically establish standards for controlling the peak rate of stormwater runoff. Regional standards, contained in Title 3 of Metro's *Urban Growth Management Functional Plan*, more broadly address flood mitigation, erosion and sediment control, and the protection of long term regional continuity and integrity of water quality and flood management areas. Federal National Flood Insurance Program criteria and Executive Order 11988 regulate development in flood prone and floodplain areas.

Potential sources of water quality degradation include pollutants from chemicals and nutrients from natural or man-made sources. Eroded sediments and other pollutants can be carried by stormwater to downstream receiving waters. Resulting water quality issues can impair the beneficial use of local waterways for recreation, wildlife habitat, and watering of livestock or other farm animals.

Water quality impacts are generally regulated by federal and state guidelines, usually through required water quality standards for receiving waters quality and limitations on the generation and release of urban pollutants.

Stormwater detention treatment facilities can be used to mitigate the effects of long-term and short-term hydrologic and water quality impacts changes. State and local regulations establish standards for detention stormwater treatment and other methods of stormwater control which can be applied as conditions of approval during local permitting proceedings. Mitigation for hydrologic and impacts are usually accomplished by reducing or attenuating peak runoff rates, by either detaining (store and release), retaining (store but do not release) through stormwater detention, or infiltrating runoff from a developed site. Stormwater detention provides water quality benefits because storage promotes settlement of suspended sediments and other pollutants. Stormwater detention and water quality facilities are typically combined to use land more efficiently. "Dry" ponds, bioretention ponds, "wet" ponds, constructed treatment wetlands, retention ponds, biofiltration swales, biofiltration swales filter strips, underground vaults, bioslopes, and constructed wetlands dry wells are typically used stormwater treatment facilities. The Council finds that a range of measures are available and

site-specific mitigation for hydrologic and water quality impacts will be refined and selected during the Final Design and local permitting processes.

All of these facilities detain stormwater by releasing runoff through a regulating structure, such as an orifice or weir. Stormwater detention provides water quality benefits because storage promotes settlement of suspended sediments and other pollutants. Stormwater detention and water quality facilities are typically combined to use land more efficiently.

Source control Best Management Practices (BMPs) are intended to mitigate pollutants generated through normal operation and use of buildings, roadways, and other urban facilities. The Council finds that water quality degradation resulting from erosion and sedimentation and the release of pollutants can be minimized through the use of BMPs during construction. Construction BMPs include use of barrier berms, silt fencing, temporary sediment detention basins, plastic covering for exposed ground, vegetative buffers (hay bales), and restricting clearing activities to dry weather periods to contain sediment on-site. Further requirements could include diapering of all dump trucks to avoid spillage, and cleaning of heavy equipment tires and trucks before they are allowed to drive off-site. A variety of special BMPs can also be used at crossings or adjacent to streams or watercourses during construction.

In general, the Council finds that water quantity and water quality and hydrology impacts created by the construction and operation of the Columbia River Crossing Project can be substantially mitigated by complying with the following: DEQ water quality standards; Army Corps of Engineers Section 404 permit regulations; Department of State Lands regulations for instream activities; National Marine Fisheries Service (NMFS) conservation measures specified in the project Biological Opinion; Metro Title 3 regional standards; and City of Portland erosion control and stormwater regulations. These rules and regulations outline Best Management Practices to prevent or limit pollutants from entering surface waters through urban drainage systems. These types of measures could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the local permitting process.

Stormwater Runoff Impacts and Mitigation Options with the Expo Center/Hayden Island Segments

Within the Expo Center/Hayden Island Segments, specific water bodies include the Columbia Slough, the Columbia River and North Portland Harbor. As described in the Water Quality and Hydrology Report, the Columbia Slough is a slow-moving, low-gradient drainage channel running nearly 19 miles from Fairview Lake in the east to the Willamette River in the west. Water levels are managed with pumps, weirs, and levees. The levee system protects most of the floodplain in the vicinity of I-5 against flooding. Within the project area, the Columbia Slough is currently on Oregon's 303(d) list because it does not meet water quality standards for four parameters.

The I-5 crossing of the Columbia Slough is in a highly urbanized area. Riparian habitat along the slough has largely been replaced by buildings and paved surfaces compared to historic conditions. Riparian areas along the Slough are generally not adequate to provide shade, bank stabilization, sediment control, pollution control, or stream flow moderation. Within the

project area, I-5 is elevated on embankments or structures and, in general, the highway drainage systems do not handle runoff from outside the right-of-way.

I-5 crosses the Columbia River near river mile 106.5. North Portland Harbor, the portion of the Columbia River running south of Hayden Island, lies within the project area. Runoff from I-5 on Hayden Island drains directly into the Columbia River and North Portland Harbor. The east portion of Hayden Island is highly developed, with large hotels, a shopping center, residential communities, and other commercial activities. The western portion of the island is undeveloped and is comprised of pasture, woods, and wetland areas. Within the project area, the Columbia River is currently on Oregon's 303(d) list because it does not meet water quality standards for six parameters. DEQ does not differentiate between the North Portland Harbor and the Columbia River when compiling the 303(d) list.

Project data show four outfalls that drain to the Columbia River/North Portland Harbor within the project area. On Hayden Island, runoff from I-5 discharges directly to the Columbia River through road-side grates located along the entire span. Runoff from the bridge is not treated prior to release to the river.

As summarized in the Water Quality and Hydrology Report, the differences in long-term effects on water quality between the Columbia River Crossing Project and the No-Build Alternative are substantial. Although the Project would increase the total amount of pollutant generating impervious surfaces in the Columbia Slough Watershed and the Columbia River Watershed, the amount of untreated impervious surface would drop dramatically compared to existing conditions and the No-Build Alternative. This is because, with the Project, stormwater runoff from the entire Contributing Impervious Area (CIA) would be treated, while stormwater runoff from most of the existing impervious surfaces does not currently undergo stormwater treatment.

Based on the information contained in the Water Quality and Hydrology Report, the Council concludes that no adverse hydrologic or water quality impacts are expected in the Expo Center/Hayden Island Segment. The Project would increase overall impervious surfaces by about 28 acres, which could result in increased stormwater runoff rates and volumes and increase the amount of pollutants in stormwater. Without mitigation, this would affect the hydrology of project waterways. However, the Columbia Slough and the Columbia River are large water bodies and the project-related increase in stormwater volume would not result in a measurable increase of flows in these surface waters. Additionally, stormwater treatment design for the project corridor includes a number of stormwater treatment and/or infiltration facilities to reduce pollutants (including sediments and metals). Therefore, although the impervious surface area will increase by about 28 acres, untreated pollution generating surface area would be reduced from 219 acres to 0 acres.

The Council finds that, as described in the Water Quality and Hydrology Report, the Project will provide treatment not only for the new impervious area, but also for runoff from existing impervious surface area that does not currently receive treatment. The Council concludes that the project will provide treatment of approximately nine times the area of additional impervious surface being added as part of the Locally Preferred Alternative and will result in

overall positive effects to the water quality and hydrology of receiving waters. Stormwater runoff would be treated in compliance with current standards before being discharged to project area water features.

The Council recognizes that specific and detailed mitigation erosion control and water quality measures will be required for the construction of the LRT facilities and highway improvements in the Expo Center/Hayden Island Segment. The project team has prepared a draft stormwater management design in order to evaluate general feasibility and water quality effects associated with the project. For the portion of the Columbia River Crossing project in Oregon, the draft was prepared to meet the stormwater management requirements of ODOT and the City of Portland. The draft design includes gravity pipe drainage systems that would collect and convey runoff from the new bridges, transit guideway, and road improvements. Stormwater treatment facilities would reduce total suspended solids (TSS), particulates, and dissolved metals to the maximum feasible extent before runoff reaches surface waters.

The following stormwater treatment devices are included in the draft stormwater management design:

- Bioretention ponds – 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 – shallow, permanent, vegetated ponds that function like natural wetlands. They remove pollutants through such means as sedimentation, microbial activity, and uptake by plants.
- Soil-amended biofiltration swales – channels with mild slopes and shallow depths of flow. The channels are dry between storm events and they treat runoff by filtration as runoff flows through the vegetated surface and amended soils.
- Soil-amended filter strips – similar to grass swales, filter strips are intended to treat sheet runoff from an adjacent roadway surface.
- Bioslopes – like filter strips, are intended to treat sheet runoff from an adjacent roadway surface. The percolating runoff flows through a special mixture of materials, which promotes the absorption of pollutants.

Based on the draft stormwater management design, the Council finds that a range of measures are available to mitigate stormwater impacts and site-specific mitigation for stormwater quantity and quality impacts associated with the LRT and highway improvements, including the bridge construction across the North Portland Harbor and the Columbia River. These measures will be refined and selected during the FEIS and local permitting processes.

6.3.6 Criterion 8: Historic and Cultural Resources

“Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.”

Historic and cultural resource impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section following a more general discussion of historic and cultural resource impacts and mitigation. Historic and cultural resource impacts and mitigation measures are also described in the Historic Built Environment Technical Report (Historic Report), and the Archaeology Technical Report (Archaeology Report).

General Overview of Historic and Cultural Resource Impacts

Section 106 of the National Historic Preservation Act of 1966, as amended, and Executive Order 11593 require that a federal agency consider the effect of a federally assisted project on any historic district, sites, buildings, structures, objects or any archaeological sites listed in or eligible for inclusion in the National Register of Historic Places.

Throughout earlier phases of the Columbia River Crossing Project, as with previously approved segments of the South/North Project, alternatives and options have been developed, evaluated, narrowed and refined. A significant objective in the narrowing and refinement of alternatives and options has been to avoid where practicable, or to minimize where avoidance is impracticable, potential impacts to historic and cultural resources.

During preliminary and final engineering, further design work will be completed that would further attempt to avoid, minimize and/or mitigate adverse impacts to historic and cultural resources. Under federal procedures, the resulting impact analyses and commitment to feasible mitigation measures will be completed in coordination with the Oregon State Historic Preservation Officer (SHPO) and the Advisory Council for Historic Preservation (ACHP). A Memorandum of Agreement between FTA, FHWA, SHPO and ACHP and others will be executed to define how the project will mitigate adverse effects to historic and cultural resources.

Project staff, in consultation with Oregon's State Historic Preservation Officer, made a determination of the "area of potential effect" for that portion of the Columbia River Crossing Project within Oregon. The criteria of effect and criteria of adverse effect as set forth in the National Historic Preservation Act are highlighted below. The Council agrees with and adopts these criteria for purposes of measuring compliance with Criterion 8.

An undertaking has *an effect* on an historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the *National Register*. For the purpose of determining effect, alteration to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.

An undertaking is considered to have an *adverse effect* when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association. Adverse effects on historic properties include, but are not limited to:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the *National Register*;

- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, lease or sale of the property.

The Historic Report includes an analysis of historic resources and historic districts within the Expo Center/Hayden Island Segments to determine the National Register of Historic Places status. It also assesses short and long-term impacts of the Project on historic, cultural and archeological resources. The Council accepts the methodology for determining “adverse effect” established in the Historic Report, and it adopts and incorporates by reference herein the facts and conclusions set forth in that document.

The City of Portland has completed an inventory of cultural resources and designated significant resource sites in its comprehensive plan. Some resources, which are inventoried in the local comprehensive plans under LCDC Goal 5, are not necessarily defined as “significant” through the NEPA process. Conversely, the federal environmental documents include discussion of some resources which are not inventoried or protected in Portland’s plan. Criterion 8 only requires identification of adverse impacts on significant historic and cultural resources *protected* in acknowledged comprehensive plans.

General Discussion of Historic and Cultural Resource Mitigation Measures

The Historic Report outlines general measures to avoid, minimize or mitigate for long-term impacts and short-term construction impacts. It also includes a more specific discussion of mitigation measures for resources that may be adversely affected by the Columbia River Crossing Project. The Council finds the following to be examples of avoidance, minimization and mitigation options:

1. Demolition of resources could be minimized in some instances through refinement in the design of the project in a specific area.
2. Demolition could also be avoided through relocating the resource.
3. If these options are not feasible, recordation and salvage of the resource could mitigate for its loss.
4. Loss of access or isolation of resources could be minimized through design treatments such as creation of alternative access points, more visible signage, or traffic control to facilitate accessibility.
5. Noise and vibration impacts to resources could be minimized through design treatments and vibration suppression.
6. Visual impacts could be mitigated through enhanced design treatments. Station and shelter design, construction materials, and street improvements could be chosen to complement existing building and street settings. Stations could be moved to avoid placement in front of historic resources. Where possible, overhead wiring could be attached to existing support structures.
7. Areas with a high probability of archaeological resources have been identified. A professional archaeologist would be on site to monitor construction activities in these specified areas.

The Council finds that the discussion of general mitigation measures included within the Historic Report provides a good base for more detailed mitigation commitments in the FEIS.

Federal, State and Local Review Processes to Reduce Resource Impacts

Federal and State Processes

Section 106 of the National Historic Preservation Act of 1966, described above, defines the federal review process designed to ensure that historic properties are considered during federal project planning and execution. The process is administered by the ACHP and coordinated at the state level by the SHPO. An agency must afford the ACHP a reasonable opportunity to comment on the agency's project. Section 106 requires that every federal agency take into account how each of its undertakings could affect historic properties.

For the purposes of Section 106, any property listed in or eligible for listing in the National Register of Historic Places is considered historic. The process has five steps as follows: 1) identify and evaluate historic properties; 2) assess effects of the project on historic properties; 3) if an adverse effect would occur, then consultation with the SHPO and other interested parties would occur, and if necessary, a Memorandum of Agreement would be developed which defines what will be done to reduce, avoid or mitigate the adverse effects; 4) ACHP comment; and 5) proceed with the project, incorporating the mitigation in the Memorandum of Understanding.

At the state level, the historic preservation process is defined in ORS Chapter 358 and in the Land Conservation and Development Commission's Goal 5. The state process is implemented by the local jurisdictions through the adoption of historic preservation identification and protection plans in their individual comprehensive plans. The state process limits local preservation options. Under current law, local protection of historic properties requires owner consent. However, properties listed on the National Register may be preserved by local governments. Within the City of Portland, demolition must be reviewed and may be denied.

State law in ORS Chapter 358 and LCDC's Goal 5 rule, OAR 660-023-0200, encourage the preservation, management, and enhancement of structures of historic significance. It authorizes local governments to adopt or amend lists of significant historic resource sites. However, owners of inventoried historic resources must be notified and may refuse local historic resource designation at any time prior to adoption of the designation. No property may be included on the local list of significant historic resources where the owner objects. Moreover, a property owner may remove from the property a local historic property designation that was imposed by the local government.

OAR 660-023-0200(7) encourages local governments to adopt historic preservation regulations regarding the demolition, removal or major exterior alteration of all designated historic resources. It encourages consistency of such regulations with the standards and guidelines recommended in the Standards and Guidelines for Archaeology and Historic Preservation published by the US Secretary of the Interior. Further, OAR 660-023-0200(9) prohibits local governments from issuing permits for demolition or modification of an inventoried significant historic resource for at least 120 days from the date a property owner requests removal of historic resource designation from the property. It requires that local

governments protect properties that are listed on the National Register, including demolition review and design review.

Local Process

The City of Portland has a local process in place to address alteration or demolition of historic and cultural resources that are identified as significant and protected in local comprehensive plans. This process could be applied to address and to reduce adverse impacts to affected historic and cultural resources.

As described below, certain protected historic resources in the City of Portland would be adversely affected. City review processes to address and to reduce adverse impacts to such resources are provided in the City's Zoning Code at Chapter 33.445, Historic Resources Protection, and Chapter 33.846, Historic Reviews.

Under these chapters, two levels of historic resource designation are created: Historic Landmarks and Conservation Landmarks. The Historic Landmark designation offers the highest level of protection for resources of citywide significance. Resources in this designation have access to incentives for historic preservation, including transfer of development rights and the right to a more flexible range of uses (such as multi-family use in a single family zone; reuse of institutional and business buildings in residential zones for commercial or institutional purposes; and streamlined review procedures). However, owners doing projects that utilize incentives must consent to designation and agree not to demolish or modify the building without City approval.

Conservation Landmarks are available for resources whose significance is local rather than citywide. Although part of the city's inventory, these sites generally are not qualified to be Historic Landmarks.

The City has the option to deny demolition only for those resources designated as landmarks that have taken advantage of one or more of the preservation incentives offered by the code or are listed on the National Register. A condition for use of the incentives is the owners entering into a covenant with the city agreeing not to modify or demolish the resource without city approval. Also, demolition delays have been adjusted to meet the requirements of state law. The delay period is 90 days for Conservation Landmarks and 180 days for Historic Landmarks and resources in the Historic Resources Inventory. These delay periods start the day an application for demolition is received by the city.

Identified Significant and Protected Historic and Cultural Resources in the Expo Center/Hayden Island Segment

The Historic Report and the Portland Comprehensive Plan identify three significant and protected historic resources in the Expo Center/Hayden Island Segment.

- The northbound structure of the I-5 bridge (built in 1917); listed in the National Register of Historic Places (NRHP) in 1982.
- The carousel located at the Jantzen Beach Shopping Center; listed in the National Register of Historic Places.

- The Columbia Slough and Levee System as contributing elements of the Columbia Slough Drainage Districts Historic District. This resource was determined eligible by the State Historic Preservation Office in 2005.

Additionally, the 1960 Pier 99 commercial building has been determined to be NRHP-eligible for two reasons: (1) it is a good example of a Mid-Century Modern Commercial building designed and constructed in the “Googie” style; and (2) it was designed by Oregon architect John Storrs, whose innovative designs were an important contribution to the Northwest Regional style of architecture. However, the Pier 99 commercial building is not currently identified as a significant and protected resource in the Portland Comprehensive Plan.

The Archaeology Report states that no archaeological resources have previously been recorded within the Columbia River Crossing area of potential effect on the Oregon shore. The high degree of commercial development, along with a century of roadway construction and improvement within the area of potential effect, contributes to a low potential for historical archaeological features and deposits on the Oregon shore. Although the City of Portland Comprehensive Plan does not specifically identify and protect archeological resources, federal regulations, particularly Section 106 of the National Historic Preservation Act (NHPA), are applicable to such resources through the federal NEPA process.

Mitigation Options for Identified Historic and Cultural Resource Impacts in the Expo Center/Hayden Island Segment

Property acquisitions and physical changes are the primary source of long-term and direct effects to known and potential historic resources. Based on the findings in the Historic Report, the Council concludes that the Columbia River Crossing project will require the removal of the northbound bridge, which is included in the National Register of Historic Places and considered a significant resource in the Portland Comprehensive Plan. This northbound bridge structure has been a critical part of the transportation system and historic landscape for both Oregon and Washington since 1917.

The Council finds that a Memorandum of Agreement (MOA) to implement Section 106 of the National Historic Preservation Act will dictate the mitigation of effects to historic properties. Mitigation measures for the I-5 bridge are summarized below.

The Washington Department of Transportation (WSDOT) and ODOT would ensure that all efforts will be attempted to find an alternative use through a bridge marketing plan, including separating and relocating individual spans if relocation of the bridge in its entirety is not feasible. If it is not feasible to pursue moving and relocating the structure for adaptive reuse, documentation may be updated, including applicable photography and drawings. If appropriate, decorative or interpretive structural elements would be offered to local historical societies/museums or other interested parties. As the bridge is a critical component of the regional historic landscape, contributions would be made to interpretive programs and small projects which will result in documentation, waysides, exhibits, or other means of communicating the structure’s history and meaning to the general public.

Based on the findings in the Historic Report, the Council concludes that the Columbia River Crossing project would have no adverse effects on the carousel located at the Jantzen Beach Shopping Center.

The project has an effect on the NRHP-eligible Columbia Slough Drainage Districts Historic District, but that effect is “not adverse.” The Oregon Slough Levee is part of an extensive, historic system of engineered improvements to the area’s drainage. A small portion of the levee, approximately 330 linear feet extending east of I-5, would need to be demolished and rebuilt in order to accommodate the ground improvements needed to stabilize soils below the I-5 ramps and bridges. There would also be modest modifications made to portions of two additional contributing properties: the North Denver Avenue Cross Levee and Union Avenue/Martin Luther King Fill/Cross Levee. Although localized alterations to contributing elements would occur, the integrity of each of the levees, as well as the overall system, would be maintained.

The Pier 99 Building would be displaced due to the construction of a ramp on I-5 between Marine Drive and Hayden Island. This would be an adverse effect. Although this building is not identified as significant or protected by the Portland Comprehensive Plan, it is identified as an NRHP-eligible structure. There is little likelihood that the structure can be relocated given the structural design and condition of the building. Documentation, including applicable photography and drawings, will be sought. If appropriate, decorative or interpretive building elements would be offered to local historical societies and museums.

Based on information in the Archaeology Report, the Council finds that long-term curation of any artifacts or samples recovered during archaeological investigations or during construction of the project will be determined in consultation with agencies, property owners, and appropriate tribes. Long-term curation of recovered materials is an essential element of archaeological investigations and is required as part of federal and state permitting processes.

6.4 Ruby Junction Maintenance Facility Findings and Mitigation Measures

As indicated in Section 2.3 of these findings, the Council authorized the modification and expansion of the previously approved Ruby Junction Maintenance Facility in 2008 to accommodate additional light rail vehicles associated with the Portland to Milwaukie Project. In its 2008 LUFO findings supporting that action, the Council noted: “The Ruby Junction expansion also is expected to serve additional light rail vehicles needed for future LRT expansion to Vancouver, Washington and potentially Oregon City.”¹² Accordingly, the 2008 LUFO was approved with the expectation that the Ruby Junction Maintenance Facility would serve light rail vehicles associated with the Columbia River Crossing Project at some future time. With this 2011 LUFO, that expectation becomes a reality. As implied in the 2008 LUFO findings, the Council finds that such use can be fully accommodated within the location boundaries established in the 2008 LUFO.

Section 6.5 of the 2008 LUFO findings identified the impacts relevant to LCDC Criteria 3-8 that were expected to occur at the Ruby Junction Maintenance Facility as a consequence of expansion of that facility within the newly established location boundaries. Because all activity associated with the Columbia River Crossing Project will occur within the 2008 boundaries, the Council finds that additional impacts beyond those identified in the 2008 LUFO findings are not likely. The Council finds that increased light rail activity within the previously established boundaries will not result in any additional displacements or adverse economic, social or traffic impacts beyond those contemplated in 2008. For reasons stated in the 2008 findings, it also finds that use of the facility by light rail vehicles serving the Columbia River Crossing Segments will not increase noise in the vicinity of the facility or alter its findings with respect to natural hazards, natural resources, stormwater runoff or historic or cultural resources. The Council continues to adhere to those 2008 findings and it incorporates them herein by this reference.

¹² 2008 LUFO Findings of Fact and Conclusions of Law at page 91.

7.0 Compliance with Substantive Criteria (3-8) Short Term (Construction) Impacts

7.1 Introduction

This section summarizes the short-term impacts associated with construction of the light rail and highway improvements in the Expo Center/Hayden Island Segment. The primary objectives of including short-term, construction impacts in the LUFO findings are to:

- Identify the location, importance and duration of potential, major construction impacts; and
- Identify potential mitigation measures (in general terms) for major impacts.

Linear projects such as light rail transit are typically divided into various segments or line sections for construction of the trackway, structures, stations and related work. In sections where the track is located within a separate right-of-way, extensive clearing and grading may be required. During the grading phase, culverts and other permanent drainage structures will be installed. Underground utility services may be relocated during the grading phase to avoid interference with light rail construction.

Following the grading and preliminary site work, installation of light rail utility duct banks, catenary pole foundations, platform foundations, and major structures such as bridges will begin. Bridge work will be accompanied by foundation construction which may involve pile driving or other specialized operations. Other activity outside the trackway also may occur during this period, such as construction or relocation of roadways and construction of traction power substations and signal buildings.

The next construction phase involves the installation of track work, catenary poles, catenary wire, signals, communications cables and other system-wide elements. Once all elements of the LRT system are complete, integrated testing and start-up will begin.

For both the light rail transit and highway improvements, construction of the bridges over the Columbia River will be the most substantial element of the Project, and this element sets the sequencing for the other Project components. The main river crossing and immediately adjacent highway improvement elements would account for the majority of the construction activity necessary to complete the Project. Construction of the I-5 Columbia River bridges is expected to last approximately four years. The general sequencing of constructing the bridges would likely entail the following steps:

- Initial preparation – mobilize construction materials, heavy equipment and crews; prepare staging areas; install temporary piles to support work and anchor barge platforms
- Installation of drilled shafts – install drilled shafts to support the bridge pier columns
- Shaft caps – construct and anchor concrete foundations on top of the drilled shafts to support column piers

- Pier columns – construct or install pier columns on the shaft caps
- Bridge superstructure – build or install the horizontal structure of the bridge spans across the piers; the superstructure would be steel or reinforced concrete; concrete could be cast-in-place or precast off-site and assembled on-site.

Interchanges on each end of the bridge would first be partially constructed so that all I-5 traffic could be temporarily rerouted onto the new southbound (western) Columbia River bridge. Constructing the southbound approaches for the Hayden Island interchange (and SR 14 interchange in Washington) would require approximately 3 years. Certain portions of the Hayden Island interchange (and SR 14 interchange) must be completed before traffic can be moved onto the new southbound lanes and construction of the remaining northbound lanes and interchange ramps can proceed. Once I-5 traffic in both directions is rerouted to the new western I-5 bridge, the new northbound segments of the Hayden Island interchange (and SR 14 interchange) would be constructed.

The Marine Drive interchange construction would need to be coordinated with construction of the southbound lanes coming from Vancouver. While this interchange can be constructed independently from the work described above, the completion and utilization of the ramp system between Hayden Island and Marine Drive requires the work to occur in the same period.

Constructing the project would entail many different activities, some of which would disrupt traffic. Typical construction methods would require shifting I-5 traffic onto temporary alignments, narrowing lanes and shoulders to accommodate equipment and workers, shortening merge and exit distances, reducing posted speed limits, and closing or detouring some traffic movements. For I-5, it is anticipated that three southbound and three northbound lanes would be maintained during all weekdays, except when the final changeover occurs between the old bridges and the new bridges. Local streets and driveway accesses may be closed temporarily and traffic detoured. All parcels impacted by temporary access closures or detours will have alternate access routes.

The following summarizes the types of activities anticipated to construct the CRC project:

- Over-water bridge construction. This work would include the steps outlined above.
- Over-water bridge demolition of the existing I-5 bridges. The components of the existing I-5 bridges would be dismantled and removed. The main components include the bridge decks, the counterweights for the lift span, towers, decks trusses, piers and piles.
- Highway and over-land bridge construction. The reconstruction of mainline I-5 and associated interchanges and local roads would involve a sequence of activities that would be repeated several times, including on-land bridge and retaining wall construction, the excavation of embankments, and laying the pavement driving surface.

Construction would require staging areas to store construction material, to load and unload trucks, and for other construction support activities. The existing I-5 right-of-way would

likely accommodate most of the common construction staging requirements. However, some construction staging would likely be needed outside the existing right-of-way, and temporary property easements from adjacent or nearby property owners may be required.

7.2 Short Term Construction Impacts and Mitigation Measures

7.2.1 Criterion 3: Neighborhood Impacts

“Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process or, if reasonable and necessary, by affected local governments during the local permitting process.”

“A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.”

“B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.”

The Columbia River Crossing Project will result in adverse short-term economic, social and traffic impacts through disruptions to existing land uses. However, these impacts will be temporary in duration and should end when the construction activities are completed. Construction of light rail facilities and highway improvements will adversely impact local economic and social interests located adjacent to or nearby construction or staging areas by interfering with residences and businesses, disrupting traffic and pedestrian movement, displacing parking, altering accesses, and causing noise, vibrations, dust, congestion, increased truck traffic near residences and businesses, and visual impacts. Rerouting, detours and lane closures will create temporary additional traffic through neighborhoods, with associated noise, dust and congestion. Construction machinery, trucks, and general construction activities will be temporary negative visual features of the project. Businesses that would be likely to feel the greatest impact are those that would experience the longest construction periods, those that have many other convenient competitors and those that are most dependent upon convenient access.

Economic and Social Impacts

Throughout the Expo Center/Hayden Island Segment, construction will have short-term and temporary impacts to businesses and neighborhoods of the nature described above. During the FIES and preliminary engineering phase, specific mitigation plans will be developed to address short-term economic and social impacts to businesses and residences. These measures will include maintaining access to existing uses and providing screening to minimize dust and visual impacts. Wherever possible, the project will provide alternative access and ensure that access is maintained to all properties during construction. Businesses that require access at all times and generate many trips (e.g., delivery services, drive-ins) may be inconvenienced. Utility services also may be interrupted as a result of construction. In the event that access or utility service to a residence or businesses would be temporarily disrupted, advance notice would be provided and the length of the disruption would be minimized to the extent practical.

Temporary construction impacts on neighborhoods could result from increased traffic congestion, truck traffic, noise, vibration and dust. Temporary street closures, traffic reroutes and detours could increase traffic within neighborhoods and impede access to community facilities. These short-term impacts include partial closures of streets, temporary rerouting or relocation of driveways, noise impacts from pile driving and bridge pier construction, and impaired access for elderly and mobility-impaired residents.

For neighborhoods affected by construction, the Council finds that TriMet and ODOT can work with neighborhood representatives to identify issues of concern and potential mitigation measures. Potential mitigation measures for short-term impacts include:

- Developing construction management plans for incorporation into contracts following close coordination with neighborhood and business associations and with representatives of public facilities/utilities located adjacent to the alignment/corridor
- Providing on-going coordination during construction to keep affected neighborhood and business area representatives informed about the schedule and location of construction work and anticipated modifications to access
- Limiting construction hours for certain activities in sensitive areas
- Providing fencing around construction and staging areas

Construction activities also could reduce accessibility to police, fire departments and other public safety and emergency service providers. Construction activities will, at times, impede the movement of emergency vehicles by temporarily narrowing or reducing the number of travel lanes or by detouring traffic and road segment closures. To ensure the most effective, continuous access to construction site vicinity uses for public safety and emergency service providers, the Council finds that the following measures could be employed:

- Develop construction management plans, for incorporation into construction contracts, in close coordination with affected police and fire departments and other emergency service providers
- Involve emergency service providers in planning for traffic management during construction in order to identify alternate emergency routes in advance of construction

- Maintain regular coordination with emergency service providers during construction to give them advance notice of when, where and for how long traffic capacity constraints on streets will be employed, and to plan for how local emergency access will be maintained

In summary, the Council finds that numerous measures are potentially available to mitigate impacts to businesses and neighborhoods. Potential mitigation measures beyond those listed above include:

- Management of construction activities to reduce dust, noise and vibration
- Fencing and buffering to reduce construction impacts in sensitive areas
- Use of berms, hay bales, plastic sheeting and other similar measures to reduce surface erosion and runoff into water bodies and storm sewers
- Provision of temporary alternative parking and pedestrian access

Traffic Impacts

Construction of the LRT and highway improvements in the Expo Center/Hayden Island Segment would result in temporary impacts to local and regional traffic operations. These impacts would include increased congestion on several major traffic facilities in the corridor including I-5 and, potentially I-205, impacts resulting from traffic relocations or detours, full or partial street closures, and increased truck traffic associated with construction activity. Impacts could also result from the intrusion of non-local traffic into residential areas as a result of temporary street closures and traffic detours, disruptions to vehicular and pedestrian access to businesses and community services, and the temporary loss of on- or off-street parking.

A major element of the Project would be construction of new bridges over North Portland Harbor and the Columbia River to accommodate vehicular, light rail, and non-motorized traffic coupled with a partial or complete reconstruction of I-5 from south of the Victory Boulevard interchange to the new bridges. Complete reconstruction of freeway interchanges at N Marine Drive and Hayden Island would be included. Another major element of the Project would be construction of the light rail station on Hayden Island. High levels of truck traffic are anticipated in connection with earthwork and the delivery of materials at the bridge crossings, freeway mainline segments, and interchanges. Several construction staging areas would be needed.

Construction in the vicinity of Marine Drive is expected to include partial closure of this street and/or development of detour routing to accommodate vehicular traffic, particularly trucks moving between the freeway and the Columbia Corridor and Rivergate industrial areas. Temporary access may need to be provided to Delta Park and the residential/business areas on the east side of the freeway and to the Expo Center on the west side. Existing transit, bicycle, and pedestrian connections must also be maintained, including access to the Expo Center light rail station and the 40-mile loop trail.

Construction activities on Hayden Island include reconstruction of the existing I-5 interchange, including the development of a collector-distributor system of auxiliary freeway lanes, modifications to local traffic circulation, and a new light rail station and trackage. Temporary access routes to and from I-5 would need to be maintained to ensure continual multimodal access to the island for residents and businesses, as well as connections on the island between areas to the east and west of the freeway. A high level of truck activity associated with the freeway, bridge, ramp and construction of local facilities is anticipated on Hayden Island.

Transit impacts during construction could include service delays, relocation or temporary elimination of bus stops, street detours, and deterioration in reliability for bus routes using certain roadways and facilities within the corridor. Short-term construction would impact bus operations along I-5 and on Hayden Island.

Mitigation Strategies for Construction Impacts to Traffic, Transit and Bike and Pedestrian Mobility

As highlighted above, short-term construction impacts will likely take the form of roadway closures, detours and/or lane reductions, increased truck traffic, pedestrian access restrictions and local access restrictions. Mitigation measures for construction impacts to traffic and highways could include a variety of activities, ranging from scheduling construction activities to minimize conflicts during peak travel periods to using alternative construction techniques or equipment. The Council finds that measures to mitigate the short-term traffic impacts in the Expo Center/Hayden Island Segment could include, but are not limited to, the following:

- Work with appropriate jurisdictions to obtain approval of traffic control plans.
- Develop and implement a transportation management plan with affected businesses and community interests. This plan would address a variety of traffic, transit, and alternative mode strategies to minimize the transportation impacts of project construction. The plan would also identify detour routes where necessary to maintain traffic movement. This would be particularly important during construction of the Marine Drive interchange that serves the Port of Portland.
- Wherever possible or practical, limit or concentrate work areas to minimize disruptions to vehicular traffic and bus and pedestrian circulation, as well as to business access.
- Identify, provide and/or advertise temporary parking locations to replace parking temporarily displaced by construction.
- As appropriate, develop and implement functional and reasonable alternative construction techniques to minimize traffic impacts. These techniques might include activities such as limiting construction to non-daylight hours in certain locations. Use of two or three shifts per day to reduce construction time could be implemented in critical traffic areas, subject to development of adequate traffic control plans, noise control measures, and budget and schedule allowances.

The Council also finds that TriMet has years of experience helping communities and small businesses overcome the challenges of transit construction activities. Light rail guideway

construction may require rerouting the buses on Hayden Island. Minor rerouting of buses would be necessary as new ramps and access points are opened at the Hayden Island interchange.

TriMet and other organizations would conduct a large communications campaign to inform the public about transit changes. The temporary routing, potential for more crowded buses and slower travel times would be communicated through TV, radio, web site, newspaper and other multimedia instruments to broadcast rider alerts to potential impacted customers.

Keeping businesses open and accessible during light rail construction in the Expo Center/Hayden Island Segment would be a top priority. During previous light rail transit construction projects, TriMet has kept construction disruption to a minimum while maintaining access to businesses, and has rapidly responded to concerns and potential issues.

Measures to minimize construction impacts to bicycle and pedestrian mobility through the project areas will also be implemented during construction. Such measures would include:

- Coordination with local jurisdictions and bicycle and pedestrian advocacy groups to disseminate information about construction activities and associated temporary closures and detours near construction zones.
- Temporary enclosures to maximize the safety of bicyclists and pedestrians traveling beneath structures under construction.
- Additional signage and/or lighting along popular bicycle and pedestrian routes that may experience an increase in vehicle traffic due to traffic detours.
- Traffic calming measures in work zones to improve safety for bicyclists, or alternate routes on parallel streets where convenient and effective.

The Council finds that while tolling of I-5 during construction is permissible under federal statutes, no recommendations or decisions about tolling during construction have yet been made. Tolling during construction could serve as a demand reduction measure to reduce traffic during the construction phase. The Council finds that decisions on this issue will be made by the Oregon and Washington Transportation Commissions following consultation with the Project's local partners and a public outreach and education process.

Criterion 4: Noise Impacts

“Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.”

As with any large project, construction of light rail and highway improvements and bridges involves the use of heavy equipment and machinery that result in intense noise levels and occasionally high vibration levels in and around the construction site. Sections of the LRT alignment and highway improvements in the Expo Center/Hayden Island Segment are adjacent to noise sensitive uses such as houseboats and hotel rooms.

As described in the Noise Report, four general construction phases would be required to complete the project: 1) land preparation, 2) constructing new structures, 3) miscellaneous construction activities, and 4) demolition activities.

Major noise-producing equipment used during the preparation stage could include concrete pumps, cranes, excavators, haul trucks, loaders, tractor trailers and vibratory equipment. Maximum noise levels could reach 82 to 86 dBA at the nearest residences (50 to 100 feet) for normal construction activities during this preparation phase. Major noise and vibration-producing activities would occur primarily during demolition and preparation for the new bridges. Activities that have the potential to produce a high level of vibration include pile driving, vibratory shoring, soil compacting, and some hauling and demolition activities.

The loudest noise sources during the phase of constructing new structures would include pile drivers, cement mixers, concrete pumps, pavers, haul trucks, and tractor trailers. Maximum noise levels would range from 82 to 94 dBA at the closest receiver locations.

Following the heavy construction, miscellaneous construction activities such as installation of bridge railings, signage, lighting, roadway striping, and others would occur. These less intensive activities are not expected to produce noise levels above 80 dBA at 50 feet except on rare occasions, and then only for short periods.

Demolition of existing structures would require heavy equipment such as concrete saws, cranes, excavators, hoe rams, haul trucks, jackhammers, loaders, and tractor trailers. Maximum noise levels could reach 82 to 92 dBA at the nearest residences. Demolition would occur at various locations and times during the construction process.

The Council finds that adverse noise impacts associated with construction are temporary and can be effectively mitigated by avoiding construction on Sundays, legal holidays, and during the late evening and early morning hours in noise sensitive areas. Additionally, the Council finds that equipping motorized construction equipment with sound control devices, and developing construction contract documents that include noise limit specifications, reinforced with state/local ordinances and regulations, can be effective techniques for minimizing adverse noise impacts associated with construction.

If specific noise complaints are received during construction, the contractor could be required to implement one or more of the following noise mitigation measures:

- Locate stationary construction equipment as far from nearby noise-sensitive properties as possible.
- Install temporary or portable acoustic barriers around stationary construction noise sources.
- Shut off idling equipment.
- Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
- Notify nearby residents whenever extremely noisy work will be occurring.

- Operate electrically powered equipment using line voltage power rather than generators.

Criterion 5: Natural Hazards

“Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Although no *landslide areas* or *areas of severe erosion potential* have been identified in the Expo Center/Hayden Island Segment, construction activities at stream crossings and near water bodies could result in erosion and have detrimental effect on water quality. To avoid and minimize such impacts, the project will prepare and implement stormwater pollution prevention plans and grading plans, hydroseed, manage stockpiled fill, and employ other best management practices (BMPs) for erosion control.” Construction activities will specifically comply with:

- WSDOT Standard Specifications for Road, Bridge and Municipal Construction M 41-10
- ODOT Erosion Control Manual
- City of Vancouver VMC Chapter 14.24, Erosion Control
- City of Portland Erosion and Sediment Control Manual

Inspection and observation monitoring and reporting would be conducted throughout the project to ensure the appropriate erosion-control measures are being conducted.

The Council finds that construction-related impacts associated with landslides, earthquakes, and the 100-year floodplain are not anticipated, and potential construction-related impacts associated with erosion can be effectively mitigated for through the measures discussed above.

Criterion 6: Natural Resource Impacts

“Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Natural resource impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section.

Fish and Wildlife Habitat. Short-term impacts to fisheries include the impact pile driving of temporary piles and use of barges. The installation of up to 1,500 temporary steel piles will result in behavioral disturbance and injury or death to ESA-listed and other native fish species. The project will use hydroacoustic attenuation measures, such as bubble curtains, to reduce initial sound levels from impact pile driving, resulting in less severe impacts to fish in the project area. Through timing impact pile driving activities and use of attenuation measures, impacts to ESA-listed fish are minimized to the extent practicable. Due to the extent of in-water work and the presence of many ESA-listed fish, it is acknowledged that adverse effects to individual fish and their critical habitat are likely to occur, but the continued existence of any species will not be jeopardized. Adverse effects are avoided or minimized to the extent practicable. The Council notes that NMFS produced this finding in their Biological Opinion. In addition to this mitigation, the Council finds that the mitigation measures outlined above in Section 6.3.4 of these findings for Threatened, Endangered, and Candidate Fish are available to mitigate adverse impacts to the Expo Center/North Portland Harbor and the Columbia River and could be imposed as conditions of approval during the FEIS process and/or the local permitting process if reasonable and necessary.

The Project would temporarily impact terrestrial resources, such as migratory birds and species of interest, through noise impacts and removal or degradation of habitat. Mitigation measures to address these impacts include impact avoidance and impact minimization. Impact avoidance would be addressed by timing vegetation removal to occur outside of nesting seasons for migratory birds. Demolition of existing structures, if necessary, would likely be scheduled outside of nesting seasons for native migratory birds, to avoid direct impacts to active nests.

Impact minimization would be addressed by implementing best management practices such as erosion and sediment control to protect riparian buffers and sensitive terrestrial habitats (for example, for riparian species such as pond turtles). Swallows may nest on the concrete piers but are assumed not to be nesting on steel portions of the existing I-5 bridges. The I-5 bridges could be inspected at least one full year prior to commencement of construction activities to determine whether any species of interest or migratory birds are using the bridges for nesting or roosting. If such species are present, exclusionary devices may be installed on the bridges during the non-nesting season to prevent them from being used for nesting or roosting during construction activities. If high-disturbance activities must take place during the nesting season, the Columbia River Crossing project team would coordinate with USFWS, Oregon Department of Fish and Wildlife (ODFW), and WDFW to establish work buffer zones around the nest(s) during nesting season.

Scenic and Open Space Areas. During construction the visual quality of views to and from the project area would be temporarily altered. Construction-related signage and heavy equipment would be visible in the vicinity of construction sites. Vegetation may be removed from some areas to accommodate construction of the bridges, new ramps, and the light rail transit guideway. This would degrade or partially obstruct views or vistas.

Nighttime construction would be necessary to minimize disruption to daytime traffic. Temporary lighting may be necessary for nighttime construction of certain project elements. This temporary lighting would affect residential areas by exposing residents to glare from unshielded light sources or by increasing ambient nighttime light levels.

Mitigation for temporary construction-related effects would include:

- Shielding of construction site lighting to reduce spillover of light onto nearby residences and businesses,
- Locating construction equipment and stockpiling materials in less visually sensitive areas, when feasible and in areas not visible from the road or to residents and businesses in order to minimize visual obtrusiveness, and
- Cover exposed soils as soon as possible with vegetation.

Riparian Areas. To address temporary loss of riparian vegetation resulting from project impacts, mitigation measures could include streambank revegetation and reshaping to restore habitat function, removal of noxious weeds in certain areas, and revegetation of disturbed areas with native species.

Wetland Areas. Construction will occur near several identified wetland areas in the Expo Center/Hayden Island Segment. Temporary disturbances to wetland-related wildlife activity, hydrology, and water quality will be avoided as much as possible through the use of Best Management Practices (BMPs) such as silt fences, construction fencing, and wildlife exclusionary netting during the construction process.

Park and Recreational Areas. Temporary effects to park and recreation resources include the temporary use of parkland to stage construction and store materials; increased noise, glare, dust, and vibration; and temporary closures, detours, and congestion that could delay users traveling to parks or recreational activities. Mitigation activities to address these impacts include:

- Restoring landscaping to original condition following construction and protect remaining trees close to construction areas.
- Providing adequate signage for any limited or closed access points and detour routes.
- Adopting a joint public information campaign with parks' jurisdictions for some of the longer closures.
- Maintaining safety for bicyclists and pedestrians traveling on trails and between facilities with temporary enclosures, additional signage and lighting, etc.

Criterion 7: Stormwater Runoff

"Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if

reasonable and necessary, by local governments during the permitting process.”

Stormwater runoff impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section.

The in-water construction of bridge piers could stir up sediments from the riverbed, which would increase turbidity. In-water work includes the use of barges and work bridges in the Columbia River and North Portland Harbor, equipment that would be temporarily anchored to the riverbed. Temporary cofferdams would also be installed, but would not be dewatered, for the piers nearest the shoreline, where the water is shallow. Turbidity caused by any activity inside the cofferdams (including installation of permanent shafts as well as temporary piles) would be contained within the cofferdams. Sediment would be disturbed during the installation and removal of the cofferdams. During the demolition of the existing structures, riverbed sediment would be disturbed when the timber piles of the I-5 bridges are cut off below the mudline.

There are no known records of contaminated sediments in the Columbia River portion of the project area. Therefore, there is very little risk that in-water work in the Columbia River would re-suspend contaminated sediments. Contaminated sediments have been identified in the North Portland Harbor, but they are likely outside of the project footprint. If there is potential that in-water work could disturb these sediments, they would be analyzed in accordance with regulatory criteria, and if necessary, removed from the river and disposed of properly. Removed sediments may be disposed of in a permitted upland disposal site, if required.

Potential sources of toxic contaminants associated with in-water work include refueling track-mounted equipment located on the barges or work bridges, lead-based paint from the existing bridges, turbidity and concrete debris from wire-saw-cut concrete during demolition, green concrete (concrete that has not fully cured) associated with bridge construction, potential spills from construction equipment, and materials accidentally entering the Columbia River and North Portland Harbor during over-water work. Full containment of fuel, other hazardous materials, and green concrete would be required to prevent these materials from entering the Columbia River and North Portland Harbor, in accordance with project specifications.

On land, construction activities occurring below-grade may require the removal of groundwater through pumping, a process known as dewatering. Therefore, constructing roads, transit lines, and other infrastructure below the surrounding surface can alter groundwater conditions. If there are nearby hazardous materials sites, dewatering can increase the likelihood of contaminants migrating through the groundwater and into surface waters. The following elements of the Project within the Expo Center/Hayden Island Segments are relatively close to high ranking potential hazardous materials sites and near-surface groundwaters, and work at these sites would require below-grade construction techniques:

- Marine Drive Interchange
- North Portland Harbor Bridges

- Hayden Island Interchange
- Columbia River Crossing

Left unmitigated, construction of these elements could result in moderate risks for the migration of existing contamination, potentially affecting both ground and surface water quality. In addition to existing contamination, the installation of shafts and piles below ground includes the risk of introducing new contamination, for example from green concrete, into groundwater. Further discussion of contamination issues associated with below-grade construction is included in the Hazardous Materials Technical Report.

Without proper management, land-based construction activities may have temporary adverse effects on water quality in nearby water bodies. Construction involves ground disturbances that can increase soil erosion substantially, especially for construction activities along river or stream banks. The Project would involve ground disturbance near North Portland Harbor and the Columbia River within the Expo Center/Hayden Island Segments. If runoff contains extra sediment from erosion, waterways can become turbid (cloudy) and can build up excessive sediment deposits. Runoff and soil erosion can also transport pre-existing hazardous materials and construction-related hazardous materials into water bodies, some of which may dissolve in water or are water-transportable. These materials can be harmful to aquatic life.

The construction of the Columbia River Crossing Project would require at least one large site to stage equipment and materials, and may also need a large site for use as a casting yard for fabricating segments of the new bridges. Each site being considered, including one in Oregon, is adjacent to the Columbia River. The existing conditions on these sites range from a developed and paved port terminal to a currently undeveloped site. Staging and casting/assembly site activities may increase stormwater runoff over existing conditions and may increase pollutant levels in the runoff. However, any staging and/or casting site would be required to meet all applicable stormwater requirements, including the implementation of erosion and sediment controls. All necessary permits would be secured prior to site development and operations for any major staging or casting yard.

The Council finds that water quality degradation resulting from erosion and sedimentation and the release of pollutants can be minimized through the use of BMPs during construction. Construction BMPs include use of barrier berms, silt fencing, temporary sediment detention basins, plastic covering for exposed ground, vegetative buffers (hay bales), and restricting clearing activities to dry weather periods to contain sediment on-site. Further requirements could include diapering of all dump trucks to avoid spillage, and cleaning of heavy equipment tires and trucks before they are allowed to drive off-site. A variety of special BMPs can also be used at crossings or adjacent to streams or watercourses during construction.

Criterion 8: Historic and Cultural Resources

“Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review

processes that are available to address and to reduce adverse impacts to the affected resources.”

Historic and cultural resource impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section.

As discussed above in Section 6.3.6 of these Findings, three significant and protected historic resources exist in the Expo Center/Hayden Island Segment:

- The northbound structure of the I-5 bridge (built in 1917); listed in the National Register of Historic Places (NRHP) in 1982.
- The carousel located at the Jantzen Beach Shopping Center; listed in the National Register of Historic Places.
- The Columbia Slough and Levee System as contributing elements of the Columbia Slough Drainage Districts Historic District.

The impacts to the northbound structure of the I-5 bridge and to the Columbia Slough and Levee System would be permanent, as opposed to temporary. The carousel is located with the Jantzen Beach Shopping Center and would not experience any temporary effects.

Mitigation for any cultural resources impacted during construction is as described in Section 6.3.6 of these LUFO findings.

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 11-4280, FOR THE PURPOSE OF AMENDING THE 1998 LAND USE FINAL ORDER FOR THE SOUTH/NORTH LIGHT RAIL PROJECT AND ADOPTING A LAND USE FINAL ORDER FOR THE EXPO CENTER-HAYDEN ISLAND SEGMENTS OF THE PROJECT.

Date: July 14, 2011

Prepared by: Andy Cotugno

BACKGROUND

Overview

In 1996, the Oregon Legislature passed legislation that enabled the Metro Council to approve Land Use Final Orders (LUFO) to address multi-jurisdictional light rail projects in the South/North corridor and any highway improvements consolidated in environmental statements addressing South/North light rail projects. LUFOs were found to be appropriate so that multi-jurisdiction project-related land use actions could be consolidated into a single decision that would provide more certainty for the project and to provide an expedited land use appeal process. However, the LUFO process does not diminish the need for a light rail project to seek and secure local land use and other permits that may include reasonable and necessary conditions of approval once the light rail route, stations, park-and-ride lots, maintenance facilities and highway improvements have been determined.

It has been the practice of the region to follow approval of a Locally Preferred Alternative (LPA) with consideration of a LUFO action, thereby helping to ensure that the two decisions are consistent. In this instance, however, the LUFO actions follow the decision on the LPA by several years, as the affected local governments needed additional time to determine more specifically the components and scale of the Columbia River Crossing (CRC) Project that includes the Expo Center-Hayden Island segments of the South/North Project and to ensure that certain regional expectations would be satisfied.

There have been four South/North LUFOs approved. The first established the South/North LUFO and the other three were amendments to the original. More specifically, in 1998 the Metro Council approved a LUFO for the South/North Corridor that extended from Clackamas Town Center and Milwaukie north to the Oregon/Washington state line. In 1999, the Council approved an amendment of the South/North LUFO for the northern portion of the corridor, establishing the Interstate MAX (Portland to Expo Center) LRT Project. In 2004, the Council amended the South/North LUFO to add a two-phase element to the southern portion of the corridor, adding the I-205 alignment and making some changes to the Portland-Milwaukie alignment, including revisions that designated study areas in some locations in Milwaukie where additional LRT alignment analysis was needed. Then in 2008 the Council amended the LUFO a third time to approve the Portland-Milwaukie Project, which again made some changes to the alignment from downtown Portland to Milwaukie and extended light rail into unincorporated Clackamas County.

This proposed 2011 South/North LUFO amendment is intended to address changes from the 1998 LUFO so as to be consistent with the improvements to be included in the 2011 CRC Final Environmental Impact Statement (FEIS). This proposed 2011 LUFO relocates the light rail alignment and the Hayden Island station farther to the west between the Expo Center and the Oregon/Washington state line within the Expo Center and Hayden Island segment of the South/North Project. It also authorizes use of the Ruby Junction

maintenance facility to serve light rail vehicles needed for the Project, and it adds a number of highway improvements, including new Interstate 5 Columbia River bridges that will extend light rail to Vancouver, Washington; improvements to I-5 that improve access to the Hayden Island and Expo Center stations or are required as a consequence of building the new bridges; and a number of local road improvements providing access and circulation to the light rail stations or necessitated by construction of the new bridges.

Requirements of House Bill 3478

Section 6(1) of House Bill 3478 requires the Council to "establish the light rail route, stations, lots and maintenance facilities, and the highway improvements for the project or project extension, including their locations." Section 6(1)(a) further provides that the locations for each of these facilities and improvements:

"shall be in the form of boundaries within which the light rail route, stations, lots and maintenance facilities, and the highway improvements shall be located. These boundaries shall be sufficient to accommodate adjustments to the specific placements of the light rail route, stations, lots and maintenance facilities, and the highway improvements for which need commonly arises upon the development of more detailed environmental or engineering data following approval of a Full Funding Grant Agreement."

Section 6(2) of the Act addresses amendments to the original LUFO. As relevant to this 2011 LUFO amendment decision, it provides that any siting of the light rail route or a station, lot or maintenance facility or highway improvements outside the boundaries previously established in a LUFO, or any new station, lot or maintenance facility or highway improvement,

"shall require a land use final order amendment or a new land use final order which shall be adopted in accordance with the process provided for in subsection (1) of this section."

Section 7 of HB 3478 requires the Council to apply land use criteria established by the Land Conservation and Development Commission ("LCDC") in making decisions in a land use final order on the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, and to prepare and adopt findings of fact and conclusions of law demonstrating compliance with those criteria. Draft findings, attached as Exhibit B to Resolution No. 11-4280, serve to demonstrate compliance with LCDC's criteria for the modifications selected in this LUFO amendment.

Section 3(1) of HB 3478 provides that the procedures and requirements set out in the Act are the only land use procedures and requirements to which the Council's decisions on the light rail route, the stations, lots and maintenance facilities, and the highway improvements for the Project, including their locations, are subject. Consequently, the findings focus on the matters identified in HB 3478 as land use actions being taken at this time.

ANALYSIS/INFORMATION

This staff report is intended to meet the requirements of HB 3478. This law requires that the LUFO staff report:

"...set forth and address compliance with the criteria. The staff report also shall include a description of the proposed boundaries within which the light rail route, stations, lots and maintenance facilities, and the highway improvements shall be located, as recommended by Tri-Met...."

This LUFO is in response to TriMet's application which is included as Attachment A to the staff report. Also included in Attachment A is TriMet's letter to Metro Council President Tom Hughes requesting consideration by the Metro Council of their application to amend the South/North LUFO, the LUFO Steering Committee recommendation, and ODOT's letter to TriMet recommending approval of the LUFO application in accordance with the Steering Committee's recommendation.

Compliance with the criteria are provided in the form of draft Findings of Fact and Conclusions of Law that have been prepared and are attached as Exhibit B to Resolution No. 11-4280, For the Purpose of Amending the 1998 Land Use Final Order for the South/North Light Rail Project and Adopting a Land Use Final Order for the Expo Center-Hayden Island Segments of the Project.

1. Known Opposition

The CRC is a large and complex and there are strong feelings associated with the project. Opposition to the project includes concerns regarding:

- the need for and size of the highway components of the project
- greenhouse gases and air pollution that could be generated by the project
- impacts to low-income and minority populations
- costs and funding
- the aesthetic quality of the bridge type

Additional concerns heard include whether the project would worsen the bottleneck on I-5 in the vicinity of the I-405 and I-84 interchanges. While traffic analysis shows that congestion does not worsen that bottleneck, there remains criticism that the project should not be built if that bottleneck is not addressed. Another concern is whether the project will lead to increased development in Washington and increased travel demand on the new facility. Analysis conducted for the EIS indicated that the tolls proposed would likely reinforce the region's goals of concentrating development in regional centers, reinforce existing corridors, and promote transit and pedestrian development patterns. Nevertheless, opposition by some Metro region residents remains.

However, there is broad public support and an understanding of the need for the project. Reasons heard in support of the project include addressing the severe bottleneck and safety issues on the bridge, improving freight movement, and significantly improving transit service to Vancouver. The Final Environmental Impact Statement reports that 66% of all commenters supported a replacement bridge and 90% supported light rail.

2. Legal Antecedents

State

As noted above, at the State level, HB3478 enacted as Chapter 12 of the 1996 Oregon Laws, provides for South/North MAX Light Rail Project LUFOs to decide:

- a. the light rail route for the project or project extension;
- b. stations, lots and maintenance facilities; and,
- c. highway improvements for the project or project extension.

Metro

Following are actions by the Metro Council which relate to the proposed 2011 LUFO:

Resolution No. 98-2633, For the Purpose of Authorizing the Executive Officer to Execute an Intergovernmental Agreement Establishing the South/North Land Use Final Order (LUFO) Steering Committee (adopted May 14, 1998)

Resolution No. 98-2673, For the Purpose of Adopting the Land Use Final Order Establishing the Light Rail Route, Stations, Lots and Maintenance Facilities and the Related Highway Improvements for the South/North Light Rail Project (adopted July 23, 1998)

Resolution No. 99-2853A, For the Purpose of Adopting a Land Use Final Order Amending the Light Rail Route, Light Rail Stations and Park-and-Ride Lots, Including Their Locations, For That Portion of the South/North Light Rail Project Extending from the Steel Bridge to the Exposition Center (adopted October 22, 1999)

Resolution No. 03-3372, For the Purpose of Amending the South/North Land Use Final Order, to Include the Two Phases of the South Corridor Project Consisting of the Addition of the I-205 Light Rail Transit Project from Gateway to Clackamas Regional Center with the Downtown Portland Transit Mall Alignment, and Modification of the Proposed Light Rail Between Downtown Portland and Milwaukie, Deletion of Plans to Extend Light Rail from Milwaukie to Clackamas Regional Center, and to Reflect the Final Interstate MAX Design (adopted January 15, 2004)

Resolution No. 08-3959, For the Purpose of Approving the 2008 Portland-Milwaukie Light Rail Project Locally Preferred Alternative and Finding Consistency with the Metro 2035 Regional Transportation Plan (adopted July 25, 2008)

Resolution No. 08-3960B, For the Purposes of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions (adopted June 5, 2008).

Resolution No. 11-4264, For the Purpose of Concluding that the Concerns and Considerations Raised about the Columbia River Crossing Project in Exhibit A to Resolution No. 08-3960B have been Addressed Satisfactorily (adopted June 9, 2011).

Resolution No. 11-4280, For the Purpose of Amending the 1998 Land Use Final Order for the South/North Light Rail Project and Adopting a Land Use Final Order for the Expo Center-Hayden Island Segments of the Project (proposed for adoption on August 11, 2011).

3. Anticipated Effects

Approval of this resolution would advance the CRC Project by addressing the land use impacts of that project within the State of Oregon, and authorizing the Council President to sign the Final Environmental Impact Statement for the CRC Project. Other actions, including completion and issuance of the FEIS, securing federal funding and a final determination of local match sources remain to be addressed before the Project would be able to advance to construction.

4. Budget Impacts

None at this time. Metro currently has an intergovernmental agreement with the CRC project for costs incurred for the work performed by Metro to adopt the LUFO, for Metro's role in approving the FEIS, modeling work, and assistance for a New Starts funding submittal.

This project is included within the Financially Constrained System of the Metro 2035 Regional Transportation Plan and the amended 2010-2013 Metropolitan Transportation Improvement Program.

RECOMMENDED ACTION

Adopt Resolution No. 11-4280, For the Purpose of Amending the 1998 Land Use Final Order for the South/North Light Rail Project and Adopting a Land Use Final Order for the Expo Center-Hayden Island Segments of the Project.

Attachment A

TriMet Application to Amend South/North LUFO

Including:

Cover letter to Council President Tom Hughes

TriMet Application for South/North Land Use Final Order Amendment Expo Center/Hayden
Island Segments

LUFO Steering Committee Recommendation Concerning the 2011 South/North Land Use Final
Order

2011 South/North Land Final Order Amendment ODOT Recommendation



July 13, 2011

Tom Hughes, President
Metro Council
600 NE Grand Avenue
Portland, Oregon 97232-2736

Re: Application to Amend South/North LUFO

Dear Mr. Hughes:

Following consultation with TriMet's Board of Directors, I am pleased to submit TriMet's enclosed application requesting approval of a Land Use Final Order (LUFO) amending the original South/North Project LUFO adopted by the Metro Council in July 1998.

This LUFO application is being submitted to the Metro Council pursuant to provisions in Oregon Laws 1996, Chapter 12 (House Bill 3478) that direct TriMet to submit such an application to the Metro Council after TriMet has received recommendations from the LUFO Steering Committee and the Oregon Department of Transportation (ODOT). I am pleased to report that TriMet has now received and considered both of those recommendations as noted in the application and its attachments.

The enclosed LUFO application is consistent with the recommendations of the LUFO Steering Committee and ODOT, in both the facilities and improvements it proposes and their locations. It will provide the basis for findings to be made as part of the Council's adoption of the subject amendment to the 1998 LUFO. I am requesting that Metro schedule a public hearing and Council action on this application by August 11, 2011.

Thank you for your cooperation and assistance on these very important components of our planned regional integrated multi-modal transportation system.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Neil McFarlane". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Neil McFarlane
General Manager

Enclosures

C: Dan Blocher
Tamara Lesh
Andy Cotugno
Steve Witter

Application for South/North Land Use Final Order Amendment

Expo Center/Hayden Island Segments

July 13, 2011

This document constitutes TriMet's application to the Metro Council (Council) for approval of amendments to the original South/North Light Rail Project (South/North Project) Land Use Final Order (LUFO)¹, which the Council adopted on July 23, 1998 (the 1998 LUFO).² As initially approved, the 1998 LUFO covered an area extending from the Clackamas Town Center in the south through the cities of Milwaukie and Portland to the Oregon/Washington state line in the north.

For ease of analysis, the 1998 LUFO divided the project into nine segments. The area affected by this proposed 2011 LUFO amendment involves the northernmost portion of the project, extending from N. Victory Boulevard to the Oregon/Washington border. This area was contained within the North Portland and Hayden Island segments as identified in the 1998 LUFO. When the Council adopted LUFO amendments for Interstate Avenue in 1999, it renamed that portion of the 1998 LUFO North Portland segment extending from N. Denver Avenue to the Portland Metropolitan Exposition Center (Expo Center) the "Expo Center Segment". This 2011 LUFO amendment retains the name "Expo Center Segment" and extends the area it encompasses to N. Marine Drive. This amendment also retains the name "Hayden Island Segment" for the area from N. Marine Drive to the Oregon/Washington state line. For convenience purposes, the two segments are combined and addressed as a single segment (Expo Center/Hayden Island) in this application.

This is TriMet's fourth proposed amendment to the 1998 LUFO. The Council previously approved South/North LUFO amendments for Interstate MAX (1999), Interstate 205 and Downtown Portland (2004) and Portland to Milwaukie (2008). The proposed modifications are part of a larger, two-state integrated light rail and highway project commonly known as the Columbia River Crossing (CRC) Project. This 2011 LUFO amendment addresses only that portion of the CRC Project within in the State of Oregon.

For light rail, the CRC Project begins at the Expo Center and continues northward to the Oregon/Washington state line on the Columbia River along an alignment located farther west of the alignment that the Council approved in the 1998 LUFO. From the Expo Center station, the light rail alignment proceeds northward under N. Marine Drive and onto a new, integrated multi-modal rail/vehicular/bicycle/pedestrian bridge crossing over the Expo Center Harbor onto Hayden Island west of Interstate 5. The alignment then continues northward, crossing over N. Hayden Island Drive onto the lower deck of the new southbound Interstate 5 bridge, where it continues to and beyond the Oregon/Washington state line.

For highway improvements, the CRC Project begins just south of N. Victory Boulevard and extends northward to the Oregon/Washington border. These highway improvements were not a part of the South/North Project when it was initially considered in 1998. However, HB 3478 provides for

¹ A LUFO is a written order or orders of the Council deciding the light rail route, the light rail stations, park-and-ride lots and maintenance facilities, and the highway improvements for the South/North Project, including their locations.

² Metro Resolution No. 98-2673

amendments to the South/North project from time to time and it allows for the inclusion of highway improvements if they are described in a Draft or Final Environmental Impact Statement for the Project. Highway improvements were added to the 2008 amendments for the Portland-Milwaukie Project, and they are added here as well. Much like the Westside Corridor Project that extended light rail to Hillsboro and included highway improvements on US 26 and Oregon 217, which also was approved under a LUFO process pursuant to Oregon Laws 1991, Chapter 3 (Senate Bill 573), the CRC Project is an integrated light rail and highway project, with a number of improvements serving dual rail and highway purposes.

The CRC Project will expand the use of the Ruby Junction Maintenance Facility in Gresham. However, all activity associated with that facility will occur within the light rail maintenance facility boundaries that the Council previously approved in its 2008 LUFO amendments.

B. Requirements of House Bill 3478.

Oregon Laws 1996, Chapter 12 (House Bill 3478), Section 6(1) authorizes the Council, upon application by TriMet, to adopt land use final orders for the South/North Project. The LUFO identifies the light rail route, stations, lots and maintenance facilities, and the highway improvements that comprise the South/North Project, and it further specifies the locations within which these facilities and improvements may be located. As explained in Section 6(1)(a) of the Act:

“The applied for locations shall be in the form of boundaries within which the light rail route, stations, lots and maintenance facilities, and the highway improvements, shall be located. These boundaries shall be sufficient to accommodate adjustments to the specific placements of the light rail route, stations, lots and maintenance facilities, and the highway improvements for which need commonly arises upon the development of more detailed environmental or engineering data following approval of a Full Funding Grant Agreement.”

Section 6(2) of the Act addresses amendments to the original LUFO. As relevant to this proceeding, it provides that any siting of the light rail route or a station, lot, maintenance facility or highway improvement outside the boundaries previously established in a LUFO, or any new station, lot or maintenance facility, or highway improvement, “shall require a land use final order amendment or a new land use final order which shall be adopted in accordance with the process provided for in subsection (1) of this section.”

Section 6(1) of House Bill 3478 directs TriMet to file its application with the Council following its receipt of recommendations from the Oregon Department of Transportation and the South/North LUFO Steering Committee (Steering Committee) established pursuant to Section 1(21) of the Act. On June 23, 2011, the Steering Committee adopted its recommendations to TriMet on the light rail route, stations, maintenance facilities and highway improvements for the North Portland Segment that is the subject to this LUFO amendment application. On June 30, 2011, the Oregon Department of Transportation (ODOT) transmitted recommendations in the form of a letter to TriMet from Matt, Garrett, Director, endorsing the LUFO amendments recommended by the LUFO Steering Committee. TriMet has received and considered these

recommendations from the Steering Committee and ODOT, copies of which are attached hereto as Attachments A and B. TriMet's application is consistent with those recommendations.

House Bill 3478 further requires the Council to demonstrate that its decisions comply with approval criteria established by the Oregon Land Conservation and Development Commission (LCDC) under Section 4 of the Act. These criteria are identified later in this application.

C. Requested Light Rail and Highway Improvements.

TriMet requests that the Council adopt a 2011 Land Use Final Order amending the 1998 LUFO to authorize the light rail route, station, maintenance facilities and highway improvements identified in this application including their locations. TriMet's proposed amendments are described textually below and shown in location boundary maps attached to the Steering Committee's recommendation (*Figures 1.1 through 1.3*). These maps are printed from a regional geographic information system database (Metro's *Regional Land Information System*, RLIS) and show the recommended boundaries at a scale of one inch equals 500 feet.

Light Rail Improvements. From the Expo Center station, the light rail alignment proceeds northward under N. Marine Drive and onto a combined rail and highway bridge crossing over the North Portland Harbor onto Hayden Island west of Interstate 5. The alignment then continues northward, crossing over N. Hayden Island Drive onto the lower deck of the new southbound Interstate 5 bridge.

A single light rail station is located at the east end of the Jantzen Beach Center west of Interstate 5. No park-and-ride lots or new maintenance facilities are proposed for this segment. The Project will expand the use of the Ruby Junction Maintenance Facility in Gresham. However, all activities associated with that facility will occur within the maintenance facility boundaries that the Council previously approved in its 2008 LUFO amendment for the Portland to Milwaukie Project. See *Figure 2.1* attached to the Steering Committee's recommendation. For that reason, there is no need to approve a new boundary map for the Ruby Junction Maintenance Facility.

Highway Improvements. The highway improvements for which TriMet is requesting Metro Council approval are located in the Expo Center/Hayden Island segments and described below:

- New northbound and southbound Interstate 5 Columbia River bridges and removal of the existing I-5 Columbia River bridges. The new southbound bridge is a two-tier bridge with highway on the upper deck and light rail on the lower deck. The new northbound bridge is a two-tier bridge with highway on the upper deck and bicycle and pedestrian facilities on the lower deck. Each bridge will include three travel lanes and two auxiliary lanes.
- Widening of Interstate 5 in both the northbound and southbound directions from approximately N. Victory Boulevard to the Oregon/Washington state line. Northbound, Interstate 5 will widen from three travel lanes at N. Victory Boulevard to three travel lanes and two auxiliary lanes on the new northbound Interstate 5 Columbia River bridge. Southbound, Interstate 5 will narrow from three travel lanes

and two auxiliary lanes on the new southbound Interstate 5 Columbia River bridge to three travel lanes south of N. Victory Boulevard.

- Newly designed interchanges at Marine Drive and Hayden Island and improvements to the Victory Boulevard Interchange.
- A new integrated light rail/vehicular/bicycle/pedestrian bridge west of Interstate 5 connecting Hayden Island with the Expo Center and N. Expo Road and the N. Vancouver Way extension.
- Realignment, widening and/or modification of N. Marine Drive, N.E. Martin Luther King Boulevard, N. Vancouver Way, N.E. Union Court, N. Jantzen Avenue, N. Jantzen Drive, N. Hayden Island Drive and N. Tomahawk Island Drive.
- New roadway connections between N.E. Martin Luther King Jr. Boulevard and N. Vancouver Way, N.E. Martin Luther King Jr. Boulevard and NE Union Court, N. Jantzen Avenue and N. Hayden Island Drive, and N. Expo Road and N. Force Avenue.

Consistent with Section 6(1)(a) of HB 3478, the boundaries shown on the maps represent the areas within which the light rail facilities and highway improvements may be located. The maps generally show the existing property lines and major buildings to provide orientation and clarity with respect to the proposed project facility locations. The precise locations of the proposed light rail facilities and highway improvements within these boundaries cannot accurately be identified until preliminary engineering and final design have been completed. The LUFO maps accordingly show a larger, more generalized boundary than will actually be needed for the track alignment, stations, park-and-ride lots, maintenance facilities and highway improvements

D. Applicable Land Use Criteria.

On May 30, 1996, pursuant to Section 4 of House Bill 3478, LCDC established the criteria to be used by the Council in making land use decisions establishing or amending the light rail route, stations, lots and maintenance facilities, and the highway improvements for the South/North Project, including their locations. The approved criteria include two procedural, six substantive, and two alignment-specific standards, set out below. In its LUFO, the Council must demonstrate compliance with these criteria.

Procedural Criteria

1. Coordinate with and provide an opportunity for Clackamas and Multnomah counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.
2. Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots, vehicle maintenance facilities and the highway improvements, including their locations.

Substantive Criteria

3. Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process, or, if reasonable and necessary, by affected local governments during the local permitting process.
 - A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.
 - B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.
4. Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.
5. Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
6. Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
7. Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.

8. Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.

Alignment-Specific Criteria

9. Consider a light rail route connecting the Clackamas Town Center area with the City of Milwaukie's Downtown. Consider an extension of the light rail route connecting the City of Oregon City and the City of Gladstone with the City of Milwaukie via the Interstate 205 corridor and/or the McLoughlin Boulevard corridor.
10. Consider a light rail route connecting Portland's Central City with the City of Milwaukie's Downtown via inner southeast Portland neighborhoods and, in the City of Milwaukie, the McLoughlin Boulevard corridor, and further connecting the Central City with north and inner northeast Portland neighborhoods via the Interstate 5/Interstate Avenue corridor.

E. Interpretation of Terms.

TriMet assumes that the Council will interpret the terms "light rail route", "stations", "lots", "maintenance facilities" and "highway improvements" as it did in its previous South/North LUFOs, to have the following meanings:

- "**Light rail route**" means the alignment upon which the light rail tracks will be located. The light rail route will be located on land to be owned by or under the operating control of TriMet.
- "**Stations**" means those facilities to be located along the light rail route for purposes of accessing or serving the light rail system. Stations include light rail station platforms; kiss-and-ride areas; bus transfer platforms and transit centers; vendor facilities; and transit operations rooms.
- "**Lots**" means those parking structures or surface parking lots that are associated with a station, owned by or under the operating control of either TriMet or another entity with the concurrence of TriMet, and intended primarily for use by persons riding transit or carpooling. Parking structures may include some retail or office spaces in association with the primary use.
- "**Maintenance facilities**" means those facilities to be located on land to be owned or controlled by TriMet for purposes of operating, servicing, repairing or maintaining the light rail transit system, including but not limited to light rail vehicles, the light rail tracks, stations, lots; and ancillary facilities and improvements. Maintenance facilities include maintenance facility access trackways; storage tracks for light rail vehicles; service, repair and maintenance shops and equipment; office facilities; locker rooms; control and communications rooms; transit district employee and visitor parking lots; and storage areas for materials and equipment and non-revenue vehicles.
- "**Highway improvements**" include new roads, road extensions or road widenings outside existing rights-of-ways that have independent utility in themselves and are not needed to

mitigate adverse traffic impacts associated with the light rail route, stations, lots or maintenance facilities.

Consistent with its previous South/North LUFOs, TriMet asks the Council to determine that implementation of the South/North LUFO under sections 8(1)(a) and (b) of Chapter 12 of the 1996 Oregon Laws (HB 3478), including the construction, operation and maintenance of the light rail route, stations, lots and maintenance facilities and the highway improvements for the Project, necessitates and requires development approval of certain associated actions and the permitting of certain associated or ancillary facilities or improvements. These associated actions or ancillary facilities or improvements generally are required: (1) to ensure the safe and proper functioning and operation of the light rail system; (2) to provide project access; (3) to improve traffic flow, circulation or safety in the vicinity of the Project; or (4) to mitigate adverse impacts caused to the adjoining roadway network resulting from the alignment, stations, lots or maintenance facilities. For these reasons, these actions, facilities or improvements are integral and necessary parts of the Project.

Also consistent with previous South/North LUFOs, TriMet asks the Council to find that the associated actions and ancillary facilities or improvements for the South/North Project include, but are not limited to: ties, ballast, and other track support materials such as tunnels and bridges; modifications to existing tracks; retaining walls and noise walls; culverts and other drainage systems; traction electrification equipment including substations; light rail signals and communications equipment and buildings; lighting; station, lot and maintenance facility accesses, including road accesses, pedestrian bridges and pedestrian and bicycle accessways; roadway crossing protection; and the provision of pedestrian paths, bike lanes, bus stops, bus pullouts, shelters, bicycle storage facilities and similar facilities. They also include temporary LRT construction-related roadways, staging areas and road or lane closures; roadway reconstruction, realignment, repair, widening, channelization, signalization or signal modification, lane reconfiguration or reduction, addition or modification of turning lanes or refuges, modification of traffic circulation patterns, or other modifications or improvements that provide or improve Project access, improve traffic flow, circulation or safety in the vicinity of the Project, facilitate or are necessary for the safe or proper functioning and operation of the Project, or are necessary to mitigate adverse traffic impacts created by the Project; modifications of private roadways adjoining the Project; permanent road, lane or access closures associated with and necessitated by the Project; and other associated actions or associated or ancillary facilities or improvements related to the Project.

Columbia River Crossing Project

Amendments to the 1998 South/North Land Use Final Order for the Expo
Center/Hayden Island Segments

**LUFO Steering Committee Recommendation
Concerning the 2011 South/North Land Use
Final Order**

June 23, 2011

South/North Land Use Final Order Steering Committee Members

Metro

Rex Burkholder, Metro Councilor

TriMet

Neil McFarlane, General Manager

Oregon Department of Transportation

Matthew Garrett, Director

City of Portland

Sam Adams, Mayor

City of Milwaukie

Greg Chaimov, Councilor

City of Gresham

Shane Bemis, Mayor

Multnomah County

Loretta Smith, Commissioner

Clackamas County

Ann Lininger, Commissioner

City of Oregon City

Doug Neely, Mayor, Ex Officio

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1. Introduction

This document constitutes the South/North Land Use Final Order (LUFO) Steering Committee's recommendation to TriMet regarding TriMet's application to the Metro Council (Council) for amendments to the original South/North Corridor Project LUFO, which the Council adopted on July 23, 1998 (the 1998 LUFO). As initially approved, the 1998 LUFO covered an area extending from the Clackamas Town Center in the south through the cities of Milwaukie and Portland to the Oregon/Washington border in the north.

Since 1998, the Council has amended the 1998 LUFO three times. These include South/North LUFO amendments for Interstate Avenue (1999), Interstate 205 and Downtown Portland (2004) and Portland-Milwaukie (2008). The modifications included in this recommendation for a fourth LUFO amendment are part of a larger, two-state integrated light rail and highway project commonly known as the Columbia River Crossing (CRC) Project. Because Oregon Laws 1996, Chapter 12 (House Bill 3478), which is the law governing Council adoption of South/North Land Use Final Orders, applies only within the jurisdictional boundaries of the State of Oregon, this LUFO amendment addresses only that portion of the CRC Project within the State of Oregon.

This 2011 LUFO Steering Committee recommendation involves an area contained within the North Portland and Hayden Island segments as identified in the 1998 LUFO.¹ When the Council adopted its 1999 LUFO amendments for Interstate Avenue (the 1999 LUFO amendment), it renamed that portion of the 1998 LUFO North Portland segment extending from N. Denver Avenue to the Portland Metropolitan Exposition Center (Expo Center) the "Expo Center Segment." This 2011 LUFO amendment retains the name "Expo Center Segment" and extends the area it encompasses northward to N. Marine Drive.

This recommendation is provided pursuant to Section 6(1) of House Bill 3478, which directs TriMet to apply to the Metro Council for a Land Use Final Order approving the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project, including their locations, "following receipt of recommendations from the Department of Transportation and the Steering Committee", and Section 6(2), which provides:

"(2) Any siting of the light rail route, a station, lot or maintenance facility, or a highway improvement outside the locations established in a land use final order, and any new station, lot, maintenance facility or highway improvement, shall require a land use final order amendment or a new land use final order which shall be adopted in accordance with the process provided for in

¹ The 1998 LUFO divided the South/North Project into nine segments. Those segments included the North Portland Segment, which extended from the Edgar Kaiser Medical Facility to N. Marine Drive, and the Hayden Island Segment, which extended from N. Marine Drive to the Oregon/Washington state line at the Columbia River.

subsection (1) of this section.”

In May 1998, in accordance with Section 1(21) of House Bill 3478, the South/North LUFO Steering Committee was established through intergovernmental agreement between Metro, TriMet, ODOT, Clackamas County, Multnomah County, the City of Portland, and the City of Milwaukie. In 2008, the Intergovernmental Agreement was amended to add the City of Gresham as a LUFO Steering Committee member. The City of Gresham was added because the project required expansion of the Ruby Junction Maintenance Facility in Gresham. The City of Oregon City is an ex officio member of the Committee.

This recommendation from the LUFO Steering Committee addresses the light rail route, light rail stations and highway improvements in the portion of the Expo Center and Hayden Island segments of the South/North Project located between approximately N. Victory Boulevard and the Oregon/Washington state line. The CRC Project also will expand the use of the Ruby Junction Maintenance Facility in Gresham. However, all activity associated with that facility would occur within the maintenance facility boundaries that the Council previously approved in its 2008 LUFO amendment. For that reason, there is no need to approve a new boundary map for that facility.

2. Requirements of House Bill 3478.

House Bill 3478, Section 6(1) authorizes the Council, upon application by TriMet and following recommendations from the Steering Committee and Department of Transportation, to adopt a Land Use Final Order for the South/North Project. A LUFO is a written order or orders of the Council deciding the light rail route, the stations, lots and maintenance facilities, and the highway improvements for the South/North Project, including their locations. The LUFO identifies the light rail route, stations, lots, maintenance facilities and highway improvements that comprise the South/North project, and it further specifies the locations within which these facilities and improvements may be located. As explained in Section 6(1)(a) of House Bill 3478,

"The applied for locations shall be in the form of boundaries within which the light rail route, stations, lots and maintenance facilities, and the highway improvements shall be located. These boundaries shall be sufficient to accommodate adjustments to the specific placements of the light rail route, stations, lots and maintenance facilities, and the highway improvements for which need commonly arises upon the development of more detailed environmental or engineering data following approval of a Full Funding Grant Agreement."

3. Recommended South/North Project LUFO Amendments

The LUFO Steering Committee recommends that TriMet apply for, and that the Council adopt, a LUFO amending the 1998 South/North LUFO to approve the light rail route, stations, maintenance facilities and highway improvements identified textually below and in the attached maps, which illustrate the location "boundaries" as required by Section 6(1)(a) of HB 3478. The modified route and station and the highway improvements all are located within the Expo Center and Hayden Island segments of the South/North Project as identified in the 1998 LUFO and the 1999 LUFO amendment. The maintenance facility improvements involve expanded use of improvements at the existing Ruby Junction Maintenance Facility in Gresham, within location boundaries that the Council approved in 2008.

The area affected by these amendments extends from south of N. Victory Boulevard to the Oregon/Washington border. The original light rail alignment within the area subject to this 2011 LUFO amendment is identified in Figures 1.8b on page A-11 of the 1998 LUFO and Figure 1.8 of the 1999 LUFO amendment. The 1999 LUFO amendment extended only as far north as the Expo Center. Because this 2011 LUFO amendment affects a relatively small portion of the Expo Center segment, the LUFO Steering Committee recommends that the analysis of the Expo Center and Hayden Island segments be combined and addressed as a single segment (Expo Center/Hayden Island).

For light rail, the CRC Project begins at the Expo Center and continues northward to the Oregon/Washington state line on the Columbia River along an alignment located west of the alignment boundary that the Council approved in the 1998 LUFO. From the Expo Center station, the light rail alignment proceeds northward under N. Marine Drive and onto a new, integrated multi-modal rail/vehicular/bicycle/pedestrian bridge crossing over the North Portland Harbor onto Hayden Island west of Interstate 5. The alignment then continues northward, crossing over N. Hayden Island Drive onto the lower deck of the new southbound Interstate 5 bridge, where it continues to and beyond the Oregon/Washington state line.

A single light rail station is located at the east end of the Jantzen Beach Center west of Interstate 5. No park-and-ride lots or maintenance facilities are proposed for this segment. However, maintenance facility improvements will be provided at the Ruby Junction Maintenance Facility in Gresham within the boundaries of this facility that the Council approved in the 2008 LUFO amendments for the Portland-Milwaukie Project.

For highway improvements, the CRC Project begins just south of N. Victory Boulevard and extends northward to the Oregon/Washington border. These highway improvements were not part of the South/North Project initially approved in 1998. However, HB 3478 authorizes amendments to the South/North project from time to time, and it authorizes the inclusion of highway improvements if they are described in a Draft or Final Environmental Impact Statement for the Project. Highway improvements were added to the 2008 amendments for the Portland-Milwaukie Project, and they are recommended here as well. Much like the Westside Corridor Project, which extended light rail to Hillsboro, widened and improved US 26 and Oregon 217 and connecting roadways, and was approved under a

LUFO process pursuant to Oregon Laws 1991, Chapter 3 (Senate Bill 573)², the CRC Project is an integrated light rail and highway project, with many improvements serving dual rail and highway purposes.

The highway improvements for the Expo Center/Hayden Island segments include the following³:

- New northbound and southbound Interstate 5 Columbia River bridges and removal of existing Interstate 5 bridges. The new southbound bridge is a two-tier bridge with highway on the upper deck and light rail on the lower deck. The new northbound bridge is a two-tier bridge with highway on the upper deck and bicycle and pedestrian facilities on the lower deck. Each bridge will include three travel lanes and two auxiliary lanes.
- Widening of Interstate 5 in both the northbound and southbound directions from approximately N. Victory Boulevard to the Oregon/Washington state line. Northbound, Interstate 5 will widen from three travel lanes at N. Victory Boulevard to three travel lanes and two auxiliary lanes on the new northbound Interstate 5 Columbia River bridge. Southbound, Interstate 5 will narrow from three travel lanes and two auxiliary lanes on the new southbound Interstate 5 Columbia River bridge to three travel lanes south of N. Victory Boulevard.
- Newly designed interchanges at Marine Drive and Hayden Island and improvements to the Victory Boulevard Interchange.
- A new integrated light rail/vehicular/bicycle/pedestrian bridge west of Interstate 5 connecting Hayden Island with the Expo Center and N. Expo Road and the N. Vancouver Way extension.
- Realignment, widening and/or modification of N. Marine Drive, N.E. Martin Luther King Boulevard, N. Vancouver Way, N.E. Union Court, N. Jantzen Avenue, N. Jantzen Drive, N. Hayden Island Drive and N. Tomahawk Island Drive.
- New roadway connections between N.E. Martin Luther King Jr. Boulevard and N. Vancouver Way, N.E. Martin Luther King Jr. Boulevard and NE Union Court, N. Jantzen Avenue and N. Hayden Island Drive, and N. Expo Road and N. Force Avenue.

The proposed boundaries within which the above-described light rail facilities and highway improvements would be located are as illustrated on the boundary maps for the Expo Center/Hayden Island segments attached to this recommendation (**Figures 1.1 to 1.3**)

The Ruby Junction Maintenance Facility in Gresham includes light rail tracks, vehicle storage spaces, maintenance bays, an operation center, and related facilities necessary to maintain light rail vehicles. The 2008 South/North LUFO findings for the Portland-Milwaukie Project anticipated use of this facility to serve light rail vehicles needed for

² Senate Bill 573 for the Westside Corridor Project served as the model for House Bill 3478 for the South/North Project.

³ Many of these roadway improvements include associated bicycle and pedestrian improvements.




future light rail transit expansion to Vancouver, Washington. With the CRC project, that expectation becomes a reality. Because all improvements associated with the CRC Project will be located within the locational boundary of the Ruby Junction facility that the Metro Council approved in 2008, there is no need to amend the boundary map to accommodate the expanded use of the facility associated with the CRC project. For informational purposes, the 2008 boundary map that the Council approved is attached to this recommendation as **Figure 2.1**.





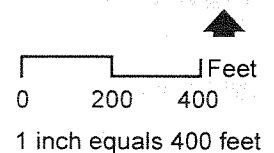
South/North Land Use Final Order Amendment Boundary Map

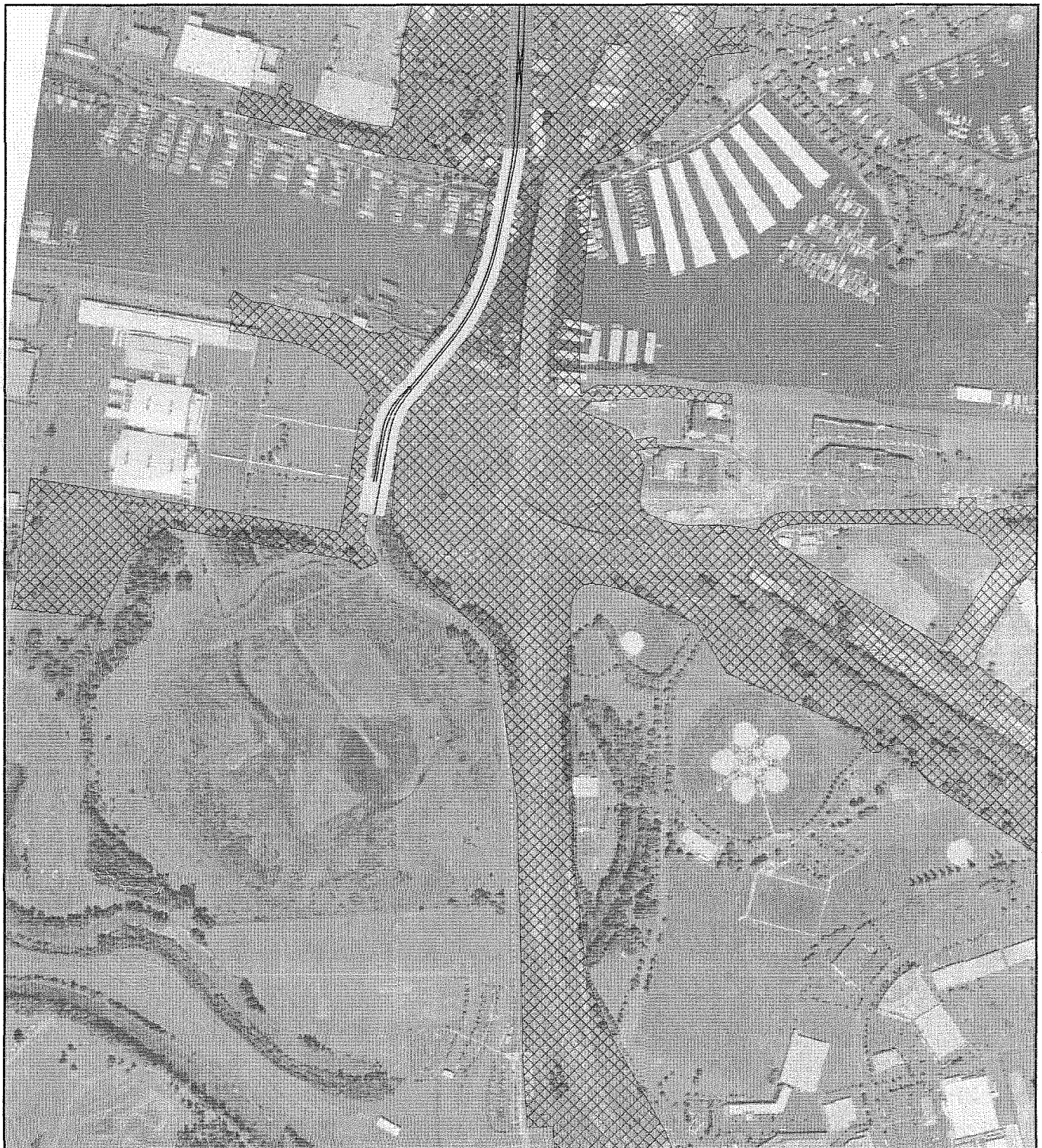
Figure 1.1

Columbia River Crossing Project

-  Light Rail Route
-  Light Rail Stations
-  Highway improvements

-  Potential Alignment
-  Potential Station Platform








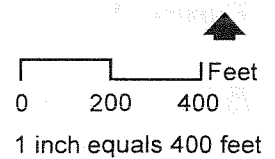


South/North Land Use Final Order Amendment Boundary Map

Figure 1.2

Columbia River Crossing Project

- | | |
|--|--|
|  Light Rail Route |  Potential Alignment |
|  Light Rail Stations |  Potential Station Platform |
|  Highway improvements | |



LUFO Steering Committee Recommendations
Concerning the 2011 South/North Land Use Final Order – Columbia River Crossing Project






June 23, 2011

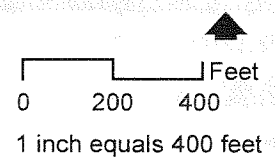


South/North Land Use Final Order Amendment Boundary Map

Figure 1.3

Columbia River Crossing Project

- | | |
|--|--|
|  Light Rail Route |  Potential Alignment |
|  Light Rail Stations |  Potential Station Platform |
|  Highway improvements | |



LUFO Steering Committee Recommendations
Concerning the 2011 South/North Land Use Final Order – Columbia River Crossing Project

June 23, 2011



Ruby Junction Operations and Maintenance Facility



METRO

0 250 500 Feet
1 inch equals 500 feet

4. Interpretation of Terms

For the purposes of South/North Land Use Final Orders, including the 1998 LUFO and each amendment thereto, the Council has interpreted the terms "light rail route", "stations", "lots", "maintenance facilities" and "highway improvements" to have the following meanings:

- "**Light rail route**" means the alignment upon which the light rail tracks will be located. The light rail route will be located on land to be owned by or under the operating control of TriMet.
- "**Stations**" means those facilities to be located along the light rail route for purposes of accessing or serving the light rail system. Stations include light rail station platforms; kiss-and-ride areas; bus transfer platforms and transit centers; vendor facilities; and transit operations rooms.
- "**Lots**" means those parking structures or surface parking lots that are associated with a station, owned by or under the operating control of either TriMet or another entity with the concurrence of TriMet, and intended primarily for use by persons riding transit or carpooling. Parking structures may include some retail or office spaces in association with the primary use.
- "**Maintenance facilities**" means those facilities to be located on land to be owned or controlled by TriMet for purposes of operating, servicing, repairing or maintaining the light rail transit system, including but not limited to light rail vehicles, the light rail tracks, stations, lots, and ancillary facilities and improvements. Maintenance facilities include maintenance facility access trackways; storage tracks for light rail vehicles; service, repair and maintenance shops and equipment; office facilities; locker rooms; control and communications rooms; transit district employee and visitor parking lots; and storage areas for materials and equipment and non-revenue vehicles.
- "**Highway improvements**" include new roads, road extensions or road widenings outside existing rights-of-ways that have independent utility in themselves and are not needed to mitigate adverse traffic impacts associated with the light rail route, stations, lots or maintenance facilities.

Additionally, for the 1998 LUFO and the amendments thereto, the Metro Council determined that implementation of the South/North LUFO under sections 8(1)(a) and (b) of Chapter 12 of the 1996 Oregon Laws (HB 3478), including the construction, operation and maintenance of the light rail route, stations, lots and maintenance facilities and the highway improvements for the Project, necessitates and requires development approval of certain associated actions and the permitting of certain associated or ancillary facilities or improvements. These associated actions or ancillary facilities or improvements generally are required: (1) to ensure the safe and proper functioning and operation of the light rail system; (2) to provide project access; (3) to improve traffic flow, circulation or safety in the vicinity of the Project; or (4) to mitigate adverse impacts to the adjoining roadway network resulting from the alignment, stations, lots or maintenance facilities. For these reasons, the Metro Council determined that these actions, facilities or improvements are integral and necessary parts of the Project.

The Metro Council has further determined that the associated actions and ancillary facilities or improvements for the South/North Project include, but are not limited to: ties, ballast, and other track support materials such as tunnels and bridges; modifications to existing tracks; retaining walls and noise walls, culverts and other drainage systems; traction electrification equipment including maintenance facility accesses, including road accesses, pedestrian bridges and pedestrian and bicycle stops, bus pullouts, shelters, bicycle storage facilities and similar facilities. They also include temporary construction-related roadways, staging areas and road or lane closures; roadway reconstruction, realignment, repair, widening, channelization, signalization or signal modification, lane reconfiguration or reduction, addition or modification of turning lanes or refuges, modification of traffic circulation patterns, or other modifications or improvements that provide or improve project access, improve traffic flow, circulation or safety in the vicinity of the Project, facilitate or are necessary for the safe or proper functioning and operation of the Project, or are necessary to mitigate adverse traffic impacts created by the Project; modifications of private roadways adjoining the Project; permanent road, lane or access closures associated with and necessitated by the Project; and other associated actions or associated or ancillary facilities or improvements related to the Project.



Oregon

John A. Kitzhaber, M.D., Governor

Department of Transportation

Office of the Director
1158 Chemeketa Street NE
Salem, OR 97301
Phone: (503) 986-3289
Fax: (503) 986-3432

Neil McFarlane, General Manager
TriMet
4012 SE 17th Avenue
Portland, Oregon 97202

Subject: Columbia River Crossing Project LUFO Approval

Dear Mr. McFarlane:

NEIL

The Oregon Legislative Assembly (House Bill 3478, Special Session 1996) charged the Oregon Department of Transportation to prepare a recommendation to TriMet on any application for a Land Use Final Order (LUFO) that establishes or amends the light rail route, stations, lots, maintenance facilities and highway improvements that are included as part of the South/North Corridor Project. Metro adopted the original LUFO in 1998. TriMet is currently preparing an application for an amendment to the 1998 LUFO that incorporates both the light rail and highway improvements to be constructed as part of the Columbia River Crossing Project.

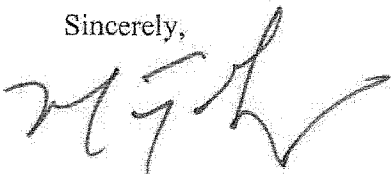
We believe the project team has met both the intent and the specific requirements established by the Oregon Legislature concerning the conduct of this project. Following completion of the Draft Environmental Impact Statement, affected local government agencies and the States of Oregon and Washington worked together to revise the project to ensure it meets the needs of the region and state.

The public process, including informational meetings, public hearings, and direct involvement of business, civic, and neighborhood associations, has been comprehensive. This project includes new I-5 bridges across the Columbia River and major improvements to I-5 interchanges and connecting arterials. I-5 is the major facility serving Oregon, Washington and California and performs a vital role to the movement of people and freight. The importance of alleviating the existing safety problems and bottleneck on this critical stretch of the corridor cannot be overstated.

Improvements to state highway facilities included in the Steering Committee recommendation require coordination with and approval by the Oregon Department of Transportation. Therefore, on behalf of the Oregon Department of Transportation, I recommend approval of the LUFO application in accordance with the Steering Committee recommendation at its June 23, 2011, meeting. . The department concurs fully with the light rail and highway improvements and the location boundary maps for those improvements contained in that recommendation.

We at ODOT look forward to continuing our partnership with TriMet, Metro, the City of Portland and our other jurisdictional partners in pursuing this project to its successful conclusion.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Garrett', with a large checkmark at the end.

Matthew L. Garrett
Director

South/North Project Land Use Final Order Criteria

On May 30, 1996, pursuant to Section 4 of House Bill 3478, LCDC established the criteria to be used by the Metro Council in making land use decisions establishing or amending the light rail route, stations, lots and maintenance facilities, and the highway improvements for the South/North Project, including their locations. The approved criteria include two procedural, six substantive, and two alignment-specific standards, set out below. Compliance with these criteria must be demonstrated.

Procedural Criteria

1. Coordinate with and provide an opportunity for Clackamas and Multnomah counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.
2. Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots, vehicle maintenance facilities and the highway improvements, including their locations.

Substantive Criteria

3. Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process, or, if reasonable and necessary, by affected local governments during the local permitting process.
 - A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.
 - B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.
4. Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.

5. Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
6. Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
7. Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
8. Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.

Alignment-Specific Criteria

9. Consider a light rail route connecting the Clackamas Town Center area with the City of Milwaukie's Downtown. Consider an extension of the light rail route connecting the City of Oregon City and the City of Gladstone with the City of Milwaukie via the Interstate 205 corridor and/or the McLoughlin Boulevard corridor.
10. Consider a light rail route connecting Portland's Central City with the City of Milwaukie's Downtown via inner southeast Portland neighborhoods and, in the City of Milwaukie, the McLoughlin Boulevard corridor, and further connecting the Central City with north and inner northeast Portland neighborhoods via the Interstate 5/Interstate Avenue corridor.

**Resolution No. 11- 4280: Land Use Final Order for Expo Center/Hayden
Island Segment of South/North Light Rail Project**

List of Documents of Which the Metro Council Takes Official Notice

1. Or Laws 1996, Chapter 12 (House Bill 3478) and Oregon Laws 1991, Chapter 3 (Senate Bill 573)
2. Metro's Regional Framework Plan and its components, including the Urban Growth Management Functional Plan, the 2035 Regional Transportation Plan and the Regional High Capacity Transit System Plan
3. City of Portland's Comprehensive Plan, Transportation System Plan and Land Use Regulations
4. The following resolutions adopted by the Metro Council, including their exhibits and attachments:
 - Resolution Nos. 98-2673, 99-2853A, 03-3372 and 08-3964 (adopting or amending South/North Land Use Final Orders)
 - Resolution No. 02-3237A, November 14, 2002 (endorsing the I-5 Transportation and Trade Study Recommendations)
 - Resolution No. 08-3960B, July 17, 2008 (endorsing the Locally Preferred Alternative for the Columbia River Crossing Project)
 - Resolution No. 11-4264, June 9, 2011 (regarding considerations and concerns raised about the Columbia River Crossing Project)
5. Metro Ordinance No. 10-1241B, June 10, 2010 (adopting the 2035 Regional Transportation Plan)
6. The following resolutions adopted by TriMet, including their exhibits and attachments:
 - Resolution Adopting a Land Use Final Order (SB 573), April 12, 1991 (adopting the Westside Corridor Project Land Use Final Order)
 - Resolutions No. 93-07-56, July 28, 1993; No. 93-07-57, July 28, 1993; No. 95-08-60, August 23, 1995; and No. 96-01-10, February 28, 1996; (adopting the Hillsboro extension of the Westside Corridor Project and amendments to the Westside Corridor Project and Hillsboro Extension Land Use Final Orders)

REVISED

Exhibit C
Metro Council Resolution No. 11-4280

Findings of Fact and Conclusions of Law
South/North Corridor Land Use Final Order
Columbia River Crossing Project

1. Introduction

1.1 Nature of the Metro Council's Action

This action adopts a Land Use Final Order (LUFO) for the Columbia River Crossing (CRC) Project, which is an element of the larger South/North Corridor Project. The action is taken pursuant to Oregon Laws 1996 (Special Session), Chapter 12 (referred to herein as "House Bill 3478" or "the Act"), which directs the Metro Council (Council) to issue LUFOs establishing the light rail route, light rail stations, park-and-ride lots and maintenance facilities, and any highway improvements to be included in the South/North Project, including their locations (*i.e.* the boundaries within which these facilities and improvements may be located).¹

This LUFO is the fifth in a series of LUFOs the Council has adopted for the South/North Project. The previously adopted LUFOs are as follows:

- On July 23, 1998, the Metro Council adopted Resolution No. 98-2673 (the 1998 LUFO), establishing the initial light rail route, stations, lots and maintenance facilities and the highway improvements, including their locations, for the South/North Project.
- On October 28, 1999, the Metro Council adopted Resolution No. 99-2853A (the 1999 LUFO), amending the 1998 LUFO to reflect revisions for that portion of the South/North Project extending from the Steel Bridge northward to the Portland Metropolitan Exposition Center (Expo Center), primarily along Interstate Avenue. The 1999 LUFO modified the northern light rail alignment; established, relocated or expanded light rail station locations along that alignment; and authorized park-and-ride lots at Portland International Raceway (PIR) and the Expo Center along the light rail route.
- On January 15, 2004, the Metro Council adopted Resolution No. 03-3372 (the 2004 LUFO), further amending the previous South/North LUFO resolutions to (1) establish the light rail route, stations and park-and-ride lots, including their locations, along the Interstate-205 right-of-way from the Gateway Transit Center to Clackamas Regional Center; (2) modify the route along the downtown Portland Transit Mall to extend light rail transit (LRT) to Portland State University (PSU) and establish, adjust or relocate station locations; (3) modify the 1998 LUFO for the segment from Portland to Milwaukie by revising the alignment and adding study areas; (4) remove the 1998 LUFO designations from Milwaukie to Clackamas Regional Center; and (5) complete technical amendments to the 1999 LUFO alignment to reflect the final built configuration at certain stations consistent with the Full Funding Agreement Grant approved by the Federal Transit Administration.

¹ Metro's Regional Transportation Plan shows northward extension of light rail to Clark County Washington. However, the Metro Council's jurisdiction is limited to the Oregon portion of the South/North Project.

- On July 25, 2008, the Metro Council adopted Resolution No. 08-3964 (the 2008 LUFO), amending the 1998 and 2004 South/North LUFOs as they relate to the segment of the South/North Project extending from Portland State University (PSU) in downtown Portland through SE Portland and downtown Milwaukie to SE Park Avenue in unincorporated Clackamas County. The 2008 LUFO realigned the light rail route between PSU and SE 7th Avenue; established the route from SE Tacoma Street to SE Park Avenue; relocated light rail stations or authorized new stations along the light rail route; and established the park-and-ride lots and highway improvements for the Portland to Milwaukie segment.

This 2011 South/North LUFO Amendment (the 2011 LUFO) amends the 1998 LUFO as it relates to the segment of the South/North Project in north Portland extending northward from the Expo Center and from the Interstate 5 (I-5)/Victory Boulevard Interchange to the Oregon/Washington state line on the Columbia River. This 2011 LUFO realigns the light rail route between the Expo Center and the Oregon/Washington state line westward from its alignment in the 1998 LUFO and it relocates the Hayden Island station west of its previous location. It also provides for the rail route to be accommodated on the lower tier of a new southbound I-5 bridge. This 2011 LUFO also establishes a number of highway improvements for the Columbia River Crossing Segment of the South/North Project, including new northbound and southbound I-5 bridges; widening of I-5 in both directions between approximately N Victory Boulevard the Oregon/Washington state line on the Columbia River; new or modified interchanges at Marine Drive, Hayden Island and Victory Boulevard; a new integrated rail/vehicular/bicycle pedestrian bridge connecting Hayden Island with the Expo Center; and roadway realignments, widenings, modifications and new connections within the project area.

This 2011 LUFO also provides for expansion and improvement of the Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham to accommodate and maintain additional LRT vehicles associated with the Columbia River Crossing Project.

This 2011 LUFO is also the latest in a long string of land use final orders dating back to 1991 to the approval of the first LUFO for the Westside Corridor Project. That LUFO, and several amendments to that LUFO which followed, expanded the Portland metropolitan region's commitment to a multi-modal transportation network including light rail transit serving populations to the north, south, east and west of the Central City, an improved state highway and local street network, and facilities to encourage walking and bicycle travel. These steps coincided with the Land Conservation and Development Commission's adoption in 1991 of the Transportation Planning Rule, which encourages and supports the availability of a variety of transportation choices for moving people that balance vehicular use with other modes to avoid principal reliance on any one mode. The Westside LUFOs, among other things, approved the extension of light rail initially through Portland, unincorporated Washington County and Beaverton and then later into downtown Hillsboro. They also approved highway and bicycle improvements associated with the light rail projects, including the widening of US 26 and Oregon 217, new or modified freeway ramps, a new bridge crossing US 26 at Sylvan, a new collector-distributor road system west of the Sylvan Interchange, a new US 26 bridge crossing at Sylvan, the closing of some local accesses to and from US 26, local street

realignments, modifications and improvements, and bicycle facility improvements extending from approximately the Oregon Zoo to Oregon 217. The South/North Project continued this commitment to a multi-modal transportation system with a series of light rail and highway improvements extending along the South/North corridor between Clackamas County and the Oregon/Washington state line.² The Council anticipates that this 2011 LUFO amendment will not be the final step in that process, as House Bill 3478 envisions that at some future point, light rail transit will extend farther south into Oregon City.

1.2 Relationship of Council's Order to Requirements of the National Environmental Policy Act of 1969

Like the 1998, 1999, 2004 and 2008 LUFOs before it, this 2011 LUFO is adopted solely to implement the provisions in HB 3478 authorizing the Council to make land use decisions on the light rail route, stations, lots and maintenance facilities and the highway improvements for the South/North Project, including their locations. This land use decision is not required by the National Environmental Policy Act of 1969 (NEPA) or other federal law.

1.3 Requirements of House Bill 3478

Section 6(1) of House Bill 3478 requires the Council to "establish the light rail route, stations, lots and maintenance facilities, and the highway improvements for the project or project extension, including their locations." Section 6(1)(a) further provides that the locations for each of these facilities and improvements:

"shall be in the form of boundaries within which the light rail route, stations, lots and maintenance facilities, and the highway improvements shall be located. These boundaries shall be sufficient to accommodate adjustments to the specific placements of the light rail route, stations, lots and maintenance facilities, and the highway improvements for which need commonly arises upon the development of more detailed environmental or engineering data following approval of a Full Funding Grant Agreement."

Section 6(2) of the Act addresses amendments to the 1998 LUFO. It provides:

"Any siting of the light rail route, a station, lot or maintenance facility, or a highway improvement outside the locations established in a land use final order, and any new station, lot, maintenance facility or highway improvement, shall require a land use final order amendment or a new land use final order which shall be adopted in accordance with the process provided for in subsection (1) of this section."

² The region's rail transit system now has 50 miles of light rail, with a new line south from the Central City to Milwaukie (7.3 miles) in final planning stages. The system includes a 14.7-mile commuter rail serving the southwest part of the region, opened in 2008, and four miles of streetcar with another eight miles under construction. Future light rail projects under consideration include a light rail line along the Barbur Boulevard corridor.

Section 7 of HB 3478 requires the Council to apply land use criteria established by the Land Conservation and Development Commission (LCDC) in making decisions in a land use final order on the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, and to prepare and adopt findings of fact and conclusions of law demonstrating compliance with those criteria. *These findings serve to demonstrate compliance with LCDC's criteria for the modifications and new improvements selected in this LUFO amendment.*

Section 3(1) of HB 3478 provides that the procedures and requirements set out in the Act are the *only* land use procedures and requirements to which the Council's decisions on the light rail route, the stations, lots and maintenance facilities, and the highways improvements for the Project, including their locations, are subject. Consequently, these findings focus on the matters identified in HB 3478 as land use actions being taken at this time.

The Columbia River Crossing Project is an integrated bridge, light rail transit and highway project within the Expo Center and Hayden Island segments of the South/North corridor in Oregon that extends northward into the state of Washington. The Council finds that the combination of light rail and highway improvements is consistent with and authorized by House Bill 3478. Section 1(18) of House Bill 3478 defines "Project" to mean the South/North Light Rail Project as it may be amended from time to time. "The project includes the light rail route, stations, lots and maintenance facilities and any highway improvements to be included in the project." The Council finds that this definition anticipates that the character of the Project may change over time and may include highway improvements. Section 1(12) defines "highway improvements" to mean "the highway improvements, if any, to be included in the project * * *. The highway improvements shall be selected from among the highway improvements, if any, described in a Draft Statement or Final Statement for the project or project extension for the project * * *. The Council finds that this provision anticipates the inclusion of highway improvements to the Project where such improvements are addressed in a draft or final environmental impact statement involving the project. Similarly, Section 6(2) anticipates new highway improvements being added as amendments to an earlier LUFO. Section 1(13) defines "land use final order" as an order or orders of the Council deciding, among other things, the highway improvements for the project. The Council finds that this language, together with Sections 6(1) and 6(2) of the Act, authorizes the Council to make decisions on highway improvements for the project in a land use final order. Section 3(3) provides that "the procedures and requirements provided for in [HB 3478] shall be the only land use procedures and requirements applicable to * * * [d]ecisions on the highway improvements for the project * * *." The Council finds that this language directs it to follow the requirements of HB 3478 for any highway improvements that are included in the project.

The Council finds that the language in HB 3478 parallels language in Oregon Laws 1991, Chapter 3 (Senate Bill 573) for the Westside Corridor Project, which extended light rail transit from Portland to Hillsboro. Portions of that project included highway improvements along US 26 and Oregon 217, as well as along local arterials and local streets in the vicinity of these highways.³ Like HB 3478, SB 573 similarly defined "Project" to include highway

³ Among other highway improvements, the Westside Corridor Project authorized a new westbound truck climbing lane on US 26, the widening of US 26 to six lanes (three in each direction) between the Skyline

improvements, and it similarly defined “highway improvements” as “those highway improvements to be included in the project” as described in a draft environmental statement. SB 573 similarly defined “final order” as a decision (made by the TriMet Board) deciding the light rail route, light rail facilities and highway improvements”, and it similarly provided that the procedures and requirements of that Act were the only procedures and requirements applicable to TriMet Board decisions on the light rail facilities and highway improvements.⁴

The Council further finds that in Section 2(1) of SB 573, the Oregon Legislature found that to obtain maximum federal funding for the Westside Corridor Project, it was necessary to consolidate land use decisions regarding light rail and highway improvements into a single land use decision, and in Section 2(2), it found that the Act should be liberally construed to accomplish the purposes set out in Section 2(1). Similarly, for the South/North Project, Section 2(1) of HB 3478 provides that to maximize the state’s and metropolitan region’s ability to obtain the highest available level of federal funding for the South/North Light Rail Project and to ensure the timely and cost-effective construction of the project, it is necessary “to establish a process to be used in making decisions in a land use final order on the light rail route, light rail stations, light rail park-and-ride lots, light rail maintenance facilities and any highway improvements to be included in the South/North MAX Light Rail Project, including their locations.” Like Section 2(2) of SB 573, Section 2(2) of HB 3478 states, “Sections 1 to 13 of this Act shall be liberally construed to accomplish the purposes enumerated in subsection (1) of this section.” The Council finds that the purposes of obtaining the highest level possible of federal funding and ensuring the timely and cost-effective construction of the Project as it may be amended from time to time remain important priorities for the region and state. It further finds that a large portion of the project cost of the Columbia River Crossing Project will be federally funded and that the procedures and requirements in HB 3478 were developed to help the region obtain maximum federal funding for the Project.⁵

The Council finds that the Columbia River Crossing Project is a significant multi-modal public works project designed to accommodate the interstate travel needs of Portland metropolitan area residents, including residents of Vancouver, Washington in a manner that moves people and freight efficiently and minimizes conflicts between the various travel modes. The Council finds that the Project reflects negotiation and compromise among

Interchange and Oregon 217, widening of Oregon 217 from four to six lanes with an additional auxiliary lane both southbound and northbound between the Walker Road and Canyon Road interchanges, changes to the Zoo and Sylvan interchanges, construction of an eastbound collector-distributor road system between the Sylvan Interchange and SW Camelot Court, realignment of SW Canyon Court east of SW Skyline Boulevard, realignment of SW Hewitt Boulevard, and other local street improvements.

⁴ See Senate Bill 573, Sections 2(10), (11) and (13) and Section 3(1).

⁵ The Council finds that the legislature anticipated a need to amend the Project over time in, among other things, the Act’s definitions of “Project”, “Project extension”, “Draft Statement” and “Final Statement”, all of which authorize amendments from time to time; in its definition of “Land use final order” as a written order or orders of the Council; and in the language of Section 6(2) of the Act. The Council further finds that by so providing for amendments, the Act demonstrates consistency with the Westside Corridor Project, which included an initial LUFO adopted on April 11, 1991, establishing the light rail alignment through Beaverton and the highway improvements on and near US 26 and Oregon 217; a LUFO adopted on July 28, 1993 for the “Hillsboro Extension” of light rail project; and amendments to these LUFOs dated July 28, 1993 and November 22, 1995 for light rail facilities and August 23, 1995 and February 28, 1996 for highway improvements. The Council takes official notice of those TriMet Board decisions.

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governmental bodies and that for all practical purposes, the light rail component could not have gone forward without the highway component and the highway component could not have gone forward without the light rail component. Indeed, the Council finds that the extension of light rail transit to Vancouver without accompanying highway improvements was attempted in 1998 but rejected by the voters.

More specifically, the Council finds that the original 1998 LUFO that this action is amending was borne out of the proposal to build the South/North light rail project from Clackamas Town Center through Milwaukie and downtown Portland to Vancouver, terminating in the vicinity of I-5 and I-205 in the State of Washington. The crossing of the Columbia River was via a proposed new bridge for light rail transit purposes only west of the existing I-5/Interstate Bridge. TriMet successfully obtained voter support of General Obligation Bonds for one-third of the local match in November 1994 by a wide margin. That ballot measure was predicated on a state legislative contribution of another one-third and a Washington State/Clark County contribution of the final one-third. In early 1995 the voters of Clark Co. turned down a ballot measure for their local match contribution. It was clear from this action that a stand-alone light rail project was not politically acceptable to the voters of Clark County. In response, TriMet and the Oregon side of the region proceeded to implement segments of the Project in Oregon (Interstate MAX, I-205 MAX to the Clackamas Town Center and Portland to Milwaukie MAX).

The question of how to address travel needs in the I-5 corridor started over through a bi-state initiative called the I-5 Trade and Transportation Partnership. In June 2002, the conclusions of the I-5 Transportation and Trade Partnership were published,⁶ calling for a comprehensive approach to addressing the needs in the corridor, including improvements to I-5 from north of the Fremont Bridge in Oregon to I-205 in Vancouver, extension of the newly completed Interstate MAX from the Expo Center to downtown Vancouver, implementation of demand and system management strategies to encourage more efficient use of the transportation system, and implementation of tolling to help pay for the Columbia River crossing and other corridor improvements. While light rail remained an important element of the improvement plan to meet the needs, it became clear that it could only become part of a more comprehensive solution. As such, light rail is functionally linked to the bridge and highway improvements because of the demonstration through the I-5 Transportation and Trade Partnership that the functional requirements of the corridor required all of the elements included in the recommendations. The conclusion was reached that the Oregon interests required emphasis on a multi-modal solution, including better management of traffic demand, because of the difficulty of accommodating that demand through a highway-only expansion of I-5. At the same time, the conclusion recognized the Clark County interests would benefit from those improvements but needed a highway element because the land use patterns of Clark County requires a system with greater dependence on auto access.

This LUFO reflects the conclusion of the Columbia River Crossing Project on how to best

⁶ See http://www.columbiarivercrossing.org/FileLibrary/NonCRCRelatedDocuments/I-5_Partnership_2002_Final_Strategic_Plan.pdf, incorporated herein by this reference. The Metro Council endorsed that plan, including highway and light rail improvements, through its adoption of Resolution No. 02-3237A on November 14, 2002.

implement the recommendations of the I-5 Transportation and Trade Partnership. There is not light rail without the freeway bridge being replaced.

Additionally, the Council finds that the highway improvements are necessitated by the light rail improvements. Extension of light rail transit to Vancouver along the I-5 corridor requires a new bridge crossing over the Columbia River. The proposed I-5 Columbia River bridge crossing consists of two bridge structures. The light rail extension is located beneath the bridge structure carrying southbound I-5 traffic, and a bicycle and pedestrian crossing is located beneath the bridge structure carrying northbound I-5 traffic. The Council finds that the proposed pedestrian and bicycle facilities on the northbound bridge are needed to connect pedestrians and bicyclists wishing to travel across the Columbia River between Oregon and Washington to the light rail transit stations located north and south of the bridge, including the Expo Center Station and the new Hayden Island Station.

The Council further finds that construction of these new bridge structures will necessitate improvements to the I-5 highway and interchanges, including the Hayden Island and Marine Drive Interchanges, and to the local street network that connects those interchanges including realignments, widenings or extensions of or new connections between N Marine Drive, NE Martin Luther King Boulevard, N Gantenbein Avenue, N Expo Road, N Vancouver Way, N Haney Drive, NE Union Court, N Jantzen Drive, N Jantzen Avenue, N Hayden Island Drive, N Tomahawk Island Drive and N Force Avenue. It also finds that additional highway improvements are needed to integrate the transit corridor extension into the existing transportation network and to facilitate multimodal access to and from the existing light rail station at the Expo Center and a new light rail station at Hayden Island. Specifically, the Council finds that the extension of light rail tracks requires grade-separated crossings with the local road system. Accommodation of the grade-separated crossings necessitate modifications to the I-5/Marine Drive Interchange and connecting roadways including the realignments of N Vancouver Way and N Marine Drive and modifications of the road connections to NE Martin Luther King Boulevard.

The Council finds that the extension of the light rail alignment requires an additional bridge crossing over the North Portland Harbor, a navigable waterway. The new local bridge will be a multimodal facility accommodating the light rail extension as well as bicycles, pedestrians and vehicles.

The Council finds that the Expo Center Station will serve as a multimodal connection to enhance accessibility and connectivity with the East Columbia and Bridgeton neighborhoods east of I-5. Accommodation of this connection to Hayden Island requires improvements to the local street network including the construction of a new local multimodal bridge over the North Portland Harbor, a new public road extending N Expo Road westward to N Force Avenue, the extension of N Tomahawk Island Drive under I-5 to the Hayden Island Station, the creation of "Avenue A" in front of the Hayden Island Station, and modifications to N Janzen Drive, N Jantzen Avenue and N Hayden Island Drive.

The Council finds that the Hayden Island Station will be sited where the existing I-5/Hayden Island interchange southbound on- and off-ramps are currently located, prompting the need to

reconfigure the existing I-5/Hayden Island Interchange. It further finds that the reconfigured interchange requires modifications to the local roadway network to provide local access to the light rail station and to reconnect local streets to the reconfigured Hayden Island Interchange.

As discussed in Section 6.3.1 of these findings, the Council finds that nearly all of the highway improvements identified as part of the Columbia River Crossing Project are already identified as transportation improvements in the City of Portland's acknowledged Transportation System Plan (TSP) or comprehensive plan, or in Metro's Regional Transportation Plan (RTP). The only exceptions to this are the new local multimodal bridge over the North Portland Harbor connecting Hayden Island with the Expo Center and local roadway improvements in the vicinity of the Marine Drive Interchange. As noted above, the new multimodal bridge is an integrated multi-modal facility that includes the light rail alignment as well as travel lanes, bike lanes and sidewalks to serve motor vehicles, bicyclists and pedestrians. As further noted above, the local road improvements in the vicinity of the Marine Drive Interchange will improve local access to and from the Expo Center and Hayden Island light rail stations. These improvements are needed as well to accommodate the new I-5 Columbia River bridges and the modifications to the Hayden Island and Marine Drive interchanges.⁷

Finally, the Council notes that HB 3478 authorizes the Council to make land use decisions only with respect to light rail facilities and highway improvements. See Sections 6(1) and 6(2). The effect of these decisions is to permit such facilities to be constructed within the location boundaries established in the LUFO. The LUFO does not decide or address the design of these improvements, nor does it decide what mitigation will be provided. Design issues are addressed in local proceedings pursuant to Section 8 of the Act. Mitigation is determined through the FEIS process or during local permitting proceedings pursuant to Section 8 of the Act.

⁷ As elements of the Columbia River Crossing Project, the highway improvements are eligible for federal funding. While as noted, most of these improvements are already identified in Portland's acknowledged Transportation System Plan and the RTP, they are nonetheless included in the LUFO and addressed in these findings because, as part of the Columbia River Crossing Project, they remain subject to the requirements of HB 3478.

2. Amendments to the Light Rail Route, Stations, Lots and Maintenance Facilities, and Highway Improvements for the Project, Including Their Locations

2.1 Introduction

The Metro Council initially approved a light rail route, stations, park-and-ride lots, maintenance facilities and highway improvements for the Project, including their locations, in the 1998 LUFO. That decision established an alignment from the Clackamas Town Center through downtown Milwaukie to downtown Portland and northward to the Oregon/Washington state line on the Columbia River.

The 1999 LUFO modified the 1998 LUFO by relocating the light rail alignment farther to the west, establishing new light rail station locations, and providing an interim terminus at the Expo Center.⁸ The remainder of the Project outside that portion between the Steel Bridge and the Expo Center remained unchanged.

This 2011 LUFO modifies the 1998 LUFO by:

- 1) Relocating the light rail alignment and Hayden Island station farther to the west;
- 2) Relocating the light rail alignment leading into Vancouver, Washington onto the lower tier of a new southbound Interstate 5 bridge;
- 3) Providing significant highway improvements between approximately N. Victory Boulevard and the Oregon/Washington state line on the Columbia River, including but not limited to new northbound and southbound Interstate 5 bridges to accommodate highway, rail, pedestrian and bicycle travel; widening of northbound and southbound Interstate 5 to accommodate three travel lanes and two auxiliary lanes; and interchange and roadway modifications and improvements and new roadway connections within the Project area.

These 2011 findings replace and supersede findings supporting the 1998 LUFO as follows:

- That part in Section 6.4.8 of the 1998 LUFO findings addressing the portion of the North Portland segment between the Expo Center and N Marine Drive;
- In their entirety, Section 6.4.9 of the 1998 LUFO findings addressing the Hayden Island segment.

Further, to the extent these 2011 LUFO findings create inconsistencies with other sections of the 1998 LUFO findings [*see, e.g.*, Sections 2.1, 6.1 and 6.3], these 2011 findings control and supersede the earlier findings.

⁸ The 1999 LUFO did not amend the Expo Center station location or the light rail alignment immediately south of the Expo Center in any significant way.

This 2011 LUFO also authorizes use of the Ruby Junction Maintenance Facility in Gresham to serve light rail vehicles associated with the Columbia River Crossing Project.

2.2 Selected Expo Center/Hayden Island Segment Amendments

The Metro Council amends the 1998 LUFO to select and establish the locations of the light rail route, stations, maintenance facilities and highway improvements identified below. The Council finds that its selected light rail route, stations, maintenance facilities and highway improvements, including their locations, are identical to those for which TriMet requested Council approval in its "Application for South/North Land Use Final Order Amendment (Expo Center/Hayden Island Segments)", which TriMet filed on July 13, 2011 and which the Council incorporates herein by this reference.⁹ The light rail route, station, maintenance facility and highway improvements selected by this amendment are described textually and illustrated on the maps contained in the Council's adopted 2011 LUFO.

In the 1998 LUFO there were two segments that, together, provided light rail transit (LRT) service between the Expo Center and the Oregon/Washington state line on the Columbia River. These segments were the North Portland segment and the Hayden Island segment. In the 1999 LUFO, the Metro Council renamed the portion of the North Portland segment extending from south of the Columbia Slough near N Columbia Boulevard to the Expo Center the "Expo Center Segment." This 2011 LUFO amendment retains the name "Expo Center Segment" and extends it to N Marine Drive, where the Hayden Island Segment begins. This 2011 LUFO amendment also extends the Expo Center and Hayden Island segments east of Interstate 5 approximately 2,500 feet to include all areas identified for highway improvements. For convenience purposes, these two segments are consolidated and addressed as a single segment (Expo Center/Hayden Island) in these findings.

The Metro Council now deems it appropriate to approve the 2011 LUFO changes for the Expo Center/Hayden Island Segment as follows:

Light Rail Alignment

From the Expo Center station, the light rail alignment proceeds northward under N Marine Drive and onto a new, integrated light rail/vehicular/bicycle/pedestrian bridge crossing over the North Portland Harbor onto Hayden Island west of I-5. The alignment then continues northward, crossing over N Hayden Island Drive onto the lower deck of the new southbound Interstate 5 Bridge.

From the state line on the Columbia River, the alignment continues northward into Vancouver, Washington. Because the portion of the Project in the State of Washington is outside the jurisdiction of the State of Oregon, it is not subject to compliance with House Bill 3478 and is not addressed in the LUFO or these LUFO findings.

⁹ TriMet's application is attached as Exhibit B to Resolution No. 11-4289.

Light Rail Stations

A single light rail station is located in the Expo Center/Hayden Island Segment. The **Hayden Island Station** will be elevated and positioned adjacent to I-5, over or near Tomahawk Island Drive. Tomahawk Island Drive will be extended under I-5 to provide a third east/west street connection for Hayden Island. The Hayden Island Plan calls for retail development, a mixed-use station community, and a well-connected street system to be developed adjacent to the station.

Park-and-Ride Lots

There are no new park-and-ride lots in the Expo Center/Hayden Island Segment.

Operations & Maintenance Facilities

There are no operations & maintenance facilities in the Expo Center/Hayden Island Segment. Maintenance will be provided at the existing Ruby Junction Maintenance Facility in Gresham, discussed in Section 2.3 below.

Highway Improvements

The highway improvements in the Expo Center/Hayden Island Segment include the following:

1. New northbound and southbound I-5 Columbia River bridges. The southbound bridge is a two-tier bridge with highway on the upper deck and light rail on the lower deck. The northbound bridge is a two-tier bridge with highway on the upper deck and bicycle and pedestrian facilities on the lower deck. Each bridge will include three travel lanes and two auxiliary lanes.
2. Widening of I-5 in both the northbound and southbound directions from N Victory Boulevard to the Oregon/Washington state line. Northbound, I-5 will widen from three travel lanes at N Victory Boulevard to three travel lanes and two auxiliary lanes on the new northbound I-5 Columbia River bridge. Southbound, I-5 will narrow from three travel lanes and two auxiliary lanes on the new southbound I-5 Columbia River bridge to three lanes south of N Victory Boulevard.
3. A newly designed I-5/Marine Drive interchange, including ramps connecting I-5 with N Marine Drive and NE Martin Luther King Jr. Boulevard.
4. A newly designed I-5/Hayden Island interchange including relocated northbound and southbound exit and entrance ramps. The redesign is intended to further the Hayden Island Plan and implement features that are supportive of transit.
5. A new integrated light rail/vehicular/bicycle/pedestrian bridge west of I-5 connecting Hayden Island with the Expo Center and N Expo Road.

6. Realignment and widening of NE Martin Luther King Jr. Boulevard between the new I-5/Marine Drive interchange and approximately N Hayden Meadows Drive.
7. Realignment and widening of N Marine Drive between N Gantenbein Avenue and N Vancouver Way.
8. Modification, widening and extension of N Vancouver Way between east of N Haney Drive and approximately the light rail alignment west of I-5.
9. Realignment and widening of NE Union Court between N Hayden Meadows Drive and N Vancouver Way.
10. A new northbound connection between NE Martin Luther King Jr. Boulevard and N Vancouver Way and a new southbound connection between NE Martin Luther King Jr. Boulevard and NE Union Court.
11. Realignments, widening and roadway modifications to N Jantzen Avenue, N Jantzen Drive and N Hayden Island Drive.
12. Modification, widening and extension of N Tomahawk Island Drive from east of N Jantzen Drive to the west of I-5.
13. Construction of a new roadway west of I-5 and the light rail alignment between N Jantzen Avenue and N Hayden Island Drive.
14. A new public road extending N Expo Road westward to N Force Avenue.
15. Removal of the existing I-5 Columbia River bridges.

See **Figures 1.1 to 1.3** of the LUFO for the boundaries within which the above described light rail facilities and highway improvements would be located.

2.3 Ruby Junction Maintenance Facility Improvements

The Ruby Junction Maintenance Facility along NW Eleven Mile Avenue in Gresham was first authorized in 1980 as part of the Portland to Gresham light rail project. The facility includes light rail tracks, vehicle storage spaces and maintenance bays, an operation center, and related facilities necessary to maintain light rail vehicles.

As part of the 2008 LUFO amendments for the Portland to Milwaukie Project, the Council approved the modification and expansion of the Ruby Junction Maintenance Facility and adopted location boundaries for it. See **Figure 2.1** of this 2011 LUFO. This LUFO authorizes the use of the facility to serve light rail vehicles associated with the Columbia River Crossing Project. Such use was expressly anticipated in the 2008 LUFO findings. Because use and improvement of the facility in connection with the Columbia River Crossing Project will

occur within the location boundaries approved in 2008, the Council finds it is not necessary to amend those boundaries.

3. South/North Project Land Use Final Order Criteria

On May 30, 1996, pursuant to Section 4 of HB 3478, LCDC established the criteria to be used by the Council in making land use decisions establishing or amending the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project or Project Extension, including their locations. The approved criteria include two procedural, six substantive, and two alignment-specific standards, set out as follows:

3.1 Procedural Criteria

1. Coordinate with and provide an opportunity for Clackamas and Multnomah Counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.
2. Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations.

3.2 Substantive Criteria

3. Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed-use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process or, if reasonable and necessary, by affected local governments during the local permitting process.
 - A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.
 - B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.
4. Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.

5. Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
6. Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
7. Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.
8. Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.

3.3 Alignment-Specific Criteria

9. Consider a light rail route connecting the Clackamas Town Center area with the City of Milwaukie's Downtown. Consider an extension of the light rail route connecting the City of Oregon City and the City of Gladstone with the City of Milwaukie via the Interstate 205 corridor and/or the McLoughlin Boulevard corridor.
10. Consider a light rail route connecting Portland's Central City with the City of Milwaukie's Downtown via inner southeast Portland neighborhoods and, in the City of Milwaukie, the McLoughlin Boulevard corridor, and further connecting the Central City with north and inner northeast Portland neighborhoods via the Interstate 5/Interstate Avenue corridor.

Compliance with Procedural Criteria 1 and 2 is demonstrated in Section 5 of these findings. Compliance with Substantive Criteria 3 through 8 is demonstrated in Section 6 (long-term impacts) and Section 7 (short term construction impacts) of these findings. The Council finds that Criterion 9 is not relevant to this 2011 LUFO because the South/North Project already connects Clackamas Town Center with downtown Milwaukie and this amendment does not concern light rail extensions from Milwaukie to Gladstone or Oregon City. It finds that compliance with Criterion 9 has been addressed in prior South/North LUFOs, including the 2004 LUFO. Regarding Criterion 10, the Council finds that this 2011 LUFO amendment

further connects the Central City with the Kenton and Hayden Island neighborhoods in north Portland via the existing alignment along the Interstate Avenue corridor.

For all of the reasons set out in these findings, the Council finds and concludes that these 2011 LUFO amendments comply with the applicable LCDC criteria.

4. Implementation of a Land Use Final Order

4.1 Overview of Process for Selecting Mitigation Measures

LCDC Criteria 3 through 8 require the Council to identify (1) specified adverse impacts (*e.g.*, impacts to neighborhoods and natural resources) that would result as a consequence of its decisions, and (2) "measures" to reduce those impacts which potentially could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the local jurisdiction permitting processes. Consideration of appropriate measures is consistent with local comprehensive plan policies and land use regulations which recognize that development can have adverse impacts on persons and property and which seek to reduce those impacts to the extent reasonable and permitted by law.¹⁰

The Council's decisions selecting the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project, including their locations, are not the final steps in the process culminating with completion of construction of the South/North Project. Subsequent to or concurrent with Council actions, Final Environmental Impact Statements (FEIS) are submitted to the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). As part of that process, mitigation plans are developed addressing mitigation of adverse impacts associated with the selected rail and highway improvements for the Project. In each case, following federal approval of the FEIS, issuance of a Record of Decision and the signing of a Full Funding Grant Agreement with FTA and FHWA, the Final Design phase will begin. During Final Design, all necessary federal and state permits for project construction are obtained.

Also during Final Design, the siting of light rail and highway improvements is subject to local permitting processes. Section 8(1)(b) of House Bill 3478 directs all affected local governments and agencies to "issue the appropriate development approvals, permits, licenses and certificates necessary for the construction of the Project or project extension consistent with a land use final order." Section 8(1)(b) further allows these affected local governments to attach approval conditions to their development approvals permits, licenses and certificates. However, any such conditions must be "reasonable and necessary" and "may not, by themselves or cumulatively, prevent implementation of a land use final order." Under Section 8(3) of HB 3478, unreasonable or unnecessary conditions would include 1) measures for which there are insufficient funds within the Project budget to pay for those measures; 2) measures that would significantly delay the completion or otherwise prevent the timely implementation of the Project; and 3) measures that would significantly negatively impact Project operations. See also *TriMet v. City of Beaverton*, 132 Or App 253 (1995).¹¹ A condition prevents implementation of a LUFO if its imposition would require TriMet to finance construction of the condition at the expense of improvements funded under the Full

¹⁰Section 1(17) of HB 3478 defines "measures" to include "any mitigation measures, design features, or other amenities or improvements associated with the project or project extension."

¹¹ In the *Beaverton* case the Court explained: "The reasonable and necessary test applies to conditions that are related to or necessitated by the project, but the bill does not permit conditions of a kind that are designed to further unrelated land use objectives of local plans and regulations."

Funding Grant Agreement or to go beyond the available federal funds and local matching funds for the Project. The Council finds that these funds constitute the envelope of available funds for the Project.

In summary, Criteria 3 through 8 require the Council to identify measures which potentially "could be imposed" later in the process as part of an approved mitigation plan under NEPA or through local permitting (if reasonable and necessary). However, the actual determination and imposition of appropriate measures occurs only through these later federal or local processes, not through this Council action. The Council finds this approach to be reasonable and appropriate, particularly given that the LUFO is not based on final design plans. Through final design, many identified adverse impacts may be avoided, and appropriate mitigation can be better determined.

4.2 Effect of Land Use Final Order on Local Comprehensive Plans and Land Use Regulations

Section 8(1)(a) of HB 3478 requires the affected cities and counties and Metro to amend their comprehensive or functional plans, including their public facility and transportation system plans and land use regulations, to the extent necessary to make them consistent with a land use final order. Section 8(2) further provides that a LUFO "shall be fully effective upon adoption."

The legal effects of these provisions are (1) to immediately authorize, as permitted uses, the light rail route, stations, lots and maintenance facilities and the highway improvements, including their locations, as identified and approved in a land use final order, and (2) to require appropriate plan and land use regulation amendments so that local land use requirements are consistent with a land use final order.¹² However, as noted above, the uses approved in a land use final order remain subject to local imposition of reasonable and necessary approval conditions under Section 8(1)(b).

While approval of a LUFO identifies where rail and highway improvements may go and authorizes their development at these locations subject to reasonable and necessary conditions, it does not concurrently prevent other uses allowed by existing zoning. Stated another way, a LUFO is not a right-of-way preservation tool. It does not prevent development of economically feasible uses currently permitted under acknowledged plans and land use regulations. It merely adds to the list of uses permitted on the properties affected by the LUFO without eliminating other uses from that list.

Similarly, a LUFO does not require local zoning amendments to allow more intense scales of development. Instead, it requires amendments only as necessary to authorize the approved Project elements and ancillary facilities or improvements that may be required to ensure the safe and proper functioning and operation of the light rail system or other Project elements,

¹²This may require amendments to authorize the ancillary facilities and improvements for the South/North Project.

provide Project access, improve traffic flow, circulation or safety in the Project vicinity, or mitigate adverse impacts resulting from the Project.

In summary, Metro Council adoption of a LUFO has the immediate effect of authorizing, on the affected properties, the light rail and highway facilities and improvements approved in the LUFO. It also identifies the affected locations for future public acquisition for rail or highway purposes. However, LUFO adoption in no way prevents or limits currently allowed uses on these properties during the interim period pending ultimate public acquisition, nor does it mandate the rezoning of areas nearby light rail stations to achieve regional growth management objectives.

5. Compliance with Procedural Criteria (1-2)

5.1 Criterion 1: Agency Coordination

"Coordinate with and provide an opportunity for Clackamas and Multnomah Counties, the cities of Gladstone, Milwaukie, Oregon City and Portland, the Tri-County Metropolitan Transportation District of Oregon and the Oregon Department of Transportation to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations."

Criterion 1 ensures Metro coordination with the Tri-County Metropolitan Transportation District of Oregon (TriMet), the Oregon Department of Transportation (ODOT), and six cities and counties within the South/North corridor that are directly affected by the Project or Project Extension. Criterion 1 further requires Metro to provide these jurisdictions and agencies an opportunity to submit testimony on the light rail and highway facilities and improvements for the Project or Project Extension, including their locations.

The light rail route, station, maintenance facility and highway improvement decisions that are the subject of this LUFO amendment fall within the jurisdictional boundaries of the cities of Portland and Gresham. While the City of Gresham is not identified in Criterion 1, the Council finds that coordination with the city is appropriate because the maintenance facility serving light rail vehicles associated with the Columbia River Crossing Project is located in Gresham. The Council finds that the City of Portland's planning, engineering, and other technical staff, as well as staff from TriMet and ODOT, have been actively involved in the process resulting in these proposed amendments, and that TriMet staff has met with City of Gresham staff with regard to expanding use of the Ruby Junction Maintenance Facility.

The Council finds that Metro coordination with TriMet, ODOT, Clackamas and Multnomah Counties and the cities of Portland, Milwaukie, Gresham, Oregon City and Gladstone has occurred both through their participation (except for Gladstone) on the LUFO Steering Committee to make recommendations to TriMet on a 2011 LUFO amendment, and through invitations to these local governments and agencies to submit testimony to the Metro Council on this amendment. The Council finds that on or about June 13, 2011, TriMet staff mailed Project materials (*Proposed LUFO Steering Committee Recommendation Concerning the 2011 South/North Land Use Final Order*, dated June 23, 2011) describing all aspects of the proposed Project to ODOT and to elected officials of the cities of Portland, Milwaukie, Gresham, and Oregon City, the counties of Multnomah and Clackamas, and Metro, providing them with information regarding the proposed 2011 LUFO amendments for the Columbia River Crossing Project. The Council further finds that the LUFO Steering Committee, which includes representatives from Metro, TriMet, ODOT, Clackamas and Multnomah Counties, and the cities of Portland, Milwaukie, Gresham and Oregon City, reviewed the proposed LUFO amendments and on June 23, 2011, made recommendations to TriMet on those amendments as documented in the 2011 LUFO and as provided for in Section 6(1)(a) of

House Bill 3478. Also, the Council finds that ODOT separately submitted its own recommendations to TriMet as required by Section 6(1)(a).

In addition, the Metro Council finds that notice of its August 11, 2011, public hearing to consider this LUFO amendment was mailed directly to each of the above-identified local governments and agencies, including the City of Gladstone, thus providing those local governments and agencies with the opportunity to submit testimony to the Council on the proposed LUFO amendments at that hearing.

In adopting these 2011 LUFO amendments, the Metro Council carefully considered the recommendations of the LUFO Steering Committee and ODOT and the comments of the affected jurisdictions. The Council's decision in this 2011 LUFO amendment proceeding is fully consistent with TriMet's application, which in turn is consistent with the recommendations of the LUFO Steering Committee and ODOT.

For all of these reasons, the Metro Council finds that Criterion 1 is satisfied.

5.2 Criterion 2: Citizen Participation

"Hold a public hearing to provide an opportunity for the public to submit testimony on the light rail route, light rail stations, park-and-ride lots and vehicle maintenance facilities, and the highway improvements, including their locations."

Criterion 2 ensures that the public has an opportunity to submit testimony and be heard in the process leading to the Metro Council's selection of the light rail route, stations, lots and maintenance facilities, and the highway improvements for the Project, including their locations.

On August 11, 2011, consistent with Criterion 2, the Metro Council held a public hearing and accepted public testimony on the proposed amendments to the 1998 LUFO. This followed public notice, which Metro published in *The Oregonian* on July 14, 2011, which is more than 14 days prior to its hearing. The Metro Council finds that *The Oregonian* is a newspaper of general circulation and that this publication of notice in *The Oregonian* meets and exceeds the requirements for notice set out in HB 3478.

In addition to the published notice, a postcard mailing announcing the hearing was mailed to people on Metro's South/North mailing list for the Columbia River Crossing Project. This list includes owners of property within 250 feet of the light rail and highway alignments and within 250 feet of the Ruby Junction Maintenance Facility boundary. Also, announcements of the 2011 LUFO public hearing were included on Metro's website.

Further, the Metro Council finds that there has been substantial community participation in the process leading to the selection of the proposed amendments. The Metro Council takes notice of, and incorporates by reference herein, the description of the community participation

process leading up to adoption of these 2011 LUFO amendments as set out in Appendix B of the Columbia River Crossing Draft Environmental Impact Statement (2008).

In summary, the Metro Council finds that the holding of the public hearing on August 11, 2011, satisfies the requirement of Criterion 2. It further determines and concludes that the notices provided through publication, mailings, recorded announcements and by other means were reasonably calculated to give notice to people who may be substantially affected by the Metro Council's decision on TriMet's application.

The Council heard argument that the nature of this proceeding required the Council to follow quasi-judicial hearing procedures. The Council doubts that a proceeding involving miles of light rail track and roadway improvements affecting scores of properties and serving many tens of thousands of users each day is quasi-judicial. More significantly, the Council finds that the procedures it follows in adopting land use final orders are dictated by Section 7 of HB 3478 and that Section 7 does not mandate the use of quasi-judicial procedures in such proceedings. The Council finds that its compliance with the process set out in HB 3478 providing public notice of this proceeding, authorizing submittal of written testimony and calling for a public hearing provided interested parties with an adequate opportunity to present their views to the Council is sufficient, noting that the process set out in HB 3478 is an alternative land use siting process authorized by the legislature to achieve the purposes of the legislation. *See Seto v. Tri-County Metro. Transportation Dist.*, 311 Or 456 (1991). All that stated, the Council also finds that the procedures it authorized for this LUFO amendment provided for limited rebuttal to any new evidence introduced by the applicant during the applicant's rebuttal.

6. Compliance with Substantive Criteria (3-8) Long Term Impacts

6.1 Introduction

The Columbia River Crossing portion of the South/North Project will extend South/North light rail transit from the Expo Center to the Oregon/Washington state line on the Columbia River and then farther northward into Vancouver, Washington. The total length of the LRT extension is 2.9 miles, of which 1.0 mile is within the State of Oregon. Additionally, the Columbia River Crossing portion of the Project will provide two new bridge spans over the Columbia River, enhance pedestrian and bicycle travel in the area, widen and improve I-5, and substantially improve mobility on and the connectivity of the surrounding roadway network between N Victory Boulevard and the Columbia River.

This LUFO amendment affects the Hayden Island segment and a portion of the Expo Center segment of the South/North Project, as identified by the Council in the 1998 and 1999 LUFOs. For ease of analysis, those two segments are addressed as a single, consolidated segment (Expo Center/Hayden Island) in these findings.

6.2 Supporting Documentation

In addition to the findings of fact addressing the selected light rail route, stations, maintenance facilities and highway improvements for the Columbia River Crossing Section of the South/North Project, the Metro Council believes, adopts and incorporates by reference herein the facts set forth in the following documents:

- *Columbia River Crossing Draft Environmental Impact Statement (2008)¹³
- *CRC Project Description for Oregon (describing the Oregon portion of the Project to be included in the FEIS) (2011)
- *Preliminary Columbia River Crossing Technical Reports (including appendices) (2011):
 - *Acquisitions Technical Report
 - *Air Quality Technical Report
 - *Archaeology Technical Report
 - *Aviation Technical Report
 - *Cumulative Effects Technical Report
 - *Economics Technical Report
 - *Ecosystems Technical Report
 - *Electromagnetic Fields Technical Report
 - *Energy Technical Report
 - *Environmental Justice Technical Report

¹³ The Council is aware that the CRC Project as identified in the DEIS has been modified and supplemented and its supporting information has been updated. The 2011 technical reports reflect the Project, as it will appear in the FEIS. To the extent the DEIS is inconsistent with the Project as developed for the FEIS (e.g., a 10-lane bridge instead of a 12-lane bridge) and information in the 2011 Preliminary Columbia River Crossing Technical Reports, the Council relies on the more recent information.

- *Geology and Groundwater Technical Report
- *Hazardous Materials Technical Report
- *Historic Built Environmental Technical Report
- *Indirect Effects Technical Report
- *Land Use Technical Report
- *Navigation Technical Report
- *Neighborhoods and Population Technical Report
- *Noise and Vibration Technical Report
- *Parks and Recreation Technical Report
- *Public Services Technical Report
- *TDM and TSM Technical Report
- *Traffic Technical Report
- *Transit Technical Report
- *Utilities Technical Report
- *Visual and Aesthetics Technical Report
- *Water Quality and Hydrology Technical Report
- *Wetlands and Jurisdictional Waters Technical Report
- *Stacked Transit/Highway Bridge Memorandum
- *Highway, local road and transit roll map
- *Biological Assessment for Threatened, Endangered, and Candidate Fish
- *Draft Stormwater Management Design

Additionally, the Metro Council takes official notice of the following documents:

1. Oregon Laws 1996 (Special Session), Chapter 12 (House Bill 3478) and Oregon Laws 1991, Chapter 3 (Senate Bill 573)
2. Metro Regional Framework Plan and its components, including the 2040 Growth Concept Map, the Urban Growth Management Functional Plan, the 2035 Regional Transportation Plan (RTP) and the Regional High Capacity Transit System Plan
3. City of Portland Comprehensive Plan, Transportation Plan and Land Use Regulations
4. The following resolutions adopted by the Metro Council, including their exhibits and attachments:
 - Resolutions No. 98-2673, July 23, 1998; No. 99-2853A, October 28, 1999; No. 03-3372, January 15, 2004; and No. 08-3964, July 24, 2008, (adopting or amending the South/North Land Use Final Order)
 - Resolution No. 02-3237A, November 14, 2002, (endorsing the I-5 Transportation and Trade Partnership's "Final Strategic Plan" (June 2002))
 - Resolution No. 08-3960B, July 17, 2008 (endorsing the Locally Preferred Alternative for the Columbia River Crossing Project)
 - Resolution No. 11-4264, June 9, 2011 (regarding considerations and concerns raised about the Columbia River Crossing Project)
5. Metro Ordinance No. 10-1241B, June 10, 2010 (adopting the 2035 Regional Transportation Plan)
6. The following resolutions adopted by TriMet, including their exhibits and attachments:

- Resolution Adopting a Land Use Final Order (SB 573), April 12, 1991 (adopting the Westside Corridor Project Land Use Final Order)
- Resolutions No. 93-07-56, July 28, 1993; No. 93-07-57, July 28, 1993; No. 95-08-60, August 23, 1995; and No. 96-01-10, February 28, 1996 (adopting the Hillsboro extension of the Westside Corridor Project and amendments to the Westside Corridor Project and Hillsboro Extension Land Use Final Orders)

6.3 Expo Center/Hayden Island Segment: Findings and Mitigation Measures

As noted in Section 2.2 of these findings, the Expo Center/Hayden Island Segment of the South/North Project includes the following facilities in Oregon:

- For light rail, the Project extends the existing MAX light rail facilities from the Expo Center Station in north Portland northward across Hayden Island to the Oregon/Washington state line on the Columbia River. The light rail transit alignment is located generally to the west of the alignment approved in the 1998 South/North LUFO and includes one LRT station on Hayden Island.
- For the highway improvements, the Project begins just south of N Victory Boulevard and extends northward to the Oregon/Washington state line on the Columbia River. The multi-modal Project includes a new bridge crossing over the Columbia River (including the LRT extension noted above), and related highway, interchange and bicycle and pedestrian improvements.

See **Figures 1.1 to 1.3** of the LUFO for the boundaries within which these light rail facilities and highway improvements will be located.

6.3.1 Criterion 3: Neighborhood Impacts

“Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process or, if reasonable and necessary, by affected local governments during the local permitting process.”

- “A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.”

- “B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.”**

Criterion 3 requires the Council to provide for a light rail route, stations, lots, maintenance facilities and associated highway improvements, “balancing” the need to protect affected neighborhoods from identified adverse impacts with the positive benefits provided by light rail proximity and service (including the development of an efficient and compact urban form) and by an improved highway system.

The Council finds that the Columbia River Crossing Project amending the 1998 LUFO includes both light rail facilities and associated highway improvements. These improvements were identified and analyzed as Alternative 3 in the DEIS issued in 2008. After a public hearing on the DEIS on May 29, 2008 and extensive public review, a Locally Preferred Alternative (LPA) was selected. The LPA was endorsed by TriMet and ODOT and is being advanced into the Final Environmental Impact Statement as the Preferred Alternative. The Preferred Alternative includes the light rail improvements necessary and appropriate to extend the South/North Light Rail Project into the State of Washington and the associated highway improvements, as presented in this application.

The Council finds that the CRC Project, as set out in the LPA and the LUFO application, will be a significant transportation improvement project in which light rail, highway, bicycle and pedestrian improvements are all associated as part of an integrated, multi-modal project. The Council finds that the affected local governments and agencies involved in this Project have expressed strong interest that the Project be a joint light rail and highway project. It finds that the associated highway improvements directly and indirectly serve the light rail improvements by accommodating the alignment (e.g., new I-5 bridges, new arterial bridge over the North Portland Harbor) or providing regional and local access to the Expo Center and Hayden Island light rail stations (e.g., I-5 interchange improvements, access and circulation improvements and roadway modifications on Hayden Island and in the vicinity of the Marine Drive interchange). The Council further finds that some of the highway improvements are needed for engineering purposes to accommodate the new bridge containing the light rail alignment and the modifications to the I-5 interchanges and their approaches. And the Council finds that the light rail and highway improvements are linked together as well in federal and state proposals for funding the Project. See Metro Resolution No. 11-4264 and Exhibit A attached thereto, incorporated herein by this reference.

Description of Affected Neighborhoods in the Expo Center/Hayden Island Segment

The consolidated Expo Center/ Hayden Island segment extends north from N Marine Drive across the North Portland Harbor and Hayden Island to the Oregon/Washington state line in the Columbia River. The segment includes portions of the East Columbia, Kenton, Bridgeton and Hayden Island neighborhoods. These neighborhoods are identified and described in the

Neighborhoods and Population Technical Report, incorporated herein by reference. Major public land uses in this segment include the Portland International Raceway, the Expo Center, and Delta Park.

The *East Columbia Neighborhood* is located directly east of I-5 and extends from the Columbia Slough north to Marine Drive. East Columbia contains a variety of land uses including large recreational and entertainment uses on the western and eastern boundaries of the neighborhood. One such use is East Delta Park, which is 86 acres in size. It features the Delta Sports Complex with five lighted softball fields and a synthetic soccer field. The complex also hosts additional softball fields, seven grass soccer fields, six sand volleyball courts, a playground, picnic tables, an off-leash dog area, and nature trails. The neighborhood also includes wetlands, trucking companies, and small industrial businesses. Other amenities within the East Columbia Neighborhood are Portland Meadows Race Track and Columbia Edgewater Golf Course. Between these large tracts of land are several manufactured home parks and large tracts of industrial land.

The East Columbia Neighborhood contained an estimated 2000 US Census population of 344. The percentage of African American residents is approximately twice that of the county or city, while the percentage of Hispanic or Latino residences is substantially smaller than that of the county or city. The percentage of population 65 years of age or older is one-third of the city percentage and slightly more than one-third of the county percentage.

The *Kenton Neighborhood* is located west of I-5 and extends from Lombard Avenue to North Portland Harbor. Kenton contains a wide range of uses, including residential, commercial, industrial, and recreational. Single-family residential development is concentrated south of Columbia Boulevard, with commercial and industrial uses located to its north. Multi-family residential dwellings are scattered throughout the neighborhood, but a majority are found among densely packed commercial structures along Interstate and Lombard Avenues.

The northern portion of Kenton contains multiple community resources including Portland International Raceway, Heron Lakes Golf Course, Multnomah County Fairgrounds, and the Expo Center. The large Paul Bunyan statue at the intersection of N Interstate and N Argyle Avenues, the Kenton Neighborhood Rose Garden, and the Historic Kenton Firehouse are also important cultural resources that provide identity to the community. West Delta Park and Vanport Wetlands serve as natural resources, as does Kenton Park on Brandon Avenue. There are many historic resources including the Kenton commercial historic shopping district on Denver Avenue, the historic David Cole House on N McClellan, and the historic Kenton Firehouse on Brandon Avenue.

The Kenton Neighborhood contained an estimated 2000 US Census population of 7,086. The percentage of African American residents in Kenton is more than twice that of the county or city, while the percentage of Hispanic or Latino residents is slightly higher than that of the county or city. The percentage of population 65 years of age or older is within one percent of the city percentage and county percentage.

The *Bridgeton Neighborhood* is located east of I-5 on North Portland Harbor. It is an early Portland neighborhood with cottages built between 1915 and 1930 along the Columbia River.

Residential uses are concentrated at the eastern end of the neighborhood, both on land in rowhouses and detached single-family dwellings, and on the river in floating homes. Industrial uses can be found directly adjacent to I-5 around the Marine Drive interchange. There is a small commercial node at Marine Drive and I-5. Columbia High School and its adjacent playfield act as important community resources, as do the neighboring sloughs and the Columbia River, which provide recreational uses.

The Bridgeton Neighborhood contained an estimated 2000 US Census population of only 39 within the area of potential impact from the CRC Project. The percentage of Hispanic or Latino population is lower than the county and city, while the percentage of African Americans is double that found in Multnomah County and almost double the percentage found in Portland. The percentage of population 65 years of age or older is one-third of the city percentage and slightly more than one-third of the county percentage.

While a range of uses is located in the *Hayden Island Neighborhood*, the primary use is commercial. Jantzen Beach Center, a large commercial mall, and other retail uses are located to the west of I-5. Hotels and restaurants are also located on the island. Residential uses are located in the northwestern and eastern portions of the island. The residences in the northwestern area are manufactured homes. In the eastern portion of the island the residences are both on the land and in the river; floating homes are located on the south side of the island and along North Portland Harbor. Small marinas are located around the island.

The Hayden Island Neighborhood contained an estimated 2000 US Census population of 2,086. The percentage of minority population and proportion of households below the poverty level is lower in the neighborhood than for the county and the region. The percentage of population over 65 years of age is considerably higher than averages for the county and the region.

The LRT alignment will generally parallel the west side of I-5 through this segment, with a station located at the east end of the Jantzen Beach Center.

Identify adverse economic, social and traffic impacts on affected neighborhoods. Identify measures to reduce those impacts.

Economic, social and traffic impacts specific to the Expo Center/Hayden Island segment are addressed in the following section. Economic, social and traffic impacts are also described, along with corresponding mitigation measures, in the Acquisitions Technical Report, Aviation Technical Report, Economics Technical Report, Environmental Justice Technical Report, Land Use Technical Report, Navigation Technical Report, Neighborhoods and Population Technical Report, Traffic Technical Report, Transit Technical Report, and Visual and Aesthetics Technical Report.

For the purpose of these findings, long-term adverse impacts generally are grouped under one of three headings: economic, social or traffic impacts. The Council recognizes, however, that impacts often can fall under more than one heading. For example, impacts on freight movement may be relevant as both economic and traffic impacts. Displacements have both

economic and social implications. Parking can be categorized as an economic, social and traffic concern. The Council intends these findings to be interpreted broadly to allow overlap among these different categories.

Although the following list is not exclusive, the Council finds that the economic, social and traffic impacts associated with the CRC Project fall primarily within the following categories:

Economic Impacts

- Business displacements
- Loss of parking/access
- Tax base
- Freight movement (train, truck, water and air)

Social Impacts

- Residential displacements
- Access to community facilities
- Barriers to neighborhood interaction
- Safety and security
- Visual/aesthetic

Traffic Impacts

- Transit
- Systemwide and local traffic impacts

As noted, Criterion 3 directs the Council to balance these impacts with the need for light rail and highway improvements. Before identifying the adverse economic, social and traffic impacts on the affected neighborhoods, the Council finds it useful to briefly summarize the need for the light rail and highway improvements that comprise the Columbia River Crossing Project.

Overview of Need for Light Rail and Highway Improvements in the Expo Center/Hayden Island Segment

The Council finds that the Columbia River Crossing Project seeks to address problems relating to growing travel demand and congestion; impaired freight movement; limited public transportation operation, connectivity and reliability; safety and vulnerability to incidents; substandard bicycle and pedestrian facilities; and seismic vulnerability.

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

shoulders) when an accident occurs or when vehicles break down. These conditions make congestion worse and decrease safety. Traffic can also become congested when the bridges' lift spans are raised to allow large river vessels to navigate underneath the bridges.

2. **Impaired freight movement:** Congestion on I-5 reduces freight mobility between regional markets in Portland and Vancouver, as well as national and international (Mexico or Canada) destinations along the I-5 corridor. Freight trucks most often travel in the middle of the day to avoid congestion, but can be delayed by bridge lifts. As hours of congestion continue to increase over time, travel times for freight trucks will continue to increase—even when traveling during the off-peak hours. This increases delivery times and raises shipping costs. It also negatively affects this region's economy. Truck-hauled freight in the Portland-Vancouver metropolitan region is expected to grow more rapidly than other forms of freight movement (such as marine-hauled freight).
3. **Limited public transportation operation, connectivity, and reliability:** Congestion on I-5 reduces bus travel speeds and reliability. Local bus services currently travel between downtown Vancouver and downtown Portland. Express bus routes serve commuters by providing service directly from Clark County park-and-rides to downtown Portland. Both of these services travel over the I-5 bridges. Bus travel times from downtown Vancouver to Hayden Island increased 50 percent between 1998 and 2005. On average, local bus travel times are from 10 to 60 percent longer during peak periods than during off-peak periods.
4. **Safety and vulnerability to incidents:** Over 300 vehicle crashes are reported annually on I-5 in the project area, making this one of the most accident-intensive sections of I-5. This high accident rate is a result of multiple highway design features that do not meet current standards, including:
 - Close interchange spacing – Within the CRC Project area, I-5 has six interchanges spaced approximately one-half mile apart. The recommended minimum distance between interchanges is one mile so that cars entering and exiting the highway have enough distance to fully merge with traffic or diverge to the off-ramp before the next interchange.
 - Short on- and off-ramps – Several on-ramps are not long enough for vehicles to reach highway speed before merging with highway traffic. Off-ramps are too short for safely slowing down, and during heavy traffic, these short ramps may cause exiting vehicles to back up onto I-5. This generates traffic congestion and can cause accidents because maneuvering is difficult, especially for large trucks.
 - Vertical grade changes – A “hump” in the I-5 bridges that accommodates the Columbia River shipping channel blocks the view of roadway conditions ahead. This blocked view reduces speeds and creates potential hazards to motorists.
 - Narrow lanes and shoulders – Several portions of I-5 in the project area have narrow inside and outside shoulders, while the I-5 bridges essentially have no shoulders, with less than one foot between the outside lanes and the bridges' side barriers. The

northbound I-5 bridge also has lanes one foot narrower than the minimum standard for a highway, and no shoulders. These conditions place vehicles very close to physical barriers and other vehicles, causing motorists to slow down, and do not provide space for disabled or emergency vehicles.

- Hazardous river navigation – The U.S. Coast Guard (USCG) allows ODOT to not raise the I-5 bridges' lift spans during peak traffic periods because of the substantial impacts this would have on bridge traffic. This requires boats heading downstream (west) to navigate using the fixed “barge channel” near the middle of the river, and then quickly turn to line up with the narrow opening on the north end of the Burlington Northern Santa Fe (BNSF) railroad bridge, located about one mile downstream. This movement is especially difficult during high river levels.
5. **Substandard bicycle and pedestrian facilities:** The bicycle and pedestrian paths on the I-5 bridges are very narrow (four feet wide in most places, decreasing to less than four feet at some locations) and extremely close to traffic and to the steel trusses. Also, the connections to these paths at both ends of the bridges are difficult to follow, especially around the Marine Drive and Hayden Island interchanges, which at times require riders to cross active roadways. Many existing non-motorized facilities cannot be used by persons with disabilities, and thus do not comply with the Americans with Disabilities Act (ADA) accessibility standards.
 6. **Seismic vulnerability:** The I-5 crossing of the Columbia River main stem consists of two bridges, one built in 1917 (the northbound structure) and the other built in 1958 (the southbound structure). The foundations of both bridges rest in soils that could liquefy during a major earthquake. Neither bridge was built to current earthquake safety standards and could be damaged or collapse during a major earthquake.

Economic Impacts

The overall quality of the transportation system is an important factor in the viability of the local and regional economy. For decades, transit has played an important role in maintaining the level of service and operation of the overall regional transportation system, particularly because the region has made a policy commitment to invest in transit improvements rather than expanded highway capacity. But for the overall transportation network to function efficiently, including transit service, significant highway improvements are necessary at times. This is the case with I-5, which is the principal major arterial in Oregon serving statewide transportation needs, including the movement of freight.¹⁴

Overall, the Columbia River Crossing portion of the South/North Project will result in positive impacts in the Expo Center/Hayden Island segment because improved transit capacity will be available to support more intensive development in the Jantzen Beach area and the highway improvements, including the new I-5 bridges, improvements to I-5 and its

¹⁴ I-5 serves this role for Washington and California as well, as (heading north to south) the freeway extends from the Washington/British Columbia border through major northwest metropolitan centers in Seattle, Tacoma, Olympia, Portland, Salem, Eugene and Medford into northern and southern California.

interchanges, and improvements to local roadways in the area, will provide greater accessibility and mobility not just for automobile and truck traffic but also for transit riders, bicyclists and pedestrians. LRT will also offer an alternative to traveling on I-5. However, the long-term benefit must be balanced by the short-term adverse economic impacts associated with the displacement of existing businesses on Hayden Island and in and near North Portland Harbor.

Business Displacements. In every instance where the South/North Project displaces an existing commercial or industrial use, that represents an adverse economic impact. Displacements affect employment, incomes, services and taxes. Even though the adverse impacts associated with displacements in the Expo Center/Hayden Island segment may not be significant on a region-wide or citywide level, the Metro Council recognizes and is sympathetic to the significance of each displacement at the individual business and community level. The Council understands and acknowledges that relocations can cause significant anxiety and trauma not only to the company being displaced, but also to employees who work for the company.

Given that the South/North Project as a whole, including the Columbia River Crossing Project portion of the South/North Project, serves a largely developed urban area, it is impossible to avoid displacement impacts while still providing transit accessibility and highway improvements. To the extent feasible and practicable, the South/North LRT route has been designed to follow existing public road and railroad rights-of-way to minimize displacement impacts. Locations for related facilities such as LRT stations, park-and-ride lots and operations & maintenance facilities also have been selected with the objective of balancing displacement and other adverse impacts with the positive benefits of LRT proximity and service. Highway improvements generally have been located within or next to existing highway right-of-way to minimize displacement impacts.

Oregon Mainland. On the Oregon mainland south of Hayden Island, the Columbia River Crossing Project would displace five businesses in the Marine Drive area: a boat sales business, a boat repair business with an auxiliary boat dock, a billboard operated as a business, and two marine businesses with a total of 25 staff and approximately \$10.6 in annual sales revenues. The boat sales business and the two marine-related businesses are dependent upon a location close to the river. Finding suitable locations for boat sales, a boat dock, and the repair and marine-related businesses may be difficult because much of the Columbia River area in the vicinity of freeway access is built up for either residential or industrial/commercial use. ODOT would provide relocation assistance to displaced businesses.

Hayden Island. On Hayden Island, the Columbia River Crossing Project would displace an estimated 39 businesses with a total of 643 employees and approximately \$62.7 million in annual sales revenues. The displacements include a section of restaurant and bar establishments currently between the existing freeway and N Center Drive; a restaurant and an office supply store west of N Center Drive; eateries and a cellular services store north of N Hayden Island Drive; fast food and service establishments along N Jantzen Beach Drive; two cellular arrays run as businesses both east and west of I-5; and the Safeway store east of I-5 between the existing freeway and N Jantzen Drive.

Hayden Island is a regional draw because of the numerous big box retail establishments located west of the freeway and the Jantzen Beach SuperCenter. Although the extent of displacements caused by the project is substantial, these regional attractors would not be directly affected. The City of Portland has, however, documented a vision for this area in the Hayden Island Plan (City of Portland, adopted August 2009). This plan assumes redevelopment of the SuperCenter property into a Regional Retail Center (called a “Lifestyle Center”) with mixed-use and transit-oriented residential to the south. Redevelopment of the property is of interest to its current owners, who have entered into a design process, but planning has been put on hold because of current economic conditions. Even without redevelopment of the property, the retail uses west of the freeway could be assumed to draw regional traffic in the long run.

More important from an economic standpoint is the effect of the project on island residents as customers and/or employees of displaced businesses. The majority of businesses displaced by the project serve mainly local clientele. These include a series of delis and bars west of the freeway; local fast food and sit-down restaurants; retail; and services. The project displaces one of the two banking establishments and the only grocery store on the island. ODOT would work with affected business owners to provide relocation assistance.

The Safeway Grocery Store is the only grocery store on Hayden Island since another grocery store (Zupan’s) closed several years ago. The Columbia River Crossing Project may suggest replacement sites for the relocation of Safeway, but it is up to the storeowners to choose their replacement location, if any. While Safeway may not relocate on the island, it could be replaced by other grocery stores. Officials representing the Jantzen Beach SuperCenter initiated a site plan review with the City of Portland for a relocation and expansion of the Target store on the island. Plans submitted to the City of Portland’s Bureau of Development Review indicate that the Target store would include a grocery and a pharmacy.

Safeway officials have indicated that it would be difficult for the store to relocate to another site on Hayden Island or in the Delta Park area because of the current lack of available sites. They may be able to locate a replacement store in either the North Portland area or South Vancouver. Alternately, Safeway may choose to remodel or expand existing stores in Vancouver or Portland. Relocation of Safeway to the north would mean a permanent loss in tax revenues for the City of Portland. Relocation to either the north or south would mean required travel on I-5 or the local traffic bridge between Hayden Island and North Portland for all customers and employees currently living on the island. Added to this is that movement to another location could reduce the viability of other Safeway stores nearby. Currently there are six other Safeway stores within five miles of the store on Hayden Island. Four of these are in Vancouver and two are in Portland.

The direct impacts on Hayden Island have the potential to significantly affect wage-earning opportunities for those seeking service industry employments. According to the Oregon Employment Department, the average salaries of most food preparation and service workers within Multnomah and Washington Counties fall within the range of \$18,000 to \$23,000 per

year. Wages within this range would lift all individuals and most small families above the federal poverty guidelines and therefore would not constitute an environmental justice impact.

Measures to Mitigate Displacement Impacts. The methods used to determine displacement impacts are described in the Acquisitions Technical Report. A displacement occurs if a use, such as a building or parking lot, is demolished or moved as a result of the project, or if people or a business can no longer occupy the building as a result of the project. Individuals or businesses that are displaced from their real or private property would be eligible to receive relocation benefits.

Where property acquisition and residential or business displacements are unavoidable, the project would provide mitigation. These mitigation measures are addressed by federal and state regulations, which require that acquired property be purchased at fair market value and that individuals living in a residence displaced by the project be provided decent, safe, and sanitary replacement housing. Displaced households and businesses would be relocated per the Uniform Relocation and Real Property Acquisitions Policies Act of 1970, as amended (Uniform Act). Under these regulations, relocation experts would:

- Explain all relocation programs to the affected businesses;
- Assist in preparing and filing reimbursement claims; and
- Assist in completing forms required by the lending institutions, the Small Business Administration, and others associated with the lease or purchase of new properties.

All properties required for the CRC Project will be acquired at fair market value for land and improvements. If only a portion of a property is required, the acquisition price will also reflect any measurable loss in value to the remaining property due to the partial acquisition. Generally, the relocation process occurs concurrently with the acquisition of affected properties. Relocation benefits vary between residential and business properties and may include payment for actual reasonable expenses of moving a business or personal property and/or other benefits, such as rent supplements, increased interest costs on replacement dwellings, reasonable search costs for new business sites, and business reestablishment costs. Relocation assistance for businesses could include moving costs, site search expenses, business reestablishment expenses, and assistance in locating a replacement business site. The specifics of relocation assistance are determined on an individual basis and are based, in part, upon ownership or tenant status.

Each acquiring agency (TriMet or ODOT) has an established advisory services program to ensure that displaced businesses or persons receive adequate assistance in relocating to a new business site or to decent, safe, and sanitary housing, respectively, with a minimum of hardship. For displaced businesses, such services could include the hiring of an outside specialist to assist in planning the move, making the move, and reinstalling machinery and other personal property. For displaced residents, these advisory services could include supplying information concerning federal and state programs that offer assistance to displaced persons and technical help in applying for such assistance or providing transportation to displaced persons to search for or view replacement housing. These programs work to ensure

that the acquiring agency takes advantage of all financial and personal resources available during the relocation process.

The displacement of publicly owned facilities, such as the ODOT permit center, could be mitigated by functionally replacing the property acquired with another facility that would provide equivalent utility. Alternately, such facilities could be provided relocation assistance in a similar fashion as displaced businesses.

In some instances there may be opportunities for minor design modifications to avoid or reduce business displacement impacts. During the preliminary and final engineering processes, engineering staff will try to minimize displacement impacts to the extent practicable through design refinements.

Although there are multiple vacant buildings on the island, including several in and around the Jantzen Beach SuperCenter, the island is limited in its capacity to provide appropriate replacement sites for the 39 businesses that would be displaced by the Project. As a result, many of these businesses may have to relocate outside the main project area. According to the Hayden Island Plan, there are plans to redevelop a portion of the Jantzen Beach SuperCenter site into a high-density mixed-use transit-oriented development supported by the new light rail station. This redevelopment would include new commercial space that could house existing businesses and attract new ones to the island. It is not known when this redevelopment would occur, and therefore it is not known whether businesses displaced by the Project could be directly relocated to the newly constructed space.

Several measures are potentially available to mitigate for the loss of service industry jobs on Hayden Island. Many large public projects in the region set goals for hiring local contractors, utilizing apprenticeships, and otherwise cooperating with job training programs. The City of Portland has requirements for City projects that pertain to both of these measures as well as the hiring of minority, women-owned, emerging, and disadvantaged businesses. The project could adopt similar goals for construction contracting. The project could include innovative requirements in its construction contracting and contractor selection, with the intent of providing job training and a preference for local services.

Workforce practices can be used to provide experience and business for disadvantaged workers and companies. For instance, apprentices could be used for a percentage of labor during construction. Alternatively, the project could set a goal for the percentage of construction dollars contracted to DBE firms with a focus on those in within the project area.

Lastly, the project could work with TriMet to maintain the existing bus service that regularly connects Hayden Island with nearby grocery and other retail services. This may include additional routing on the island to provide greater transit access during construction. The project could also work with TriMet to maintain paratransit service for qualifying, mobility impaired Hayden Island residents.

The provision of a light rail station, the completion of Tomahawk Drive, the improved I-5 access and capacity of the Hayden Island interchange, and the addition of direct local access

on a new local multimodal bridge would provide beneficial land use and economic impacts and would all contribute to the viability and success of the redevelopment plans for the island and mitigate for the business displacements on the island. Additional beneficial effects would result in improvements in the local street network consistent with the Hayden Island Plan.

Loss of Parking/Access. Loss of parking, and the loss or change of access, can have adverse economic impacts on businesses. If the project must remove an existing access, and if that access cannot be safely and adequately relocated or reconfigured, then the entire business is assumed to be displaced. Even if alternative access is available, it may not be as convenient as the existing access and could result in some loss of business.

Oregon Mainland. On the Oregon mainland on-street parking would not be impacted. However, the Expo Center parking lot would be reduced by 280 parking spaces, a reduction of 13 percent of the total parking. This area would be used for landscaping and the realignment of both Marine Drive and the new Expo Center Drive. The Expo Center seldom requires the use of all 2,100 parking stalls and any impacts that could be observed during peak events would likely be offset by the new light rail transit service provided connecting the Expo Center with Vancouver.

The realignment of Marine Drive and the new Expo Center Drive would eliminate parking spaces in a parking lot located on ODOT land, which is currently leased by Diversified Marine for equipment storage. Currently there are approximately 20 unstriped parking spaces in this parking lot. There is potential for identifying new space on the lessee's property or along property remainders for vehicle storage.

Two existing freight and truck storage businesses would experience impacts to their parcels from construction of the Delta Park to Vancouver Way connection over Martin Luther King Jr. Boulevard, and a connection between Martin Luther King Jr. Boulevard and N Haney Drive via Vancouver Way. These new connections could require relocation of existing access for both parcels. This portion of the CRC Project would reduce the parking capacity on the truck storage parcel south of Vancouver Way by approximately 55 to 60 vehicles, out of a total capacity of around 200 vehicles. Typical utilization is approximately 80 percent. This limits the number of vehicles able to park in the lot and could impact the viability of business at this location. The new roadway alignment bisects the existing storage lot, requiring a new access to be added for the northeastern segment cut off by the new road connecting to Marine Drive. The truck storage and distribution business north of Vancouver Way would lose approximately 50 truck parking spots, out of a total capacity of approximately 400 total spaces. The business could also lose some employee parking in one lot, though there is adequate room to relocate the displaced parking. Additionally, two fuel storage tanks and a refueling area located on the parcel would need to be relocated, potentially impacting existing parking configuration and reducing the number of available parking spaces.

The roadway realignments and extensions in the vicinity of the Marine Drive interchange associated with the CRC Project would improve access and circulation overall, with specific benefit for commercial vehicles accessing the freeway from Marine Drive. The realignment of Marine Drive would still provide circulation to I-5, Vancouver Way, and Martin Luther King Jr. Boulevard. Current uses in the area described below include a convenience store, gas

station, truck stop, hotels, residential, recreational, industrial and other commercial uses. Accessing the existing area of Marine Drive northeast of I-5 would require a minimum level of out-of-direction travel, but access would remain with the development of a new underpass that crosses through Werner Enterprise to Vancouver Way and on to Marine Drive.

A tire business would need to relocate its main entrance off of Vancouver Way to an existing access from N Haney Drive. A freight storage business south of Vancouver Way would need to relocate its entrance between N Haney Drive and the new connection to Marine Drive. Access would be kept open for the manufacturing facilities north of Marine Drive and west of I-5; however a local road would be constructed to preserve access to two businesses. The new Anchor Way extension under I-5 would allow traffic to circulate back onto the major roadways east of I-5 and would provide improved access to the west of I-5 for the businesses along this roadway.

The local traffic bridge connection between North Portland and Hayden Island would provide one lane in each direction over the North Portland Harbor, allowing residents and those accessing Hayden Island from the Oregon mainland an additional access option between the two areas, creating a local connection that currently does not exist. Local traffic near the arterial bridge and the Anchor Way extension could increase as drivers have the option to avoid the highway.

An aggregate gravel business's access and circulation would be modified. The access to the site would be via a driveway from the Anchor Way connection under I-5. Currently vehicles accessing I-5 from the site turn left directly onto Marine Drive. With the CRC Project, traffic accessing I-5 north from the site would go south on the new access road, travel along the east side of the Expo Center parking lot, turn right on Expo Road and right again on N Force Avenue, and finally turn right on Marine Drive, accessing I-5 via the single point urban interchange (phased highway option) or the flyover in the Full Build option. This is illustrated in Exhibit 4-5 of the *Economics Technical Report*.

The option of constructing the Bridgeton Trail between Marine Drive and the Columbia River would require a partial acquisition of multiple industrial parcels though no displacements would occur, and no economic impacts are anticipated. Design of the trail would need to consider the potentially conflicting users of freight and recreational bicyclists and pedestrians. Internal circulation within the aggregate gravel business is currently difficult. Some backing of vehicles onto Marine Drive is needed to access certain areas of the site. Left turns are currently allowed onto Marine Drive directly from the business but can be difficult when traffic flows are heavy

Hayden Island. There is currently no on-street parking on Hayden Island. However, parking lot impacts would be experienced for the following properties adjacent to I-5: Large hotel on N Hayden Island Drive (10 stalls removed out of approximately 700); Hotel on N Jantzen Drive (8 stalls out of 185); parking lot for floating homes (40 stalls out of 200), Jantzen Beach SuperCenter (175 stalls out of 1300+). The Jantzen Beach SuperCenter parking lot would have 175 spots permanently removed, but because of the high number of overall parking spaces in the area, the effect of this change would be small; a sufficient supply of parking

would remain at the SuperCenter to serve to serve anticipated future need most of the year, and the addition of light rail transit adjacent to the SuperCenter would help offset the small reduction in on-site parking.

Overall, the Project would improve access to Hayden Island. The extension of the Yellow MAX Line would provide direct transit service for residents, employees, and customers between the island and both downtown Portland and Vancouver. The two-lane local traffic bridge between Hayden Island and North Portland would also provide an off-highway option for travelers between the island and mainland Oregon. The Project includes widening two east-west local streets, extending N Tomahawk Drive under I-5, and widening N Jantzen Drive. Subsequent plans for the Jantzen Beach Super Center include rearranging the buildings around an extension of N Tomahawk Drive and the development of a new road connecting N Jantzen Drive to N Hayden Island Drive.

The widened N Jantzen Drive between the underpass with I-5 and N Hayden Island Drive to the north would acquire all the existing properties except for a fast food restaurant on the west and the hotel on the east side of N Jantzen Drive. The Project would restrict access to both the hotel and the restaurant to right-in/right-out only movements. The hotel and restaurant along N Jantzen Drive could experience circulation impacts, because the entrances and areas adjacent to the road are currently the primary access and circulation for the businesses. The expansion of the sidewalk along N Jantzen Drive to the east would require reconstruction of the guest canopy and load/unload area currently facing the street. This is the primary entrance for guests to the hotel, and alterations to the canopy could impact business operations. Access to the large hotel along N Hayden Island Drive would be reduced from three points to one new access opposite the widened N Jantzen Drive. This entrance would also serve banquet services and restaurants located on the property. All four businesses could experience slightly impaired circulation in the parking lot and increased congestion at the entrance. However, the design for N Jantzen Drive extends into the parking lot of the hotel, and could cause internal circulation issues, as the guest loading/unloading canopies and the principal entrance to the hotels would be difficult to maintain with the extension of the street.

The Columbia River Crossing Project team has coordinated with the City of Portland Office of Transportation, Bureau of Planning, the Portland Development Commission, and business owners on Hayden Island (through the development of the Hayden Island Plan and an Interchange Area Management Plan for the I-5/Hayden Island Interchange), to identify an adequate local circulation system, access spacing, and land use policies to manage demand on the interchange.

Although portions of parking lots near the Hayden Island Station could potentially be used as a de facto park-and-ride, the availability of 2900 park-and-ride spaces in Vancouver, Washington should minimize this likelihood. Because there will be a toll for vehicles to cross the bridge, the Council believes and finds that most Washington commuters travelling by light rail would park in Vancouver rather than at Jantzen Beach.

To mitigate for the adverse economic effects of the project, Interchange Area Management Plans (IAMPs) for the Hayden Island and Marine Drive interchanges are currently being developed in coordination with the City of Portland, ODOT, and other stakeholders. These efforts are building off the adopted Hayden Island Plan and the work of the Marine Drive Stakeholders Group. The IAMPs will provide a framework for access management and local circulation decisions in the context of these interchanges.

An Interstate Access Modification Request (IAMR) for the Hayden Island, Marine Drive, and Victory/Denver interchanges is also in preparation. The IAMR is a stand-alone document that includes the necessary supporting information needed for access modification requests to the Interstate System. An IAMR provides the rationale for access modifications to the Interstate System and documents the assumptions and design of the preferred alternative, the planning process, the evaluation of alternatives considered, and the coordination that supports and justifies the request for an access revision.

Tax Base. Local jurisdiction tax bases are affected in two ways by the development of large public infrastructure projects such as South/North light rail. First, and by far the greatest long-term impact, is the development and redevelopment that could occur in conjunction with the project. As this development occurs, the value of the investments is added to the tax base. The effect of this kind of impact is difficult to estimate because it is dependent upon many independent private decisions that would occur in the future. However, the Council finds that the overall impact should be positive.

The second type of impact is the direct impact to tax bases that occurs through property acquisition for construction of the project. Private property is typically acquired by the Project. Through acquisition, this property converts to public property and, as such, is removed from the tax rolls unless resold for private purchase. Often, the short-term impacts are minimal, as the loss in value in the tax rolls is offset over time by the expected greater increase in value added to the tax base due to new development in the corridor, specifically in station areas.

As shown below, the Columbia River Crossing Project will have a negative economic impact on the tax base through the displacement of business uses from the tax rolls. However, the Council finds that tax base impacts associated with displacement may be shorter-term because the availability of light rail and highway improvements is expected to spur redevelopment of the commercial area around the Hayden Island Station and could enhance property values and the tax base on a long-term basis.

Oregon Mainland. The five businesses displaced have an estimated right-of-way value of \$4.1 million, a property tax impact of \$27,000, which is 0.01% of Multnomah County budgeted 2008 property tax revenue.

Hayden Island. The 39 businesses to be displaced have an estimated right-of-way value of \$33.3 million, a property tax impact of \$219,000, which is 0.10% of Multnomah County budgeted 2008 property tax revenue.

Freight Movement. The area encompassed by the South/North Corridor is of critical importance to the movement of commodities within and through the Portland metropolitan area. The freight movement system in the South/North Corridor is comprised of two primary transportation modes: freight railroads and trucking. Additionally, along the Columbia River, the movement of commodities also relies on water freight movement and air transportation.

There are no rail lines crossed by LRT or the highway improvements in the Oregon portion of the Expo Center/Hayden Island Segment, so there will be no impact on *rail freight movement*.

Truck traffic relies heavily on the major streets and highways in the South/North Corridor and the region, including I-5. The Project is expected to improve traffic conditions in the corridor compared to No-Build and therefore will improve conditions for truck traffic, as addressed in the *Traffic Technical Report*. Daily truck travel demand would be similar for the No-Build and the Project because the movement of freight is substantially related to economic conditions in the region, and freight moved by trucks is not likely to shift travel modes due to congestion. However, truck demands by time of day would likely change because there would be fewer congested hours with the CRC Project, resulting in more trucks during the commuter peak and midday hours.

The Project would result in higher volumes of trucks during midday operations compared to the No-Build Alternative. The reduction in congestion and truck travel occurring throughout the day would mean more flexibility in truck scheduling and improved reliability of truck shipments. Exhibit 7-10 of the Traffic Technical Report summarizes truck volumes by time of day.

Adverse impacts to truck movements in the South/North Corridor include both potential delays due to increased congestion or out-of-direction travel associated with light rail, and the possible loss of on-street loading zones. Localized delays to peak-period truck activity could occur due to increased congestion that would result from reductions in roadway/intersection capacity associated with light rail operations. However, the overall improvement to traffic conditions in the corridor mitigates the localized delays that would occur from light rail.

The roadway realignments and extensions in the vicinity of the Marine Drive interchange associated with the Project would improve access and circulation overall, with specific benefit for commercial vehicles accessing the freeway from Marine Drive. The realignment of Marine Drive would still provide circulation to I-5, Vancouver Way, and Martin Luther King Jr. Boulevard. Accessing the existing area of Marine Drive northeast of I-5 would require a minimum level of out of direction travel, but access would remain with the development of a new underpass that crosses under I-5 to Vancouver Way and on to Marine Drive

The Council finds that the project would improve truck traffic through better local intersection operations and fewer hours of congestion on I-5 compared to the No-Build alternative.

Segments of two navigable waterways are located within the Expo Center/Hayden Island segment: the North Portland Harbor and the main Columbia River channel. The United States Coast Guard (USCG) has jurisdiction over navigation within these waterways, and

construction of a bridge across these waterways will require the USCG's approval of a bridge permit under Section 9 of the Rivers and Harbors Act of 1899 and the General Bridges Act of 1946, as amended.

The CRC project would have a positive effect on marine commerce on the Columbia River. The existing I-5 bridge structures each have nine piers that result in navigation "channels" between the piers. Three such channels are used for navigation:

- A wide span with approximately 60 feet of mid-span vertical clearance;
- A high span with approximately 70 feet of mid-span vertical clearance; and
- A lift span with approximately 40 feet of mid-span vertical clearance when closed and 180 feet when open.

The wide span is the main channel used for navigation, but during high-water many barges need to use the high span, or require bridge lifts at the lift span. In 2004, there were 604 bridge openings. The proposed I-5 bridges would be high enough to allow the vast majority of vessels to pass without bridge openings. With the exception of a small number of specialized vessels that use the river infrequently, the majority of vessels require vertical clearances of less than 90 feet from the surface of the water to the bottom of the bridge deck. The project team, in consultation with the Coast Guard, established a 95-foot minimum vertical clearance for structures built without a lift span. Vertical clearances greater than 95 feet would raise the bridge structure into restricted airspace for flight navigation. The 95-foot clearance with the Project will be fixed, not subject to lift restrictions, and accommodate all recreational and commercial vessels. Infrequent trips of marine contractor's cranes will not be accommodated. Their cranes or cargo may be broken down, at a cost, to meet proposed clearances. Reduced clearances resulting from the project will be mitigated by significantly improved navigational safety.

Currently, bridge openings are restricted to non-peak roadway commute hours. Thus, the new spans would provide more flexibility in operating schedules for marine commerce. The new spans would also eliminate some of the "S-Curve" marine movements currently required for marine traffic to pass under the highway and railroad bridge structures at their highest elevation.

Six piers would support the bridge structures, which is three fewer than exist on the current bridges, thus widening the horizontal clearance of navigation channels. The bridge span length would be 465 feet, with 390 feet of clearance for marine travel between the pile caps, which would be an increase over the width of the "main channel" by 127 feet and a decrease of the "barge channel" width by 121 feet. The current main channel width is 263 feet, and the barge channel has a horizontal clearance of 511 feet. The longer span lengths in the main channel would provide more room for boat captains to maneuver between the piers and improve the inherent safety of marine navigation.

The North Portland Harbor does not include a designated shipping channel and is largely travelled by recreational boaters and those accessing the water-oriented uses along the Harbor.

All of the new structures would have at least as much vertical clearance over the river as the existing North Portland Harbor bridge.

The Council finds that the project will improve marine navigation due to the removal of the “S-Curve” maneuver that currently exists; the removal of bridge lifts and associated restrictions; and the reduction in the number of piers in the river.

Two airports are located near the CRC Project area. Portland International Airport (PDX) is located about three miles southeast of the project on the Oregon side of the Columbia River. It is the major regional airport and serves large commercial passenger and freight service, private aircraft, and the Air National Guard. Planned expansions include both potential runway extensions and the addition of a new runway.

Pearson Field is located directly east of the project on the Washington side of the Columbia River. It serves primarily small piston-engine aircraft weighing 10,000 pounds or less. Because developed urban uses and the Vancouver National Historic Reserve (VNHR) surround it, there are no plans to expand facilities or operations at this airfield.

The lift towers of the existing bridge currently intrude 98 vertical feet into protected airspace for Pearson Field and are an aviation hazard. To avoid the towers, aircraft must use special departure and arrival procedures. The new bridge designs will not include lift towers. The bridges would be located slightly farther from the airfield, and so would intrude less into Pearson Field airspace.

The Council finds that the project will improve aviation safety and efficiency due to the removal of lift spans in Pearson Field’s airspace. At worst, the project will have no negative impact to air freight.

Other Economic Impacts. Other economic impacts include the disruption of business during construction, possible loss of property values, possible inability to sell a business or secure loans to pay off mortgages or other business debts due to proximity to the light rail alignment or related light rail facilities, changes in business activity resulting from changes in traffic patterns or access management measures, and utility relocations. Construction impacts are addressed in the Short-Term Impacts portion of these findings (Section 7.0). The Council finds that generally, there is no required mitigation for temporary economic loss or business interruption during construction of a public project. However, for this specific project, the Council finds that TriMet would be willing to provide staff assistance to impacted property owners in assisting the property owners with their loan refinancing and/or loan application processes. Programs to help businesses affected during construction would include some combination of the following: business planning assistance, marketing and retail consulting, and promotions to generate patronage in construction areas. TriMet would provide these programs; similar programs have been employed on recent light rail extension projects. The Council also finds that there may be reductions in property values, but it believes and finds that most of these properties will increase in value over the long term following construction. The Council finds that no mitigation is necessary for possible temporary reductions in property value.

As a result of improvements to I-5 and the local street network, including access management measures associated with highway improvements, some area traffic patterns will change. Drivers are likely to choose routes that can take advantage of the new roadway capacity and intersections that operate better as a result of the Project. Some local businesses will experience an increase in drive-by traffic, while others will experience a decrease, especially if access becomes more out-of-direction. A significant decrease in drive-by traffic, for some businesses, may result in an adverse effect on business revenues. For example, the Project includes a new design for the North Marine Drive/Union Court intersection. The new design will improve mobility, traffic operations and safety. However, it will also reduce traffic volumes at North Marine Way and North Vancouver Way. There are businesses at this location that could experience a decline in revenues as a result of this change in the local traffic patterns. Similarly, access management measures associated with the Marine Drive and Hayden Island interchanges could make access to certain businesses more out-of-direction and less convenient, which could impact overall business revenues. Out-of-direction travel associated with changing traffic patterns or access management measures also adds costs in terms of increased fuel consumption for patrons of affected businesses. The Council finds that during the preliminary and final engineering processes, engineering staff will try to minimize impacts associated with traffic pattern changes and access management measures to the extent practicable through design refinements.

The project will require relocation of certain utility facilities and lines. Utility relocations typically are addressed during preliminary engineering and final design. The Council finds that the costs of relocating utilities impacted by the project are addressed, and can be paid, as provided in existing law.

For some, bridge tolling may constitute an adverse economic impact. Tolling of interstate facilities must be consistent with Title 23 U.S.C. Section 129, the federal law that specifies the circumstances under which interstate facilities may be tolled. The CRC Project qualifies, though tolling on I-205 does not. The Council finds that at this point that tolling will be necessary both to manage congestion and as part of a funding package for the CRC Project along with federal and state funding. It also finds that tolling would likely be beneficial for freight-dependent businesses and businesses that rely on just-in-time deliveries, because the predictability of travel times would improve. However, the greater the toll, the higher the operating costs for truck movements. For other kinds of businesses, tolling will be an additional expense. However, time savings associated with improved mobility on I-5 will help mitigate that impact.

Concerns have been raised that tolling the I-5 bridge could divert traffic onto the I-205 bridge, increasing congestion and causing added delays on that bridge and its approaches from I-84 and I-205. The Tolling Study Report, released in January 2010, indicates and the Council finds that at the Columbia River, there is an approximate 4.5% shift of auto trips on an all day basis from I-5 to I-205 as compared to a Build-No Toll scenario. More diversion to I-205 is predicted in the off-peak hours when capacity is available than during peak hours. On I-205 south of I-84, the models estimate that diversion will be approximately 1% on an all day basis as compared to the no-build.

While the Tolling Study found, under most of the I-5 only toll scenarios, that the majority of drivers would not change their travel patterns and that most diversion would occur in off-peak hours, the Council finds that the full extent of diversion onto I-205 and associated impacts from tolling on I-5 are not fully known at this time. This will require additional study and analysis as the Project advances. In particular, more refined analysis of traffic demand and patterns will be developed prior to setting the toll rates, and tracking of travel demand and patterns after completion of the Project will allow for adjustment over time. In addition to adjusting the toll rates over time, there will also be adjustments as appropriate to transit service and fares and demand management programs such as incentives for carpooling and vanpooling. These adjustments will mitigate the effects of tolling on travel patterns.

The Council heard testimony questioning the adequacy of the models used to forecast toll traffic and revenues. Modeling experts acknowledge that there is a level of modeling analysis required at the environmental impact state, and a more rigorous analysis required at the point of financial commitments, in several years. By that time, Metro's modeling will be upgraded and input data regarding traffic, growth forecasts, gas prices, transit coverage, interest rates and other conditions will be updated to be as current as possible to the timing of financial commitments.

However, while the Council recognizes the importance of funding for this Project, it finds that the LUFO process under HB 3478 is a land use decision-making process established to address land use impacts and provide land use authorization for the Project. See HB 3478, Sections 3, 4, 6(1), 7. It finds that the criteria established by LCDC are criteria established for making land use decisions. It further finds that the LUFO process and the LCDC criteria do not address how a project gets paid for and that project funding is not a land use issue.¹⁵ The Council understands that in order to be eligible to obtain federal funding, it must demonstrate that the Project is consistent with land use requirements. These findings demonstrate such compliance.

As explained in the social impact findings below, the Project may affect localized access to properties by police, fire and ambulance vehicles. However, the project should not otherwise increase these governmental services. The Council has seen no evidence to this effect, and it finds that any significant increase in police, fire or emergency medical services as a result of the project is speculative. The Council concludes that no mitigation is necessary in this regard.

Conclusions on Economic Impacts

While the Council is sensitive to the displacement of businesses and loss of existing jobs associated with the Columbia River Crossing Project, the Council finds that, on balance, the CRC Project will result in positive economic impacts in the East Columbia, Kenton,

¹⁵ Although the provisions in OAR Chapter 660 do not apply, the Council understands that provisions addressing the timing and financing of transportation improvements are not considered to be land use decisions. See, e.g., OAR 660-012-0040(5).

Bridgeton and Hayden Island neighborhoods, particularly because the extension of light rail transit to Hayden Island and northward into Vancouver, Washington will further support commercial development at the Jantzen Beach Center and because highway improvements, including new I-5 bridges with greater capacity, improved I-5 interchanges at Hayden Island, Marine Drive and Victory Boulevard, and better roadway connections to I-5 and between Hayden Island and N Marine Drive will improve access and circulation for companies and businesses in the area. Furthermore, the improvements to I-5 will substantially reduce delay and improve the movement of freight between Oregon and Washington, improve navigation along the Columbia River, and remove hazards to air navigation associated with the existing I-5 Interstate Bridge lift towers.

The Council also finds that the Project would result in short-term economic benefits with the increase in employment resulting from the construction of the LRT facilities and highway improvements in the Expo Center/Hayden Island segment. The Council finds that there will be a short-term decrease in the tax base due to business displacements. However, the availability of light rail is expected to spur redevelopment of the commercial area around the Hayden Island Station and could enhance property values and the tax base on a long-term basis.

Based on information in the CRC technical reports, the Council finds that adverse economic impacts associated with LRT and highway improvements can be mitigated through a variety of means, including relocation assistance programs for displaced businesses and coordination with local jurisdictions and stakeholders. The Council finds that the bridge has been designed to avoid any need for bridge raising or lowering to accommodate river traffic on the Columbia River, and also designed to avoid interference with air navigation using PDX or Pearson Field Airport in Vancouver.

Tolling issues have yet to be fully resolved and could impact larger portions of the region than just the I-5 corridor. Coordination between the states and regionally among the affected South/North Project local governments could help lead to a more generally accepted resolution of this concern.

Social Impacts

The Council finds that the social impacts of the South/North Project are generally positive in the Expo Center/Hayden Island segment. Light rail will provide quicker, more reliable and more comfortable transit access to the substantial commercial and employment base at the Jantzen Beach commercial center and to residents of Hayden Island. The highway improvements will improve access and circulation on I-5 and local roads in the area, improving safety, reducing congestion, and increasing mobility of motorists, freight traffic, bicyclists, and pedestrians along the I-5 corridor.

Residential Displacements. As with business displacements, the Council recognizes that in every instance where the South/North Project displaces an existing household, that represents an adverse social impact, and the Council is sympathetic to the significance of each residential displacement. The Council understands and acknowledges that relocations can cause

significant anxiety and trauma to families, uprooting them from neighborhoods, schools and friends and imposing change on them.

Given that the South/North Project serves a largely developed urban area, it has been impossible to avoid residential displacement impacts while still providing transit accessibility. To the extent feasible and practicable, the LRT route follows existing public road and railroad rights-of-way to minimize displacement impacts. Locations for related facilities such as LRT stations and park-and-ride lots have also been selected with the objective of balancing displacement and other adverse impacts with the positive benefits of LRT proximity and service.

The methods used to determine displacement impacts are described in the Acquisition Technical Report and in the discussion of economic impacts above. The same methods applicable to business displacements are relevant to determination of residential displacement impacts and are incorporated by reference. Additionally for residential displacements, federal and state guidelines determine the standards and procedures for providing replacement housing, based on the characteristics of individual households. Eligibility for relocation benefits would be determined after the issuance of the NEPA Record of Decision (ROD) and once the project is granted approval to begin right-of-way acquisition. Relocation assistance could include replacement housing for displaced persons, moving costs, and assistance in locating replacement housing.

Oregon Mainland. Impacts summarized in this section include those between the southern terminus of the project at Victory Boulevard and the south shore of North Portland Harbor. Most of the permanent property impacts in this portion of the project area are due to the highway portion of project, specifically, the realignment of Marine Drive and the addition of local street connections near the Marine Drive interchange.

The transit alignment over North Portland Harbor would result in the displacement of one floating home associated with the parcel adjacent to and west of I-5. The remaining portion of this parcel, not impacted by transit, would be permanently acquired for the highway alignment, which would displace a single-family home with two households on land and two additional floating homes in the harbor. A total of five households would be displaced in this portion of the project area.

Hayden Island. Impacts summarized in this section include those on Hayden Island and associated portions of North Portland Harbor. The permanent acquisition of property would be required in this area to accommodate the reconstruction of the Hayden Island interchange and the extension of light rail over Hayden Island.

The project would have 32 residential displacements on Hayden Island. Twelve of the 32 residential displacements on Hayden Island would be from Row 9 of the Columbia Crossings Jantzen Bay moorage in North Portland Harbor east of I-5. Two of the homes were identified by survey as also containing businesses that would be displaced, as would an additional floating home in this moorage that is used solely for a business. These business displacements are included in the business displacement section of this document. The remaining 20

residential displacements on Hayden Island would occur at rows A, B, and the east side of row C in the Jantzen Beach Moorage, Inc. located in North Portland Harbor west of I-5.

Mitigation of residential displacements could include minor redesign of the project during preliminary and final engineering to avoid or reduce displacements. Some displacements could be mitigated by taking only a portion of the property and/or structure and by modifying the remaining property and/or structure to allow continued occupancy. Where displacements are unavoidable, the project will provide compensation to property owners based on fair market value and a comprehensive relocation program. The compensation/relocation program for residential properties operates in the same manner as described above for business relocations.

It has been FTA's and FHWA's long-standing policy to actively ensure nondiscrimination under Title VI of the Civil Rights Act. Title VI-related impacts include those impacts that are specific to a protected population under the 1964 Civil Rights Act. Under Title VI and related statutes, each federal agency is required to ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion. Some of these populations (such as the elderly) are not covered by EO 12898, which specifically addresses disproportionately high and adverse effects to minorities and low-income populations.

The Council finds that for the Expo Center/Hayden Island Segments, the data on residential displacements does not suggest disproportionate or discriminatory impacts to environmental justice populations.

Access to Community Facilities. The Columbia River Crossing portion of the South/North Project will improve mobility for Hayden Island residents to travel to and from community facilities and employment centers outside their neighborhood. This is a particular benefit given the absence of other convenient travel options besides the automobile. The Hayden Island Station will improve transit access to the substantial concentration of jobs and commercial services at the Jantzen Beach Center. It will also provide improved transit accessibility and links for Hayden Island residents to local and regional employment centers, community facilities and recreational destinations along the South/North and East/West MAX lines, including employment centers and community facilities in the downtown areas of Portland, Milwaukie, Gresham, Beaverton and Hillsboro. The highway improvements will improve local access and circulation in the area and improve mobility along I-5.

Construction of the Project would displace the Safeway grocery store and pharmacy, which are the only grocery store and pharmacy on the island and are important community resources. While ODOT can suggest replacement sites for the relocation of Safeway, it is up to the storeowners to choose their replacement location, if any. While Safeway may not relocate on the island, it could be replaced by other grocery stores. Officials representing the Jantzen Beach SuperCenter initiated a site plan review with the City of Portland for a relocation and expansion of the Target store on the island. Plans submitted to the City of Portland's Bureau of Development Review indicate that the Target store would include a grocery and a pharmacy. During construction, the project would work with TriMet to

maintain the existing bus service that regularly connects Hayden Island with nearby grocery and other retail services. This would include additional routing on the island to provide greater transit access during construction. DOTs would also work with TriMet to maintain paratransit service for qualifying, mobility-impaired Hayden Island residents.

Displacement of the Safeway grocery store and pharmacy may disproportionately impact low-income residents who use these services and do not own cars. This impact would be mitigated by the addition of light rail to Oregon and Vancouver.

The displacement of the Safeway store would also displace an extremely active bottle return center. The store managers report over \$10,000 each week paid out through the returns. Although it limits each patron to only \$7.20 in returns per day, this bottle return center provides an opportunity for individuals to generate income. There are other locations where bottles can be returned on the island and in north Portland. Many of these smaller establishments (such as convenience marts) also enforce limits on the number of bottle returns per visit. However, as long as these businesses continue to operate and proper access to them is maintained, displacement of the return center at Safeway would not result in a high degree of impact.

To mitigate for the displacement of the Safeway bottle return center, the project could provide some written and posted guidance before the closure of the Safeway return center. The guidance would provide community members with alternate bottle-return locations, and directions for getting to these locations. In the event that there would be no other return center on the island, the project could work with an appropriate business site to provide this service.

Barriers to Neighborhood Interaction. The Council finds that the light rail alignment will not result in barriers to neighborhood interaction, primarily because the alignment in large measure parallels the I-5 freeway that already functions as an edge and boundary to the local neighborhoods. Similarly, the Council finds that the highway improvements generally improve existing roadways that either already create barriers to neighborhood interaction (e.g., I-5) or provide convenient access and circulation within and between the affected neighborhoods. The bicycle and pedestrian lanes on the new northbound I-5 bridge will improve interaction between north Portland and Vancouver, Washington neighborhoods.

Safety and Security. The Council is sensitive to the importance of safety and security in neighborhoods affected in particular by the light rail components of the South/North Project. For the South/North Project as a whole to succeed, passengers must feel safe using the stations and trains. The Council finds that with appropriate location and design, and with implementation of system-wide transit security measures as described below, the Hayden Island station would not adversely affect passenger safety and security.

The extension of light rail north from its existing terminus at the Expo Center would cross several intersections at grade. Train frequency in the peak periods is estimated to have 7.5-minute headways with greater headways during off-peak periods. Positive traffic control such as signalization, signage and pedestrian treatments would be used to enhance the safety of other vehicles, pedestrians and bicyclists traveling near light rail vehicles. Transit security on vehicles and at stations and park and ride lots would also be addressed during the design,

construction, and operational phases of the project. Examples of safety and security measures that may be designed into the project include:

- Physical barriers such as medians, fencing, landscaping, or chain and bollard (short, vertical posts) to help channel automobiles, pedestrians and bicyclists
- Signage, tactile pavers, audio warnings, and pavement markings at track crossings to alert individuals they are approaching tracks
- Active treatments such as flashing lights, bells, and illuminated and audible warning devices in traffic signals
- The creation of inviting, well-lighted platforms and station areas
- Maintaining clear sight lines for oncoming trains
- Implementing a public safety education campaign before the start of rail service

TriMet has adopted a system-wide Transit Security Plan that applies community policing techniques to transit security. Elements of the Transit Security Plan that will be incorporated into the design and operation of the light rail line serving the Expo Center/Hayden Island segment include: increased in-house training of transit district employees in crime prevention; a high level of coordination with local law enforcement agencies and personnel; improved facility design and operation standards to increase visibility and security enforcement levels, and investment in new tracking and surveillance technology.

The Council further finds that security lighting will be provided at station platforms and that landscape design will ensure consideration of safety and security. Additional potential mitigation measures include emergency call boxes and monitoring/surveillance cameras. Strategies such as crime prevention through environmental design (CPTED) and the use of police, private security patrols, and security cameras could be employed as appropriate to make the light rail facilities as safe and secure as possible. The existing policies and procedures developed by TriMet and FTA for operations during a potential catastrophic event and to prevent terrorist activities would be expanded to include the CRC Project. Finally, design criteria such as platform location and length, pedestrian crossings, and alignment design would be used to ensure that the project operates safely.

Localized access to properties by fire, police and ambulance vehicles could be affected by changes in local street configurations throughout the corridor. The current level of design reflects consideration of access by emergency vehicles (e.g., street and bike path dimensions, proximity to emergency facilities, primary access routes for emergency vehicles, etc.)

The Council finds that, with appropriate design and implementation of systemwide transit security measures identified above, the new Hayden Island Station will not adversely affect safety and security. The station will be elevated to the level of I-5. The final design of the station will include careful consideration of security concerns. Security lighting and landscape design will ensure consideration of safety and security.

Visual/Aesthetic. The CRC Project will result in impacts to visual and aesthetic resources in the Expo Center/Hayden Island segment as a consequence of introducing:

- Cut/fill slopes, bridges, overhead structures, sound/retaining walls, catenary poles and overhead wires;
- A light rail station at Hayden Island;
- New I-5 bridges and interchanges;
- New North Portland Harbor bridges;
- Improvements and modifications to existing structures, roads, vegetation, topography;
- Disruptions of existing visual resources, viewpoints, view corridors and vistas; and
- New views.

Impacts to the Columbia River main channel would be mostly positive. Potential impacts would include:

- Removal of the visually complicated truss structures and lift towers of the existing I-5 bridges, which obstruct views from the river, from the Interstate bridges themselves, and from the shoreline. This action would remove an important contributor to the area's historic context (the I-5 bridges) and a character-defining aspect of interstate travel.
- From I-5, views of the Portland and Vancouver skylines, distant shorelines, rolling hills, and mountain profiles would generally improve. Toward I-5, views of open water and shorelines from shoreline-level and elevated viewpoints would also generally improve.
- Removal of the lift towers would be interpreted to have a generally positive visual impact on views from downtown Vancouver.
- Modifications to interchanges would increase heights at the Marine Drive and Hayden Island interchanges, where new ramps and elevated roadways would be higher than any existing facilities in these immediate areas. Even at these interchanges, the degree of change is expected to be moderate, since these areas are already and would continue to be large urban interchanges.
- Removal of the existing bridge structures that currently obstruct views of much of the area immediately beneath the bridges, along the river. This would provide for more light and vegetation under the bridges. These elements would all provide positive visual changes to the immediate area and adjacent areas.

North Portland Harbor would experience moderately negative visual impacts from the addition of piers for the LRT bridge and collector/distributor ramps; these would clutter views along the slough and reduce views of open water.

Given the types of visual impacts summarized in the *Visual and Aesthetics Technical Report*, the Council finds that the following strategies can be used to reduce adverse visual impacts to affected neighborhoods:

- Planting vegetation, street trees, and landscaping for screening or visual quality. The project will adhere to a green-over-grey approach for treatment of many new structures, using climbing vines and non-invasive ivies, where practicable.

- Designing landscape plans and other visual treatments consistent with adopted guidance and plans.
- Shielding station and facility lighting from nearby residences and the night sky.
- Minimizing structural bulk, such as for ramps and columns.
- Designing architectural features to blend with the surrounding community context.
- Placement of public art (to be relocated when necessary and added as part of transit stations and gateways).
- Where practicable, integrating lighting with facilities in a manner that produces a positive visual and aesthetic impact, reduces night sky light pollution, reduces possible light trespass into residential units, and contributes to crime prevention through environmental design (CPTED).
- Utilizing the UDAG Design Guidelines, as well as design guidelines of the City of Portland and Tri-Met.
- Selecting new and replacement pole and utility cabinet locations, colors, and styles in relation to their context and in accordance with municipal lighting standards.

In each affected neighborhood, the Council recognizes that potential mitigation measures will vary to fit neighborhood scale, character and concerns. In some neighborhoods, potential measures could improve the visual character of impacted areas. In other areas, the CRC portion of the South/North Project will be a prominent visual feature even with mitigation.

The area from Victory Boulevard, the Expo Center and Marine Drive north to Hayden Island and the Columbia River consists primarily of a major interstate freeway with connecting arterials, a busy, auto-dominated commercial strip, and large, dramatic expanse of open water. The area from Victory Boulevard to Marine Drive has industrial, recreational, and transit developments scattered throughout the area amid large tracts of open space. Commercial development patterns on Hayden Island have obscured natural features to the point where any connection to water or natural landforms is not visually apparent unless one is on the shoreline. Throughout this segment, many signs and utility poles; constant, fast traffic and noise; scattered moderate and large-scale commercial structures; and the artificial landforms associated with I-5 create a coarsely textured, complex environment with a confusing visual character. The breadth and openness of the Columbia River provides visual contrast to an otherwise cluttered visual environment.

Dominant visual features in this segment include I-5, Delta Park, the Vanport wetlands, the North Portland Harbor, Jantzen Beach Center, the historic I-5 truss bridge between Hayden Island and Vancouver, Washington and the wide, flat and open stretch of the Columbia River. The river is a significant regional resource and the dominant visual element within this segment because of its large scale and openness. It also serves as a dramatic gateway between Oregon and Washington.

LRT improvements in the Expo Center/Hayden Island Segment include a good deal of bridging. The bridges over the North Portland Harbor would remove structures, including floating homes and vegetation, along both banks of the harbor, and interrupt views south from Hayden Island to the west hills. The light rail alignment then parallels the west side of I-5, removing commercial structures along that side of the freeway

In general, the Council finds that the impacts to views would vary within the Columbia River Crossing portion of the project area. Impacts to the Columbia River main channel would be mostly positive, as described above. Impacts to North Portland Harbor would be moderately negative, with the addition of more bridges across the harbor. Impacts to the area from Victory Boulevard to Marine Drive would be low.

The Council finds that possible measures that could mitigate the adverse impacts of the new bridges on views include those described above. Appropriate conditions can be imposed through the local review process consistent with Section 8(1)(b) of HB 3478 to avoid or mitigate adverse impacts on designated scenic resources and viewpoints.

Other Social Impacts. Other social impacts include loss of property values, property acquisitions not requiring displacements, loss of trees along roadsides and in neighborhoods, increase in electric and magnetic fields (EMF), and perceived reductions in "quality of life" associated with LRT and highway improvements, both during construction and in the long term. Construction impacts are addressed in the Short-Term Impacts portion of these findings. The Council finds that there may be reductions in property values, especially during the construction phase, but it believes that most of these properties will increase in value following completion of construction. The Council also finds that residing immediately next to the alignment or a station may result in some property owners experiencing perceived reductions in quality of life. Others may see a reduction in quality of life associated with increased density that might result from the proximity of rail to an area. These are very subjective matters that can vary from individual to individual. Landscaping and noise barriers might help mitigate adverse impacts. Where trees are removed, potential mitigation includes equivalent tree replacement. Extension of the light rail system would generate EMF and could increase exposure. However, in those locations where people could be exposed (within and near the light rail right-of-way, near substations, or in the light rail vehicles), EMF emissions would be below exposure guidelines. Because light rail electric power substations tend to generate the highest EMF intensities in the field measurements, the substations have been designed and sited to minimize exposure to users of the system, the general public, and sensitive users.

Social benefits include cleaner air by providing improved transit access in the region, resulting in less automobile driving than would otherwise occur and less congestion and air pollution. Cleaner air also is provided by decreasing congestion through improvements to the highway system. Social benefits also include improved quality of life from lower and more reliable transit travel times, resulting in more time for people to spend doing things other than commuting.

A greenhouse gas emissions analysis was prepared for the Columbia River Crossing Project and is detailed in the Energy Technical Report. The report includes a macroscale analysis to provide a picture of the regional emissions, as well as a microscale analysis that focuses more on the project area. The Project is expected to reduce regional emissions by approximately 130 metric tons of CO₂e /day, which equates to a reduction of approximately 0.5 percent. For the 12.2-mile length of I-5 surrounding the CRC project area, the Project is expected to reduce

emissions by roughly 21 metric tons of carbon dioxide equivalent during the AM and PM peak periods, or 5.4 percent.

The differences in long-term effects on water quality between the Project and the No-Build Alternative are substantial. Although the total amount of pollution-generating impervious surface (PGIS)¹⁶ would slightly increase for the Project, the amount of untreated impervious surface would drop dramatically compared to existing conditions and the No-Build Alternative. This is because under the Project, stormwater runoff from all new or reconstructed impervious surface area would be treated, while stormwater runoff from most of the existing PGIS does not currently undergo stormwater treatment.

Payment of the new highway toll would require a higher proportion of income for lower income drivers than for higher income drivers. The Council finds, however, that when considered in combination with the other elements of the project, the impact would not be high and adverse. In exchange for the toll, travelers would receive the benefits of shorter highway travel times, lower congestion, extended LRT service, more reliable commute trips, reduced crashes, no bridge lift interruptions, increased access to employment, housing, education and services, and improved biking and walking facilities. There would also be toll-free options for crossing the river, including transit, carpooling, biking or walking, and crossing on I-205. The toll rate is also reduced during the off-peak travel times.

The project team reviewed the available research to inform the environmental justice impact evaluation. Several academic studies have been conducted on equity and tolling. The Washington State Department of Transportation (WSDOT) also conducted research on tolling equity for various projects.

The University of Washington and the Washington State Transportation Center published in 2009 a research paper entitled “The Impacts Of Tolling On Low-Income Persons In The Puget Sound Region.” The paper starts with the assertion that “Tolls may be progressive, regressive, or neutral, depending on the social and geographic characteristics of the town or region and the structure of the tolling regime. The distributional effects must be evaluated on a site and project specific basis.”

In “International Experiences with Congestion Pricing” (May 1993), Anthony May considered the equity component of congestion pricing. He cited older studies that argue that congestion pricing is a regressive measure that has greater impacts on lower-income drivers, but indicated this population is more likely to travel by bus or foot. May concluded that the most inequitable effects are dependent on the pricing scheme implemented and would likely impact a small percentage of lower-income drivers. He suggests that the only way to address the issue of equity is to invest some of the toll revenue in public transport rather than solely to

¹⁶ Pollution-generating impervious surfaces include highways, parking lots, sidewalks and other surfaces that do not absorb water and to which contaminants may adhere, so that when stormwater strikes the surface, it runs off to a nearby surface, carrying some of these contaminants with it. If the water runs off to soil, these contaminants can enter the soil, causing harmful effects. Additionally, PGIS are often warmer than the surrounding surfaces, and runoff from these surfaces that enters nearby rivers or lakes can raise water temperatures, causing harmful effects.

improve the road infrastructure. The Project includes substantial improvements to transit as well as bicycle and pedestrian facilities.

Existing electronic toll collection systems with transponders present various hurdles for low-income users. One must normally either pay a deposit or link the account to a credit card or bank account. Some low-income populations may not be able to purchase a transponder. Not being able to purchase a transponder due to large set-up fees or lack of a credit card and/or bank account would be an adverse impact on those low-income populations affected. A similar barrier may exist when new tolls are instituted in areas where some groups and individuals lack the English language skills to understand the complex tolling system. These impacts would be mitigated through outreach and special programs.

The Council finds there are several strategies that would mitigate the potential impacts of tolling on low-income populations. Since toll transponders are unfamiliar to most Oregon and southwest Washington residents, educational materials can be made available that explain how tolling and transponders work. All such communications would be made available in selected non-English languages, as appropriate. C-TRAN offers programs that assist low-income populations and people with disabilities to obtain a reduced transit fare. TriMet offers similar programs that assist senior and disabled populations using transit.

Conclusions on Social Impacts. The Council finds the social impacts of the Columbia River Crossing project are generally positive in the affected East Columbia, Kenton, Bridgeton and Hayden Island neighborhoods, although there are 46 potential residential displacements in these segments.

Relative to access to community facilities, the project would displace the only grocery store and pharmacy (Safeway) on Hayden Island. The displacement could also affect low-income populations that use the bottle return center. However, the Council finds that the improved transit access, improvement of the local street network, and a bridge providing local multimodal access to and from the island, as well as the other mitigation measures mentioned above, would mitigate the displacement of the Safeway.

Relative to barriers to neighborhood interaction, the Council finds that the LRT alignment will not result in barriers to neighborhood interaction, primarily because the alignment in large measure parallels the I-5 freeway which already functions as an edge and boundary to the Hayden Island Neighborhood. It finds that the extension of LRT to Hayden Island will better connect the island and its residents to the region and its amenities. Similarly, the highway improvements generally expand or improve existing roadways.

Relative to safety and security impacts, the Council acknowledges and supports TriMet's continuing efforts to improve passenger and community safety throughout its service area. The Council finds that TriMet is committed to making continued improvements to help maintain a safe and effective transit system, and it finds that the measures identified above improve public safety.

Relative to the visual impacts, the Council finds that the project would result in positive and negative impacts. The negative impacts could be mitigated by the measures addressed above,

including following existing design guidelines from the City of Portland and TriMet when designing the light rail and highway improvements.

Traffic Impacts

The *Transit Technical Report*, *Traffic Technical Report* and Section 3.1 Transportation of the Draft Environmental Impact Statement (DEIS) evaluate the Project's impacts to the highway and street network. Traffic impacts from transit and highway improvements and potential mitigation are summarized below.

Transit. The Council finds that the light rail route and station on Hayden Island will provide light rail proximity and service to the substantial employment and commercial base located at the Jantzen Beach Center. Additionally, through improved high capacity transit service, island residents will have improved accessibility to local and regional employment centers, community facilities and recreational destinations throughout the Portland metropolitan region.

Currently, travel options to and from Hayden Island are limited and often congested, and under the DEIS No-Build alternative, these options would get much worse over time. Light rail will provide a convenient, reliable alternative mode of travel.

The CRC Project would more than double the number of transit passenger trips over the I-5 crossing, compared to the 2030 No-Build Alternative. For weekdays, there would be 20,600 bridge crossings on transit, compared to 10,200 trips under the 2030 No-Build Alternative. Of the transit passengers crossing the Columbia River, 18,700 would be on light rail transit (91 percent) and 1,900 would be on buses (9 percent).

One of the major contributing factors to reliable transit service is reserved or separated right-of-way for transit vehicles. Transit vehicles operating in mixed traffic are subject to delays caused by accidents, breakdowns, congestion, and in the case of existing I-5 Columbia River bridges, bridge openings. With a separated right-of-way and separated bridge crossing on the lower deck of the new southbound I-5 bridge, transit service between Portland and Vancouver, Washington will become faster and more reliable. For example, a transit trip between Hayden Island and Vancouver would save an estimated five minutes in comparison with the No-Build Alternative, while a trip between Pioneer Square and Clark College would save 28 minutes (dropping from 72 minutes with the No-Build to 44 minutes with LRT).

Additionally, most of the intersections within the South/North Corridor through which light rail vehicles will operate have traffic signals preempted for LRT, have gated crossings for LRT, or have LRT separated from other traffic. In summary, the Columbia River Crossing portion of the South/North Project will provide significantly more reliable transit service than the No-Build Alternative, and a significant portion of the corridor's transit riders will experience the improvement in reliability with light rail.

Transit improvements in the Expo Center/Hayden Island segment of the South/North Project could affect traffic congestion in two basic ways. First, these improvements could divert trips

from automobiles to transit, resulting in reduced systemwide vehicular travel. Second, transit facilities could also affect localized traffic operations on highways and streets in the study area.

The LRT alignment will have an at-grade crossing with the extension of N Vancouver Way, at the south end of the local multimodal bridge. Traffic analysis performed for the *Traffic Technical Report* indicates that this intersection will operate acceptably (meeting City of Portland Bureau of Transportation standards) in design year 2030. Light rail will be grade-separated on Hayden Island, with no traffic impacts on the island. The LRT alignment will bridge over N Jantzen Avenue and N Jantzen Drive, and Hayden Island Drive and N Tomahawk Island Drive (to be constructed as part of the project). Given the design, the Council concludes that the CRC transit portion of the South/North Project will not result in adverse traffic impacts in the Expo Center/Hayden Island Segment.

The traffic analysis model shows only one intersection in Oregon as not meeting the appropriate jurisdictional standards. The intersection, Going Street and Interstate Avenue, will not meet Portland Bureau of Transportation standards in 2030. Potential mitigation could be to optimize the light rail transit pre-emption at the intersection, install advanced signal controllers to manage light rail transit pre-emption, and change the westbound right lane into a through/right choice lane to allow traffic to continue westbound.

Regarding traffic safety, light rail transit is designed to be safe through methods and devices such as speed control, signalization, gated crossings, and pedestrian movement controls. In general, light rail vehicle speeds match road vehicle speeds where the vehicles run in adjacent lanes. Light rail vehicles operate in accordance with normal traffic control devices (traffic signals) as supplemented by specific light rail signals where needed. Specific train warning signals may be provided as needed. Pedestrian movements are governed by pedestrian signals at signalized intersections. At gated intersections, the gates and warning signals control pedestrian movements. At non-signalized, non-gated pedestrian crossings, barriers ("z-crossings") may be used to focus pedestrian attention on the direction of approaching light rail vehicles. The project could provide pedestrian access to stations by establishing "through-walking areas"—clear pathways free of street furniture or other impediments—adjacent to the planned station locations. The project would strive to maintain the width of these areas at approximately 7 to 8 feet in busy pedestrian locations and 6 feet in areas with lower levels of pedestrian traffic. For bicycles, station areas could include bicycle facilities, which could include secure storage areas. The Council concludes that these methods and devices provide for a safe multi-modal environment.

Highway Improvements. Since the stated purpose from the Columbia River Crossing Project DEIS is "to improve I-5 corridor mobility by addressing present and future travel demand and mobility needs in the CRC Bridge Influence Area," most project impacts to traffic are positive. The associated highway improvements in the segment are provided as part of the CRC Project in order to improve transportation performance compared to the No-Build alternative.¹⁷

¹⁷ House Bill 3478, Section 8(1)(a), directs all affected local governments and special districts to amend their comprehensive or functional plans, including transportation system plans, "to the extent necessary to make them

In 2030 the traffic models under the No-Build Alternative predict 15 hours of congestion per day (northbound and southbound) on I-5. With the CRC Project, there would be just 3.5 to 5.5 hours of congestion in 2030. During the peak period, the Project would increase the number of people traveling over the I-5 crossing northbound in 2030 from 26,500 with No-Build to 35,300 (in vehicles), and from 2,200 to 6,100 (on transit).

Local street traffic performance is monitored and measured by the City of Portland and ODOT based on established performance standards for the facilities under their respective jurisdictions. Local street congestion is most intense near the I-5 ramps and is influenced by the travel direction and length of time that I-5 is congested during each weekday. This section summarizes existing local street performance at selected study intersections. Results are reported for the AM and PM peak hours of travel.

The Project would address most of the non-standard geometric and safety design features currently existing on the I-5 mainline and ramps within the main project area. Improvements would be made to the existing short on-ramp merges/acceleration lanes and off-ramp diverges/deceleration distances, short weaving areas, substandard lane widths, vertical and horizontal curves that limit sight distance, and narrow or non-existent shoulders. The Project would remove both Interstate Bridge lift spans. In addition, the Project would substantially reduce traffic congestion compared to No-Build conditions.

As the number of vehicular collisions in the main project area is related to the presence of non-standard geometric design and safety features, which is exacerbated when traffic levels are at or near congested conditions, the Project would substantially improve traffic safety in the area. It is estimated that the Project would reduce average annual yearly collisions in the main project area from 750 under the No-Build Alternative to between 210 and 240.

This estimate was calculated by making the assumption that the highway geometric and safety improvements would result in a highway corridor that performed at least as good as an average, similar type of urban interstate facility in Oregon. The collision rate for similar urban, interstate facilities is approximately 0.55 collisions per million vehicle miles travelled (MVMT). Applying this rate (with an allowance for a higher collision rate during congested periods and during late evening and early morning hours) to the forecasted traffic volumes over a year period generated an estimated annual collision total of between 210 and 240.

The Portland local street system is divided by I-5, with community connections across I-5 limited to the following interchange and non-interchange crossing locations: Skidmore Street, Alberta Street, Killingsworth Street, Ainsworth Street, Rosa Parks Way, Lombard Street,

consistent with a land use final order.” As noted below and in Section 1.3 of these findings, most of the highway improvements included in the CRC Project are already identified and authorized in the City of Portland’s acknowledged Transportation System Plan (TSP) or in Metro’s Regional Transportation Plan (RTP). As such, they already have land use approval. They are addressed in these findings because they are included as part of the Columbia River Crossing Project which, as an element of the South/North Project, requires findings of compliance with the applicable criteria for any “highway improvements”. For these improvements, no further plan amendment action is necessary to make them consistent with this 2011 LUFO. For those local highway improvements that are not already part of Portland’s TSP, the city will need to amend its plan to comply with Section 8(1)(a).

Columbia Boulevard, Schmeer Road, Victory Boulevard, Martin Luther King Jr. Boulevard, Pier 99 Street, Jantzen Street, and Hayden Island Drive (overcrossings for non-motorized travel also exist at Failing Street and Bryant/Saratoga Streets). In addition to the interchanges, several local streets and nearby intersections are affected by traffic operations in the I-5 corridor.

Under 2030 No-Build conditions, 25 intersections were analyzed, one of which would not meet applicable performance standards during the morning peak hour - the intersection of Fremont Street with Martin Luther King Jr. Boulevard. During the afternoon/evening peak hour, five intersections would not meet applicable performance standards: Martin Luther King Jr. Boulevard with Fremont and Alberta Streets, Interstate Avenue with Argyle and Going Streets, and Marine Way with Vancouver Avenue.

With the Project, Portland's local street operations would improve along the I-5 corridor relative to No-Build conditions. For example, at the I-5 interchange with Marine Drive, 2030 afternoon peak intersection performance would improve from V/C 0.82 (LOS F) with the No-Build Alternative to V/C 0.42 (LOS B) with the Project. This indicates that the Project would improve mobility and accessibility to this freight and employment corridor during the afternoon peak. Similar findings were observed during the morning peak. The Project with highway phasing would improve the 2030 p.m. peak V/C to 0.64 (LOS B) from 0.82 (LOS F).

With the Project improvements, the total number of local intersections and ramps would increase to 38, primarily as a result of additional intersections associated with the local roads in the Hayden Island and Marine Drive interchange areas. During the 2030 morning peak hour, 37 of these 38 intersections and ramps are expected to operate within acceptable standards, while one would fail to meet standards. The intersection of Interstate Avenue with Going Street is expected to fail to meet applicable performance standards and to require mitigation. During the 2030 afternoon/evening peak hour, with Project improvements, all intersections would operate within acceptable standards. Potential mitigation for the Interstate Avenue and Going Street intersection (also described above in the Transit section) could be to optimize the light rail transit pre-emption at the intersection, install advanced signal controllers to manage light rail transit pre-emption, and change the westbound right lane into a through/right choice lane to allow traffic to continue westbound.

The existing pedestrian and bicycle facilities throughout the Columbia River Crossing main project area are outdated, potentially unsafe, and confusing to navigate. The width of the shared-use pedestrian and bicycle facility on the I-5 bridge is non-standard (generally no wider than 4 feet) and separated from traffic by the bridge girders and non-standard low barriers. The mixing of pedestrians and bicycles in this narrow facility can cause safety problems. The Project would improve bicycle and pedestrian facilities in the area, as described in the *Traffic Technical Report*, resulting in greater use of the facilities and safety improvements.

Several pedestrian and bicycle forecasting scenarios predict that pedestrian and bicycle travel demands would increase substantially if a new I-5 bridge is constructed with sufficient multimodal facilities. Pedestrian travel across the bridge would be expected to increase from

80 daily pedestrians today to between 600 and 1,000 daily walkers in 2030, an increase of 650 to 1,150 percent. The number of bicyclists predicted to use the crossing would increase from 370 today to between 900 and 6,400 riders in 2030, an increase of between 150 and over 1,600 percent. With the exercise and visual benefits this will provide, the Council finds this results in both positive traffic and social impacts.

The majority of the Project transit and highway improvements are identified in Metro's RTP and in the City of Portland TSP and are therefore consistent with those transportation system plans. Below is a list and description of the RTP and TSP projects for which the Project would build the improvements:

Regional Transportation Plan (Metro)

- **RTP Project 10893: Improve I-5/Columbia River Bridge (Victory Boulevard to Washington State Line); Replace I-5/Columbia River bridges and improve interchanges on I-5.** New bridges will replace the existing I-5 bridges and the following I-5 interchanges in Oregon will be improved: Victory Boulevard, Marine Drive, Hayden Island/Jantzen Beach
- **RTP Project 10902: MAX Light Rail: Yellow Line: CRC/I-5 North Extension** *CRC: Expo to Vancouver, north on Main to Lincoln.* Light rail will be extended from the Expo Center MAX station in Portland to a station and park-and-ride lot at Clark College in Vancouver.
- **RTP Project 11032: Ruby Junction light rail operating base expansion:** *LRV maintenance and storage facility, including expansion on the west side of Eleven Mile Avenue. Capital cost is included in Milwaukie and CRC projects.* Ruby Junction maintenance facility in Gresham will be expanded to accommodate a new operations facility, new storage tracks and additional light rail vehicles.

Transportation System Plan (Portland)

- **TSP Project 30018: Hayden Island: Street Network Improvements.** *Provide a street network plan for improvements that implement the Region 2040 connectivity standards and improve multi-modal access for Hayden Island.* The Hayden Island Street Plan is described in more detail in the Hayden Island Plan, which was adopted into the City Comprehensive Plan in August 2009. The Hayden Island Plan recommends amending the TSP to implement the street network as shown in the document. The CRC Project would build these improvements consistent with the Hayden Island Street Plan.
- **TSP Project 30020: I-5 (Columbia River-Columbia Blvd): Bridge Widening** *Improve I-5/Columbia River bridge (local share of joint project) based on recommendations in I-5 Trade Corridor Study. Project addresses a high congestion location.* The CRC Project would build these improvement
- **TSP Project 30033: Light Rail Extension - Phase 2.** *Extend light rail service from Expo Center to Vancouver WA.* The CRC Project would build these improvements.

- **TSP Project 40080: Marine Dr. (6th - 33rd & Gantenbein - Vancouver Way) Bikeway** *Retrofit bike lanes to existing street and complete off-street paths in missing locations.* The CRC Project would build these improvements.

The CRC Project also includes improvements to the local street system east and west of the Marine Drive interchange and a new bridge over North Portland Harbor to the west of I-5 that would carry light rail vehicles as well as local motor vehicle and bicycle/pedestrian traffic between Marine Drive and Hayden Island. The local street improvements east and west of the Marine Drive Interchange will improve local access to and from the Expo Center and Hayden Island light rail stations and are necessary as well to accommodate the design of the new I-5 bridges and the modified interchanges.

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

- Major new light rail line in exclusive right-of-way, as well as express bus and feeder routes.
- Modern bicycle and pedestrian facilities that accommodate more bicyclists and pedestrians, and improve connectivity, safety, and travel time.
- Park and ride lots and garages.
- A variable toll on the highway crossing.

In addition to these fundamental elements of the Project, facilities and equipment would be implemented that could help existing or expanded Transportation System Management (TSM) programs maximize capacity and efficiency of the system. These include:

- Replacement or expanded variable message signs or other traveler information systems in the Project area.
- Expanded incident response capabilities.
- Queue jumps or bypass lanes for transit vehicles where multi-lane approaches are provided at ramp signals for entrance ramps.
- Expanded traveler information systems with additional traffic monitoring equipment and cameras.
- Active traffic management

Conclusions on Traffic Impacts. The Council finds that the transit and highway improvements summarized above will substantially improve traffic operations in 2030 compared to the No-Build Alternative and that adverse traffic impacts associated with extending light rail transit through the Expo Center/Hayden Island segment can be mitigated. The Council finds that the potential mitigation for the Interstate Avenue and Going Street intersection would mitigate for the reduction in intersection performance as a result of the Project. Potential mitigation could be to optimize the light rail transit pre-emption at the intersection, install advanced signal controllers to manage light rail transit pre-emption, and change the westbound right lane into a through/right choice lane to allow traffic to continue westbound.

The Council finds that transit improvements will increase transit ridership, decrease transit travel times, and improve accessibility to local and regional employment centers, community facilities and recreational destinations throughout the Portland metropolitan region.

Relative to general transit safety and transit impacts on bicycle and pedestrians, the Council finds that the impacts could be mitigated through the measures described above. Relative to impacts from highway improvements, the Council finds that most impacts from the Columbia River Crossing portion of the North/South project would be positive and would improve transportation performance in the Hayden Island/Expo Center segment.

Provide for a light rail route and associated facilities, balancing the need for light rail proximity and service to areas that are capable of enhancing transit ridership; the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and the need to protect affected neighborhoods from the identified adverse impacts.

The South/North Steering Committee initially assembled in the 1990s to recommend the federal Locally Preferred Strategy adopted the following goal for the project¹⁸: *To implement a major transit expansion program in the South/North Corridor that supports bi-state land use goals, optimizes the transportation system, is environmentally sensitive, reflects community values and is fiscally responsive.* That "LPS Steering Committee" also adopted the following objectives for the project:

1. Provide high quality transit service;
2. Ensure effective transit system operations;
3. Maximize the ability of the transit system to accommodate future growth in travel;
4. Minimize traffic congestion and traffic infiltration through neighborhoods;
5. Promote desired land use patterns and development;
6. Provide a fiscally stable and financially efficient transit system; and
7. Maximize the efficiency and environmental sensitivity of the engineering design of the proposed project.

The project goal and objectives closely parallel the emphasis of Criterion 3(A) for this Land Use Final Order. The effectiveness evaluation of the South/North Project relative to meeting the objectives is summarized below.

Ability to Provide High Quality Transit Service. The Council finds that the portions of South/North Project already constructed or currently under construction provide a significant amount of light rail coverage between the Portland downtown and Milwaukie and Clackamas Town Center to the south and between the Portland downtown and the Expo Center to the north. The Columbia River Crossing Project provides the missing piece to the original transit concept by extending LRT coverage into Vancouver, Washington. The Council finds that the South/North Project, including the CRC Project, provides improved reliability over the No-

¹⁸This Steering Committee was assembled under requirements of federal law. It differs from the LUFO Steering Committee assembled to comply with House Bill 3478.

Build Alternative. Factors that affect reliability include the amount of reserved right-of-way, percent of protected trunk-line intersections and percent of passengers on exclusive transit right-of-way.

The Council finds that the CRC Project will result in improved peak-hour in-vehicle and total weighted travel times between Portland and Vancouver, Washington compared to the No-Build Alternative. It will increase transit trips within the South/North Corridor and increase the transit mode split for peak-hour radial trips.

Moreover, compared to an expanded all-bus system, the Council finds that the CRC Project will:

- Increase transit trip production in the Project Transit Corridor by 150 percent compared to existing conditions by the year 2030;
- Increase weekday transit ridership into on the Interstate Max Yellow Line by 21,400 trips (150 percent) compared to the No-Build Alternative;
- Double the number of transit passenger trips over the I-5 Columbia River crossing, compared to the 2030 No Build alternative
- Decrease rush-hour transit travel times between Pioneer Courthouse Square and Clark College in Vancouver by 28 minutes compared to the No Build alternative; and
- Increase the percent of transit trips between the project corridor and downtown Portland from 21% in 2005 to 39% in 2030.

Ensure Effective Transit System Operations. By locating the South/North light rail alignment on the downtown Portland transit mall, all alignment alternatives have allowed for easy transfers to other transit routes serving most of the metropolitan region. The Council believes that this improved transit access has enhanced transit ridership, and it so finds.

Maximize the Ability of Transit to Accommodate Growth in Travel Demand. In 1998 the Council determined that the South/North Project had the greatest ability to accommodate growth of the various DEIS alternatives studied. The CRC portion of the South/North Project would increase LRT place miles ("place miles" are transit vehicle capacity for each vehicle type multiplied by vehicle mile travelled) by 58% and would increase total bus and LRT place miles by over 2% compared to No-Build.

Minimize Traffic Congestion and Traffic Infiltration Through Neighborhoods. In 1998 the Council determined that the South/North Project would help slow the rate of traffic congestion and related problems, compared to the No-Build Alternative. It would:

- Remove almost 133,000 vehicle miles of travel per average weekday from the corridor road system;
- Eliminate 16 lane-miles of congested roadways; and
- Avoid 4,500 hours of traffic delays each weekday (compared to the No-Build Alternative in the year 2015).

By slowing the rate of traffic congestion growth, avoiding delay, and reducing the number of vehicle miles of travel per average weekday as compared to the No-Build Alternative, the South/North Project will minimize traffic congestion. The Council found that the slowing of congestion and reductions in vehicle miles of travel also would reduce the amount of traffic infiltrating Portland and Clackamas County neighborhoods by causing fewer vehicles to be on the roads than would otherwise occur in the absence of light rail transit.

The Traffic Technical Report indicates and the Council now finds that the CRC Project, in comparison with a No-Build Alternative and with the highway improvements that are included in the Project, will result in a 57 percent decrease northbound and a five percent decrease southbound in rush-hour automobile travel times between Columbia Boulevard in Portland and SR 500 in Vancouver. It also finds that the Project will reduce the duration of congestion from 15 hours per day in the No-Build to between 3.5 and 5.5 hours per day with the improvements being made for automobile, transit and truck travel.

Facilitate Efficient Land Use Patterns. The Council finds that light rail has influenced the quality of access to vacant developable and redevelopable parcels of land in the South/North Corridor. It finds that light rail transit throughout the South/North corridor has supported the region's growth management strategy and the urban growth boundary (UGB) by:

- Providing access to vacant and redevelopable infill properties;
- Providing transportation capacity to the Portland Central City that will enable the region's core to accommodate the expected high growth levels;
- Providing the high quality transit needed to make the Clackamas Regional Center and Milwaukie Regional Center function in accordance with the growth strategy;
- Establishing new station communities which can be developed as mixed-use areas; and
- Instituting a pattern of growth that conforms to the goals, objectives and policies of local land use and infrastructure plans.

The Council finds that the CRC Project will further facilitate efficient land use patterns by promoting denser, transit-oriented development on Hayden Island. This shift in land use patterns from the existing auto-oriented development is consistent with the Hayden Island Plan, which includes plans to redevelop a portion of the Jantzen Beach SuperCenter site into a high-density mixed-use transit-oriented development supported by the new light rail station.

Balance the Efficiency and Environmental Sensitivity of the Engineering Design. Indicators of environmental sensitivity include displacements, noise and vibration impacts, parkland impacts, floodplain impacts, wetland impacts and historic and archaeological resources impacts. These impacts are addressed in other findings, set out below, addressing the relevant LCDC criteria applicable to this proposal. For the reasons stated in the findings addressing those other criteria, the Council concludes that the positive impacts of the Project outweigh the negative environmental impacts.

Social Equity Considerations. In addition to the LPS Steering Committee objectives listed above, the Council believes and finds that social equity considerations should be taken into account. When it adopted the initial South/North LUFO back in 1998, the Council found the

percentage of minority populations in nearly one half of the neighborhoods in the South/North Corridor to be higher than the regional average of 8.6 percent. Nearly two-thirds of corridor neighborhoods have a percentage of low-income households that is higher than the regional average (1990 US Census). The Council also found that the South/North Project would serve both low-income and minority neighborhoods. The Council concluded that the South/North Project would not adversely affect low income or minority neighborhoods disproportionate to the benefits they would receive with improved transit access. Indeed, it found that the project would substantially benefit a much larger segment of the populations of these affected areas, including low-income, transportation-disadvantaged, minority and elderly populations, than are otherwise directly adversely affected by the project. The Council continues to abide by these findings.

Finally, the Council intends that the project will leave the project area and surroundings better off. There are many enhancements in the project, such as improved local street connections on Hayden Island, replacement of substandard facilities for bicyclists and pedestrians, local auto access from North Portland to Hayden Island on a separate arterial bridge, and inclusion of public art in the transit element of the project. The Council finds that establishment of an enhancement fund would complement and build upon the enhancements included in the project itself and make the area more livable for all segments of the population. There is general agreement to continue to explore the establishment of a community enhancement fund - which would require consideration of funding mechanisms and administration of the fund - as an ongoing responsibility of the Departments of Transportation.

Overall Conclusions Regarding Neighborhood Impacts (Transit)

In summary, the Council finds and concludes that the selection of the light rail route and the Hayden Island station, including their locations, within the area constituting the Columbia River Crossing Project includes a balancing of:

- the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership;
- the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and
- the need to protect affected neighborhoods from identified adverse impacts.

The Council finds and concludes that the CRC portion of the South/North Project will enhance transit service to areas all along the South/North Corridor, with particular benefits to Hayden Island and Vancouver Washington. The Council finds and concludes that this Project will improve connections and mobility throughout the Portland metropolitan region, including to areas along the existing eastside and westside MAX light rail lines; that the presence of light rail transit north of the Expo Center into Vancouver, Washington will encourage and support new and efficient development, consistent with Region 2040 Growth Concepts and Portland's adopted Hayden Island Plan that will benefit the affected local communities and the region; and that the improved accessibility provided by extending the South/North Project, and its many benefits, north to Hayden Island and Vancouver, Washington, especially when compared with the No-Build Alternative, combined with available measures to mitigate adverse impacts created by the Project, result in a substantial net benefit to the affected local communities, the region, and the states of Oregon and Washington.

For the reasons stated herein, the Council finds that it has considered the adverse economic, social and traffic impacts of the Columbia River Crossing Project and balanced these impacts against the Project's benefits. It finds and concludes that the northern extension of the South/North light rail line to Hayden Island and Vancouver, Washington will make a significant positive contribution to the quality of life in the Portland region, through improved mobility, decreased congestion, improved air quality, reduced energy consumption, and decreased reliance on the automobile, which will benefit Oregonians now and well into the future. It further finds that light rail transit can, has, and will continue to stimulate and enhance development of an efficient and compact urban form in appropriate locations identified for such development. It also finds that with mitigation imposed as part of the NEPA process or during local permitting processes, most of the adverse consequences identified in these findings can be reduced or avoided. Potential mitigation measures are identified in findings.

Provide for associated highway improvements, balancing the need to improve the highway system with the need to protect affected neighborhoods from the identified adverse impacts.

The Columbia River Crossing Project includes a broad spectrum of highway improvements including new I-5 bridges across the Columbia River, widening of and interchange improvements along I-5, and improvements to highways accessing I-5, the Expo Center and Hayden Island. The Council finds that these highway improvements are in addition to other highway improvements that the Council previously approved for the South/North Project, including highway improvements in SW Portland, SE Portland and Milwaukie. All other street and highway changes, such as intersection modifications, installation of traffic signals, access changes, etc. are ancillary to light rail improvements or proposed as mitigation to address specific adverse impacts of the South/North Project, and are not classified as highway improvements.

The Council finds that the need to construct new I-5 bridges is the principal catalyst behind the CRC Project and that light rail transit is a fundamental component of the bridge project. It finds that the CRC Project is a combined transit/highway project that represents a consensus among affected local government officials. It finds that without the identified highway improvements, the light rail improvements would not and could not go forward independently and that without the rail component, the highway improvements would not independently be going forward. For this project to work, both components are required. Additionally, the Project will facilitate bicycle and pedestrian travel across the Columbia River, thereby being a truly multi-modal project. The Council further finds that the combining of rail and highway improvements is not unique to the region. Indeed, it finds that the Westside Corridor Project, which extended light rail transit from downtown Portland to downtown Hillsboro, was a combination rail and highway project that was approved through a series of LUFOs and LUFO amendments adopted between 1991 and 1996.

The Council finds that construction of new I-5 bridges, including a southbound bridge carrying light rail transit and a northbound bridge accommodating bicycle and pedestrian traffic, is necessary to maintain and improve an adequate interstate highway system. It finds that I-5 is the principal arterial serving the west coast states of Oregon, Washington and California, and the principal facility serving the interstate movement of freight by truck travel in these states. It finds that the existing I-5 bridges are severely congested during peak travel hours and severely hindered by their need to close traffic for periods at a time to allow ships and boats to pass underneath, and that these conditions will worsen substantially over time. All of this impedes mobility and delays the timely and efficient movement of freight between Oregon and Washington.

The Council also finds that the other identified highway improvements are necessary to complement the I-5 improvements and allow for an efficient local transportation system and access to/from I-5, the Hayden Island and Expo Center LRT stations, and residential, commercial and industrial areas in the project area.

The improvements at the Victory Boulevard Interchange would improve safety and lengthen short, substandard on- and off-ramps. All movements within the Marine Drive Interchange would be reconfigured to reduce congestion and improve safety for trucks and other motorists entering and exiting I-5. Trucks currently account for 8 to 10 percent of the daily vehicles that cross the I-5 bridges. At the Marine Drive Interchange, trucks account for greater than

20 percent of the daily vehicle composition. During the hour when the highest numbers of trucks are using the Marine Drive Interchange (9-10 a.m.), trucks account for approximately 30 percent of vehicles in the interchange. So by virtue of the improvements, the proposed design for the Marine Drive Interchange improves truck mobility. The improvements would allow the movements with the highest volumes in the interchange to move freely without being impeded by stop signs or traffic signals.

All movements for the Hayden Island Interchange would be reconfigured. The new configuration would be a split tight diamond interchange. Ramps parallel to the highway would be built, lengthening the ramps and improving merging speeds. Improvements to N Jantzen Drive and N Hayden Island Drive would include additional through, left-turn, and right-turn lanes. A new local road, N Tomahawk Island Drive, would travel east-west through the middle of Hayden Island and under the I-5 interchange, improving connectivity across I-5 on the island and improving access to and from the Hayden Island LRT station.

The CRC Project would also include local street improvements on the Oregon mainland, which would improve access between I-5 and local roads in the area. The project would build a local multimodal bridge that would provide access to and from Hayden Island and the Hayden Island station for vehicle traffic, bicycles and pedestrians separate from the I-5 mainline.

Many bicycle and pedestrian improvements are included in the CRC Project. These include new facilities such as the multi-use pathway across the Columbia River, street improvements around the rebuilt interchanges, and new facilities for bicyclists and pedestrians around the new light rail station.

The proposed Marine Drive Interchange area would be entirely grade-separated, with the local road network and multi-use paths running below the interchange. Pedestrian and bicycle improvements at the Marine Drive Interchange would include a multi-use path constructed from the Marine Drive Interchange, over Hayden Island and the Columbia River. The path would be a minimum of 16 feet wide between its barriers and would direct users with pavement markings and signage. Larger curves would provide improved sight distance and flow, and path components would meet ADA accessibility standards.

Sidewalks would be constructed on most reconstructed streets throughout the project area. To improve east-west connections on Hayden Island, a 6- to 8-foot-wide sidewalk would be provided along N Jantzen Drive and N Hayden Island Drive. A 6-foot minimum width sidewalk would be provided along N Tomahawk Island Drive. Crosswalks would be provided at all intersections and would meet ADA accessibility standards. The island streets would also include 6-foot bicycle lanes wherever improvements are made. All of the improvements would facilitate access to the light rail system.

The new northbound bridge over the Columbia River would also accommodate a multi-use pathway under the highway deck. This path would be 16 to 20 feet wide, located within the superstructure above the bridge columns and below the bridge deck. The multi-use path

would separate pedestrians and bicyclists from vehicle noise and avoid proximity to moving vehicles.

The Council finds that the local improvements summarized above would improve the flow of traffic in the I-5 corridor, would improve intersection performance on local intersections compared to No-Build and would improve bicycle and pedestrian mobility and safety.

The Council finds that the local multimodal bridge that provides local access to/from Hayden Island would benefit residents of the island, providing an alternate access to the island.

The Council finds that although there are adverse impacts associated with the highway improvements of the Project, many of the impacts can be sufficiently mitigated, as addressed in the NEPA documentation. The Council finds that the benefits of the Project including improved I-5 and local intersection performance, decreased congestion in the corridor, improved bicycle and pedestrian mobility and safety, and others as addressed in this document herein, outweigh the impacts and that the Columbia River Crossing Project would cause a net positive impact to residents.

Overall Conclusions Regarding Neighborhood Impacts (Highway)

Overall, the Council finds that these highway improvements, taken together, will have a positive impact on interstate and local travel and on interstate and local commerce. They will enhance nearby neighborhoods and improve opportunities for pedestrian, bicycle and vehicle circulation to and around the Expo Center, Jantzen Beach Center, Hayden Island and Vancouver, Washington. While the expansion of and modifications to the local highway network may result in some adverse impacts identified and discussed above, the Council believes and concludes that on balance, these highway improvements will be a substantial benefit to the City of Portland, the Metro region, the State of Oregon, and their residences and businesses, in terms of accessibility, mobility, improved movement of commerce, and improved bicycle and pedestrian transport. The Council concludes that the benefits of these improvements strongly outweigh the adverse impacts that are associated with them.

6.3.2 Criterion 4: Noise Impacts

“Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.”

Noise is a form of vibration that causes pressure variations in elastic media such as air and water. The ear is sensitive to this pressure variation and perceives it as sound. The intensity of these pressure variations causes the ear to discern different levels of loudness, and these differences are measured in decibels, or dBs. Vibrations can also be carried through the ground, in which case they are described in terms of vibration velocity levels in dB referenced to one micro-inch per second. As with air or water borne vibrations, ground vibrations have a

threshold of human perception. Because air and ground borne vibrations have similar properties and are measured in similar ways, the Council finds that vibration impacts are appropriately considered with noise impacts in these findings.

Noise and vibration impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section. Noise and vibration impacts also are identified, along with corresponding mitigation measures, in the Noise and Vibration Technical Report (Noise Report).

Identification of Noise and Vibration Impacts in the Expo Center/Hayden Island Segment.

The guidelines and standards for analyzing and mitigating transit noise and vibrations are different from those used for analyzing and mitigation highway noise. For transit noise, the guidelines and standards are established by the FTA while for highway noise, the guidelines and standards are established by the FHWA and ODOT. Because of the different guidelines and standards, the noise and vibration impacts of the transit and highway improvements in the Expo Center/Hayden Island Segment are addressed separately.

Transit Noise and Vibration Impacts and Mitigation Options

The noise criteria in the FTA Guidance Manual are founded on well-documented research on community reaction to noise and are based on change in noise exposure using a sliding scale. The amount that a transit project is allowed to change the overall noise environment is reduced with increasing levels of existing noise.

The FTA Noise Impact Criteria groups noise sensitive land uses into the following three categories:

Category 1: Buildings or parks where quiet is an essential element of their purpose.

Category 2: Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.

Category 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, office buildings, and other commercial and industrial land uses.

There are two levels of impact included in the FTA transit noise criteria.

Severe Impact: Severe noise impacts are considered “significant” as this term is used in NEPA and implementing regulations. Noise mitigation will normally be specified for severe impacts unless there is no practical method of mitigating the noise.

Impact: In this range, often called a “moderate” impact, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These other factors can include the predicted increase over existing noise levels, the types and number of noise-sensitive land uses affected, existing outdoor-indoor sound insulation, and the cost-effectiveness of mitigating noise to more acceptable levels.

Transit noise can take several forms. These include LRT-induced noise impacts resulting from changes to roads and to motor vehicle traffic volumes; wayside LRT noise impacts; LRT wheel squeal impacts; noise from ancillary LRT facilities; and LRT vibration impacts and mitigation.

LRT-induced road traffic noise is generally associated with park-and-ride lots. There are no new planned park-and-ride lots in the Expo Center/Hayden Island segment. There are, however, numerous highway improvements proposed for this segment. Their noise impacts are addressed below.

Wayside LRT noise is modeled based on measurements of existing LRT systems, the length and speed of trains, rates of acceleration and deceleration, location of special trackwork, auxiliary equipment and other factors. Options generally available to mitigate wayside LRT noise impacts include sound walls, crossover relocation and reduced LRT speeds. Within the Expo Center/Hayden Island segment, wayside LRT noise impacts floating homes within the North Portland Harbor. These noise impacts are addressed below

Wheel squeal noise is generated by train wheels as they traverse a curve. Whether wheel squeal occurs and how loud it is depends on many factors, including the material used to make the rail, the level of wheel/rail contact point lubrication, the sharpness of the curve, train speed and wheel profile. While there are several locations in the South/North Corridor where track curvature is acute enough to create wheel squeal impacts, none are located within the Expo Center/Hayden Island segment.

Where wheel squeal noise is generated, the noise impacts can be reduced or eliminated using the following general techniques:

- Dampening the wheel or using resilient wheels;
- Lubricating the wheel surface that slides against the rail;
- Using track designed to dampen squeal on sharply curved sections of the alignment.

If any wheel squeal impacts remain following the use of these mitigation measures, the use of barriers near affected receivers could be considered.

Noise from ancillary facilities includes noise from crossing bells and electrical substations located adjacent to the LRT trackway and LRT switching gear and transformers. Designing and building substations to meet federal noise criteria for transit system ancillary facilities can mitigate substation noise. Noise levels less than 60 dBA, which is a level typical of many residential areas, is expected at one foot from the exterior substation wall. This noise level can be reduced by as much as 10 dBA through the use of enhanced substation housing where substations are located near sensitive receivers. No noise impacts from crossing bells or substations are expected in the Expo Center/Hayden Island segment.

LRT vibration impacts resonate from the wheel/rail interface and are influenced by wheel/rail roughness, transit vehicle suspension, train speed, track construction and the geologic strata underlying the track. Vibration from a passing light rail train moves through the geologic strata into building foundations, potentially causing the buildings to vibrate. Ground-borne vibration is of such a low level that there is almost no possibility of structural damage to buildings near the alignment. The main concern of ground-borne vibration is that it can be

annoying to building occupants. The primary options available to mitigate vibration impacts include: incorporating state-of-the-art vehicle specifications; keeping special trackwork (such as crossovers) as far as possible from sensitive receptors; using either spring-loaded frogs in tie-and-ballast track sections or flange-bearing rail in paved track sections where special trackwork cannot be moved; and installing ballast masts (in tie-and-ballast sections) or vibration isolation technology, such as “whisper rail,” “booted” track-type support systems or resilient supported rail (for paved track sections). Small speed reductions may be able to reduce impacts to acceptable levels in a few locations, provided the speed reductions do not affect service schedules. There are several locations in the South/North Corridor where LRT vibration impacts occur. However, none of these are located within the Expo Center/Hayden Island segment.

The FTA has developed impact criteria for acceptable levels of ground-borne vibration that would apply to the light rail component of the Project. Exhibit 2-3 of the Noise Report summarizes the FTA impact criteria for ground-borne vibration as it affects most buildings. Exhibit 2-8 shows the ground-borne vibration and noise impact criteria for special buildings such as concert halls, TV and recording studios, auditoriums and theaters.

Overall, noise levels in the Expo Center/Hayden Island segment are currently dominated by motor vehicle traffic on I-5 and Portland International Airport aircraft. Existing noise levels in this area exceed traffic noise criteria for 96 noise-sensitive receptors. As discussed in the Noise Report, the first three banks of floating homes in the vicinity of the new light rail alignment would be relocated due to project construction, and therefore those homes were not analyzed for project-related noise impacts. Of the floating homes that will remain, analysis identified 8 floating homes where noise levels are predicted to meet or exceed the moderate FTA noise impact criteria. The impacts occur at the row of homes nearest the future tracks, where light rail operations are predicted to produce a noise level of 61 dBA Ldn, which just meets the 61 dBA Ldn impact criteria. Noise from future light rail operations is well below the traffic noise levels at all other noise sensitive properties in the Expo Center/Hayden Island segment, including the manufactured home residential area along the Columbia River.

Potential mitigation measures evaluated for reducing noise impacts from light rail for the project include 1) sound barriers, 2) track lubrication at curves, 3) special trackwork at crossovers and turnouts, 4) reduced train speed, and 5) building sound insulation. No light rail vibration impacts requiring mitigation were identified in the Expo Center/Hayden Island segment. The eight light rail noise impacts at the floating homes would be best mitigated with the installation of sound barriers along the elevated light rail structure. A 3- to 4-foot acoustical absorbent sound wall or 6-foot reflective sound wall would be effective at reducing noise levels at these homes by 7 to 10 dBA.

Traffic Noise Impacts and Mitigation Options

Traffic and construction noise analyses are required by law for federal projects that 1) involve construction of a new highway, 2) substantially change the horizontal or vertical alignment, or 3) increase the number of through traffic lanes on an existing highway. Oregon policies also require the review and consideration of noise abatement on projects that substantially alter the ground contours surrounding a state highway.

FHWA and ODOT impact criteria for noise studies depend on existing land uses or planned and permitted future land uses. Existing land uses in the Expo Center/Hayden Island segment include commercial, industrial, park/open space and residential. Most of the land uses near the LRT and highway improvements are commercial/industrial and park/open space. There is a large group of floating homes located along the southern edge of Hayden Island on both sides of I-5. Other residential land uses include the Red Lion Jantzen Beach Hotel, the Oxford Suites, and the Courtyard by Marriott. There is also a large group of single and multi-family residential units east of I-5 along N Hayden Island Drive and N Tomahawk Island Drive.

As described in the discussion of transit noise impacts above, existing noise levels in the project corridor were modeled and noise levels currently exceed FHWA and ODOT traffic noise criteria for 96 noise-sensitive receptors located in the Expo Center/Hayden Island Segment. These receptors include floating homes, the south portion of Delta Park and at the Red Lion Columbia Center Hotel, which include all rooms facing toward I-5

The project includes removal of the floating homes closest to the I-5 crossing of the North Portland Harbor and the addition of 3.5-foot safety barriers along all sides of all elevated roadway structures. The combined effect of displacing noise sensitive properties nearest the project roadways, and the addition of the safety barriers, would result in no newly impacted noise-sensitive receptors in the Expo Center/Hayden Island segment. In addition, those receptors currently impacted will not experience substantial increases in the severity of those impacts.

Overall Conclusions Regarding Noise Impacts and Mitigation Options

Based on the information in the Noise Report, the Council finds and concludes that sound wall options are available and have been recommended to mitigate the identified light rail noise impacts in the Expo Center/Hayden Island segment. Based also on information in the Noise Report, with the removal of some existing noise-sensitive receptors and the addition of safety walls, no new highway noise impacts are expected in the Expo Center/Hayden Island segment. The final decision and recommendation to include the approved mitigation will be made during the final design process.

6.3.3 Criterion 5: Natural Hazards

“Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Natural hazard impacts specific to the Expo Center/Hayden Island segment are addressed in the following section. Natural hazard impacts, and associated mitigation measures, also are described in the Geology and Groundwater Technical Report (Geology Report) and the Water Quality and Hydrology Technical Report (Hydrology Report).

Overview of Natural Hazards Impacts in South/North Corridor and Mitigation Measures

The South/North Project, including the Columbia River Crossing portion, lies within the Portland Basin, a basin characterized by relatively low topographic relief with areas of buttes and valleys containing steep slopes. Much of the overall South/North Project alignment crosses developed land. Long-term impacts to the geologic environment consist of relatively minor changes in topography and drainage patterns, minor settlement of near-surface materials, and potential changes in slope stability and erosion. These impacts could occur as a result of excavation, placement of structures and fills and clearing and grading.

The geology and soils in the area of the South/North Project are typical of the Portland Basin. Soils within the South/North Corridor developed on flood and alluvial deposits. Where undisturbed, they are generally sandy to clayey loam and are well to poorly drained. However, much of the area is classified as urban land, where the original soils have been extensively modified or covered. Associated with the channel deposits, areas of highly organic silt and clay and deposits of peat may be encountered and require special construction techniques. Expansive (high shrink-swell) soils are present in the corridor.

The potential for major landslides within the South/North Corridor is very limited because the topography within the corridor is relatively gentle, and the geologic conditions are generally favorable.

The Pacific Northwest is a seismically active area and subject to earthquakes. Oregon has the potential for three types of earthquakes: crustal, intraplate and subduction zone. Although earthquake prediction is an inexact science, it is reasonable to assume that earthquakes will occur in Oregon.

Studies of relative earthquake hazards have been completed for much of the Portland area. These studies show that much of the South/North corridor lies in areas with relatively high potential for earthquake damage. Project design and estimated construction costs reflect the need to conform to the relevant seismic standards for capital construction.

To mitigate earthquake hazards, TriMet and ODOT will adhere to applicable Federal, State and local building codes or standards for bridges and structures in the South/North Project.

Groundwater may be encountered at shallow depths along sections of the corridor that cross the flood plains of rivers and creeks. Other areas of shallow groundwater levels may exist locally, controlled by local variations in soil type and drainage.

Additionally, the study area intersects major rivers, minor watercourses and floodplains within the lower Columbia and Willamette River basins. Floodplains are valuable natural resource areas providing fish and wildlife habitat, flood control, stormwater storage, water quality enhancement, sediment and erosion control, and educational, recreational, research, and aesthetic uses. Executive Order 11988 directs federal agencies to conduct their activities in ways designed to reduce the risk of flood loss; to minimize the impact of floods on human

safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains.

Natural Hazard Impacts within the Expo Center/Hayden Island Segment

As shown in Exhibit 3-12 of the Geology Report, no specific *landslide areas* or steep slopes (greater than 25 percent) are identified in the Expo Center/Hayden Island segment. As noted above, the potential for major landslides within the South/North Corridor is very limited because the topography within the corridor is relatively gentle. Although the LRT and highway improvements will cross the North Portland Harbor and the Columbia River on new bridge structures, the banks associated with the crossings are not particularly steep. As shown in Exhibit 3-4 of the Geology Report, the mapped surface unit for the bridge footprints is Quaternary alluvium and fill. In addition, historic aerial photographs for the area indicate that construction of North Portland Harbor and Columbia River bridge foundations and abutments would likely encounter fill embankments at Hayden Island. However, because steep slopes and landslides have not been identified near the proposed bridge footprints, no long-term adverse effects due to steep slopes or landslides are anticipated.

Exhibit 3-5 of the Geology Report identifies soil types within the greater Expo Center/Hayden Island segment area, and Exhibit 3-6 describes the erosion hazard ratings for these soil types. As shown in Exhibit 3-5, the project footprint extends to areas with three soil types – Pilchuck-Urban land complex (0 to 3 percent slope); Sauvie-Rafton-Urban land complex (0 to 3 percent); and Rafton silt loam, protected. These soil types are not considered to have *severe erosion potential*.

As stated above, the Pacific Northwest is a seismically active area and is subject to *earthquake damage*. Bridges are vital links in the transportation system and are often especially vulnerable during seismic events. The Geology Report does not identify any seismically active earthquake faults in the Expo Center/Hayden Island segment. However, several types of earthquakes could occur in the project area. In particular, there is a large, offshore fault located in the Pacific Ocean west of the I-5 crossing. Exhibit 3-16 of the Geology Report shows a map of the relative earthquake hazard ratings in the project area. These ratings take into account a variety of potential earthquake effects, with Zone A being the most hazardous areas and Zone D being the least hazardous. Earthquake effects include ground motion amplification, slope instability, and soil liquefaction, all of which have a high potential to impact public safety and cause structural damage and economic disruption. The Expo Center/Hayden Island segment is identified in relative earthquake hazard Zones A and B.

The Hydrology Report includes background information on hydrology and floodplains in the CRC project corridor. The I-5 bridges are located at river mile 106 of the Columbia River. The Columbia River is highly constrained within the project area by existing levees and landform. In addition, 10 bridge footings are currently located below the river's ordinary high water level (OHW), and also constrict the river. The North Portland Harbor is a large channel of the Columbia River located between North Portland and the southern bank of Hayden

Island. A flood control levee runs along the south bank of the North Portland Harbor and forms a boundary between the adjacent neighborhoods and the harbor.

The installation of piers within the Columbia River and North Portland Harbor would encroach upon the Columbia River's *100-year floodplain*. However, this would result in little, if any, increase in flooding risks, given the relatively small size of the bridge piers compared to the size of the Columbia River. The LRT and highway improvements in the Expo Center/Hayden Island segment would either avoid or be elevated above the floodplain, with no significant encroachment or fill that would cause adverse flooding conditions or changes in flood velocity. The volume of displacement presented by the piers is expected to be insignificant.

Mitigation Options for Natural Hazard Impacts in the Expo Center/Hayden Island Segments

Based on the information contained in the Geology Report, the Council finds that no *landslide areas* or *areas of severe erosion potential* have been identified in the Expo Center/Hayden Island segment. While historical evidence of seismic activity in Oregon is minimal, recent studies indicate that western Oregon may be subject to a greater risk from *earthquake hazards* than previously thought. Site geology has a significant impact on earthquake damage. Young unconsolidated silt, sand, and clay deposits are associated with enhanced earthquake damage through amplification of shaking, settlement, liquefaction, and landsliding.

Potential mitigation measures to address geologic/soils conditions are provided in the Geology Report. During final engineering stage of the project, site-specific assessments would include additional geotechnical testing and monitoring. Soft foundation conditions, delineated by the exploration program, can be mitigated with proper designs. The site-specific assessments will also assess the use of soil stabilization techniques to minimize liquefaction of soils. Stabilization techniques include the use of compaction grouting, stone columns, and other techniques.

Mitigation measures would also apply to project structures. The project will provide seismic upgrades to existing structures, as needed, and new and upgraded structures will adhere to the following applicable building codes and standards:

- AASHTO LRFD Bridge Design Specifications
- AASHTO Guide Specifications for LRFD Seismic Bridge Design
- WSDOT Bridge Design Manual, LRFD M 23-50 (BDM)
- ODOT Bridge Design and Drafting Manual (BDDM)
- City of Vancouver Municipal Code (VMC) Chapter 20.740.130 Critical Areas Protection- Geologic Hazards Areas

The project will use elements such as drilled shafts, driven piles, abutments and retaining walls. Structural designs will take into consideration stormwater infiltration or other future changed conditions near shallow footings, retaining walls and/or other structures that could increase the potential for soil liquefaction during a future seismic event.

Based on the facts in the Geology Report, the Council finds that long-term Project impacts to geology and soils in the Expo Center/Hayden Island segment are minor and can be mitigated. Mitigation could consist of using standard engineering practices to construct stable slopes; design of bridges to meet Uniform Building Code seismic standards; and techniques such as excavation and backfilling, special footing and foundation designs, and special construction techniques such as surcharging and dewatering to address the stability of artificial fill and the high water table on Hayden Island. Additionally, the CRC Project would replace existing bridges with new and retrofitted structures built to modern seismic safety standards, and would stabilize weak soils along the Columbia River on Hayden Island and around Marine Drive. The Council concludes that the proposed LRT and highway improvements would significantly improve public safety and structure stability during earthquake seismic events when compared with existing conditions.

The North Portland Harbor and the Columbia River will span the 100-year *floodplain*, but with no significant fill or encroachment into the floodplain resulting from pier placement. A minor amount of fill will be associated with the placement of piers for the new bridges. However, the Council finds that floodplain impacts, if any, would be very small given the relatively small size of the bridge piers in comparison to the Columbia River. A flood-rise analysis will be conducted during the final design to calculate the impact that piers in the water will have on flood elevation, in accordance with local regulations and Executive Order 11988 – Floodplain Management. If flood-rise exceeds the allowable limit, the rise would be mitigated through floodplain excavation (cut/fill balance) activities, and the Council finds that such mitigation is feasible.

6.3.4 Criterion 6: Natural Resource Impacts

“Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Natural resource impacts specific to the Expo Center/Hayden Island segment are addressed in the following section. Natural resource impacts, along with associated mitigation measures, also are described in the Ecosystems Technical Report (Ecosystems Report), the Wetlands Technical Report (Wetlands Report), the Parks and Recreation Technical Report (Parks Report) and the Visual and Aesthetics Technical Report (Visual Report).

Identification of Impacts to Significant, Protected Natural Resources in the Expo Center/Hayden Island Segment

Criterion 6 of this Land Use Final Order requires identification of adverse impacts on *significant* resources (fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway) that are *protected* in acknowledged local comprehensive plans. Oregon planning under Statewide Planning Goal 5 calls for inventories and protection of significant natural resources including fish and wildlife habitat, wetlands, riparian and scenic and open space areas. Because not all natural resource sites within the project area are identified as significant by local governments in their comprehensive plans, the scope of analysis of natural resource impacts under Criterion 6 is generally narrower than the scope of analysis contained in the federal environmental impact statements.

For the Columbia River Crossing portion of the South/North Project, the relevant acknowledged comprehensive plan is the City of Portland Comprehensive Plan. That plan includes policies and objectives to address conservation of a range of natural resources identified in Statewide Goal 5, including wetlands, riparian areas and water bodies, fish and wildlife habitat, scenic routes and viewpoints, and significant upland areas. The City has completed an inventory and analysis of natural resource sites, identified the significance of each resource site and provided varying levels of protection to specific sites through the application of Environmental Overlay zones (E-zones). The city applies two environmental overlay zones: environmental protection (ep) and environmental conservation (ec). The *environmental protection zone* provides the highest level of protection for resource areas deemed highly valuable through a detailed inventory and economic, social, environmental, and energy (ESEE) analysis. Development is largely prevented in these areas. The *environmental conservation zone* areas are also considered valuable, but can be protected while allowing “environmentally sensitive urban development.”

Within the Expo Center/Hayden Island segment, the Council finds that the environmental conservation zone applies to the Columbia River, North Portland Harbor, Columbia Slough, and the Vanport Wetlands to identify and protect these areas for multiple resource values, including *fish and wildlife habitat, riparian corridors, open space and scenic and wetland areas*. However, the E-zone regulations are superseded by the regulations of Peninsula Drainage District #1 at the Vanport Wetlands. As identified in the Ecosystems Report, about 41 acres within the project’s footprint in the Expo Center/Hayden Island segment are within Portland’s E-zones, and impacts to these resources are regulated.

The Council also finds that N Marine Drive is identified as a *scenic corridor* in the Portland Comprehensive Plan and the Columbia Slough has been defined as a *scenic waterway* by the City of Portland, and could be considered a recreational resource. Further, the Portland Comprehensive Plan designates the planned extension of the 40-Mile Loop *recreational trail* along N Marine Drive adjacent to the south side of the North Portland Harbor. Additionally, the Portland Comprehensive Plan designates lands within the Expo Center/Hayden Island segment as *Open Space*. This designation provides for the enhancement and preservation of public and privately owned open, natural, and improved parks and recreational areas. Designated Open Space is found on the east side of I-5 between N Martin Luther King Jr. Boulevard and N Hayden Meadows Drive (Delta Park), and on the west side near the Expo

Center exit. The Open Space designation also borders the N Columbia Boulevard interchange at the southern end of the area of primary impact. Based on these facts, the Council concludes that the natural resources highlighted above are significant and afforded some protection under the acknowledged Portland Comprehensive Plan.

Fish and Wildlife Habitat. The Columbia River and North Portland Harbor are major aquatic resources in the Expo Center/Hayden Island segment and are recognized as significant natural resources for multiple values, including *fish and wildlife habitat*. Shorelines along both of these waterways have been substantially altered and now support limited natural vegetation. These aquatic resources could be directly affected by one or more of the following activities: 1) in-water construction work, 2) construction in or near riparian areas, 3) re-routing of stormwater drainage from roadways and bridges, and 4) permanent structures placed in or removed from waterways.

Historically, the project area was forested, with forested wetlands along the Oregon shoreline and on Hayden Island. The Oregon shoreline was part of a large floodplain wetland system and included many sloughs, back channels, and small or seasonal lakes. Urban development has substantially degraded historic habitat in all parts of the project area, particularly for land-based species. Exhibit 3-10 of the Ecosystems Report shows the amount of different habitat types within the project area. The largest area is comprised of open water, as this classification includes the portions of the Columbia River, North Portland Harbor and Columbia Slough within the project area, and stretches up and downstream from the existing I-5 bridges to account for hydroacoustic attenuation areas. Outside of open water, the project area is almost exclusively occupied by urban habitats. Less than 2 percent of the project area is classified as either wetland or forest habitat, with most of this occurring as small patches isolated from other natural areas.

As described in the Ecosystems Report, the Columbia River and its tributaries are the dominant aquatic system in the Pacific Northwest. In the project area, tides and upstream dams influence river height and flow rate. Because the project is within a heavily developed area, riparian habitat quality along the banks of the Columbia River is poor. Dikes and levees, particularly when reinforced with riprap or concrete, as is the case near the I-5 bridges, make poor quality riparian habitat. The river in this area offers pool and glide habitats for fish, though the water quality is limited for several pollutants. The I-5 bridges influence aquatic habitat conditions in the main channel and North Portland Harbor. Bridge piers in the river provide potential refuge from the current for both predatory fish and juvenile salmon.

The North Portland Harbor channel, on the south side of Hayden Island, supports several floating home communities and commercial and recreational moorages. Average depth in this channel is about 14 feet, with deeper water on the south side. The south shore supports active industrial uses. Piers and moorages line the shore, providing very low quality riparian habitat. Piers and floating homes provide shade and refuge for both predatory fish and juvenile salmon. With the exception of a few large cottonwoods along both shores of the harbor, ornamental plantings and weedy exotic species comprise most of the vegetative cover. Only the open water of the river, and to a lesser extent the harbor, provides much habitat value to

wildlife. A variety of resident and migratory waterfowl are expected on both waterways, as are small mammals such as nutria and river otter.

The Ecosystems Report contains detailed information on the status of protected species in the project corridor. Bald eagles use the Columbia River and environs to forage for fish and waterfowl, but no nesting or breeding sites are known within one mile of the project. Bald eagles were removed from the federal ESA list in August 2007, but are still listed as threatened under Oregon and Washington ESAs.

Peregrine falcons are known to be present in the project area, and utilize the existing I-5 bridge structures year-round. This species was removed from the federal ESA list in 1999 and from the Oregon ESA list in March 2007.

The project area is located in the Pacific flyway, the major north-south route for migratory birds that extends from Patagonia to Alaska. Many migratory birds use the area for resting, feeding, and breeding.

The Columbia River is an important passageway for anadromous fish species moving between the ocean and upstream spawning areas, and also provides significant habitat for resident fish species. The Columbia River and North Portland Harbor are known to support listed anadromous salmonids, including Chinook salmon, chum salmon, sockeye salmon, steelhead trout, and coho salmon, which use this habitat primarily for migration, holding, and rearing. Exhibit 3.9 of the Ecosystems Report summarizes the protected aquatic species known to use or potentially be using waterways in the project area.

The Council finds that the existing I-5 highway, bridges, and interchanges are located in a highly urbanized area. The combined effect of existing transportation facilities and development patterns results in adverse impacts to aquatic, riparian, and terrestrial habitats and the species that rely on them for survival. Existing fish and wildlife habitat impacts include the following: 1) Untreated stormwater runoff has degraded water quality, 2) Columbia River bridge piers provide a refuge for fish species that prey on juvenile salmon, and 3) the bridge and roadway alignment travels through locally and regionally designated habitats.

In general, the Council finds that the long-term effects to aquatic habitat would be consistent with current conditions with the continued presence of bridge piers in the Columbia River and a major transportation structure over the river. Compared with the No-Build Alternative, the Project has fewer bridge piers; however, the piers will be bigger than those currently in place, casting larger shadows and displacing some shallow water habitat.

The Council finds that effects to riparian habitat will be negligible in the Columbia River and North Portland Harbor, as there is very little functioning riparian vegetation in the main project area. About 35 acres within Portland's E-zones would be directly impacted by light rail and highway improvements in the Expo Center/Hayden Island segment. However, the additional acreage impacted should not adversely affect the overall function of terrestrial and riparian habitat or the long-term sustainability of plant and animal species in the project area.

The project improvements will mostly be constructed within existing rights-of-way or land already developed to urban densities, areas that generally provide poor quality fish and wildlife habitat. The project will revegetate disturbed shoreline areas, minimizing long-term effects to Columbia River riparian habitat. There will be no excavation or removal of trees from the Columbia Slough riparian area. Therefore, the project will have no effect on Columbia Slough riparian habitat.

Scenic and Open Space Areas. *Scenic and open space* resources recognized in the City of Portland's *Scenic Views, Sites and Drives Inventory*, *Scenic Resource Protection Plan* include the Marine Drive scenic corridor, the North Portland Harbor scenic corridor, the historic northbound I-5 truss and lift bridge, and the Columbia River scenic corridor. Additionally, the Columbia Slough has been defined as a scenic waterway by the City of Portland and could be considered a recreational resource.

The Council recognizes that highways and major transit facilities are highly visible public facilities that can noticeably affect the visual character of surrounding landscapes and the perception of visual resources. Such changes can be of keen interest to local residents and jurisdictions as well as to travelers using the facilities.

The Visual Report describes existing conditions and long-term effects to the viewsheds in the project corridor. A viewshed, or "landscape unit", is the portion of the landscape that can be seen from within the project area and that has views of the project area. The boundaries of a viewshed are determined by the surrounding topography, vegetation, and built environment. Two viewsheds are described for the Expo Center/Hayden Island Segment: 1) the Columbia Slough landscape unit, and 2) the Columbia River landscape unit.

Mixed industrial-commercial development, sports fields, and marinas define the visual character of the Columbia Slough landscape unit. Visual resources include the Columbia Slough Scenic Corridor, stands of mature trees, Vanport Wetlands (west of I-5), and views of the Tualatin Hills, Mount St. Helens, and the Washington Cascades. Viewer sensitivity in the Columbia Slough landscape unit is low for drivers and high for recreational users.

The river defines the visual character of the Columbia River landscape unit. Visual resources include the Columbia River and its shoreline and views of Mt. Hood and the Tualatin Hills. Viewer sensitivity and vividness in the Columbia River landscape unit is high.

The primary elements of the CRC Project that would affect visual quality and character are the new bridge structures across the North Portland Harbor and the Columbia River. Visual impacts to the North Portland Harbor scenic corridor would occur from the new light rail/vehicular/bicycle/pedestrian bridge between Hayden Island and Expo Center Drive. Visual impacts to the N Marine Drive and Columbia River scenic corridors would occur from:

- The greater heights and widths of the new structures across the Columbia River;
- The widening of the I-5 corridor due to the addition of auxiliary lanes along I-5;
- The new light rail/vehicular/bicycle/pedestrian bridge between Hayden Island and Expo Center Drive; and

- The wider or higher ramps for reconfigured interchanges at Marine Drive and Hayden Island.

This section of the N Marine Drive Scenic Corridor borders the North Portland Harbor, a narrow waterway dominated on the east by the large horizontal forms of I-5 and heavy industrial activities and busy roads along its south banks. Older, wooden and metal storage and other buildings rim the bank. Views from the south and north bank of the Harbor are blocked to the east by the I-5 bridge but focus on a cluster of small docks and houseboats nestled against the south shore of Hayden Island adjacent to the bridge. Views west down the harbor focus on the channel and on river-related commercial and industrial activities along both banks.

The new light rail/vehicular/bicycle/pedestrian bridge will cross under N Marine Drive and over the North Portland Harbor on an approximately 1000 foot structure constructed west of the existing I-5 bridge over the harbor. The LRT bridge would remove some houseboats and vegetation along both banks of the harbor. The bridge would also introduce a new overhead structure over the Marine Drive and North Portland Harbor scenic corridors. However, because the multi-modal bridge will closely parallel the existing I-5 bridge and is located in an intensively urban, industrial section of the scenic corridor, the Council finds that the project will not result in a significant adverse impact on either scenic corridor.

The reach of the Columbia River crossed by the I-5 bridges is flat, open water bordered by industrial, commercial, residential and undeveloped areas along its shoreline. The river is a significant regional resource and the dominant visual element within this segment because of its large scale and openness. The river also serves as a dramatic gateway between Oregon and Washington. The Visual Report concludes that the new bridge forms over the Columbia River and the resulting changes to views of (and from) the Columbia River would be mostly positive. Potential impacts would include:

- Removal of the visually complicated truss structures and lift towers of the existing I-5 bridges. This action would remove an obstruction of views from the higher deck and from the river. However, this action would remove an important contributor to the area's historic context (the I-5 bridges) and a character-defining aspect of interstate travel.
- From I-5, views of the Portland and Vancouver skylines, distant shorelines, rolling hills, and mountain profiles would generally improve. Toward I-5, views of open water and shorelines from shoreline-level and elevated viewpoints would also generally improve.

The Council finds that high-quality design and construction of the proposed transit and highway facilities will be important mitigation tools for visual quality and aesthetics associated with designated scenic and open space resources. The City of Portland and other stakeholders will continue to discuss the aesthetic attributes of the new bridge structures to best mitigate potential visual impacts and to create a noteworthy visual feature. The Council understands that design guidelines have been developed and will be used during the final design phases of the Project to guide decisions that impact visual character and quality. It

considers the design of the I-5 bridges to be a substantial visual mitigation opportunity for the Project. Appropriate conditions that are reasonable and necessary and do not prevent implementation of the LUFO can be imposed through the local review process to avoid or mitigate adverse impacts on designated scenic resources and viewpoints.

Riparian Areas. As described in the discussion of fish & wildlife habitat, the *riparian area* along the North Portland Harbor and the Columbia River has been significantly altered with development. Shorelines along both of these waterways now support limited natural vegetation. The project improvements will mostly be constructed within existing rights-of-way or on land already developed to urban densities, areas that generally provide poor quality fish and wildlife habitat. The project will revegetate disturbed shoreline areas, minimizing long-term effects to Columbia River riparian habitat. There will be no excavation or removal of trees from the Columbia Slough riparian area. Therefore, the project will have no adverse effect on Columbia Slough riparian habitat.

Wetland Areas. The Wetlands Report notes that there are large wetland systems east and west of the immediate project area in the Expo Center/Hayden Island segment, including the Vanport Wetland, Force Lake, Smith and Bybee Lakes, and West Hayden Island wetlands. Additionally, the Columbia Slough watershed has substantial wetlands and other water present within the urban matrix. Exhibit 3.6 identifies the following field-identified wetlands in the Expo Center/Hayden Island Segment: 1) Victory interchange wetlands, 2) Schmeer Slough, 3) Walker Slough, 4) Expo Road wetland, and 5) Vanport Wetlands. The wetland delineation report was submitted for concurrence to the Oregon Department of State Lands (DSL) in 2008 and DSL has concurred with the delineation (#WD 2008-0205). In addition to field-identified wetlands, a potentially jurisdictional water area is also identified in Exhibit 3-6 of the Wetlands Report (PJWA O). The CRC project has the possibility of encroaching upon the eastern edge of PJWA O, however, lacking permission from the property owner to enter the Vancouver Way property, neither the project team nor regulatory agencies can confirm the presence or absence of jurisdictional wetlands at this location.

Based on information in the Wetlands Report, the Council finds that the project footprint would not encroach upon any identified wetlands in the Expo Center/Hayden Island Segment. The new impervious surface will not discharge untreated stormwater runoff into the wetlands and the urbanized environment already negatively affects the wildlife activities that may be impacted.

Park and Recreational Areas and Willamette River Greenway. Designated *park and recreational areas* close to the proposed LRT and highway improvements in the Expo Center/Hayden Island segment include East Delta Park, the Marine Drive Multi-Use Trail and the proposed Bridgeton Multi-Use Trail. The project improvements are located outside of the boundaries of the *Willamette River Greenway*.

East Delta Park is a regional park located east of I-5 between N Denver and Martin Luther King Jr. Boulevard. East Delta Park encompasses about 85 acres and facilities include softball and soccer fields, control line flying field, sand volleyball courts, playground, and off-leash dog area on ODOT property. Approximately 0.4 acre of off-leash area associated with East

Delta Park, but located in ODOT right-of-way, would be permanently acquired for the project improvements.

The Marine Drive Multi-Use Trail is a designated *recreational trail* along N Marine Drive. The five-mile segment extending from I-5 west to Kelley Point Park connects to the Marine Drive interchange and North Portland Harbor bridges. The 40-Mile Loop is designated a significant recreational resource and is protected in the acknowledged City of Portland Comprehensive Plan. Project improvements in the Expo Center/Hayden Island segment would not require any use of the trail. Based on information included in the Parks and Recreation Report, the Council finds that improvements to the bicycle and pedestrian facilities would represent a large improvement over the circuitous paths that exist today within the loops and ramps of the Marine Drive interchange. New, wide multi-use paths beneath the Marine Drive Interchange would connect both sides of I-5 to the Expo Center light rail station, East Delta Park, the Marine Drive Multi-Use Trail, and the crossing over North Portland Harbor to Hayden Island. Additionally, the Council finds that the new improvements to bicycle and pedestrian facilities within the Marine Drive Interchange area could be connected to the proposed Bridgeton Trail sometime in the future.

Mitigation Options for Natural Resource Impacts in the Expo Center/Hayden Island Segments

The Council finds that the South/North Project will have no adverse impacts on park areas and designated recreational trails, riparian areas and identified wetland areas. Pedestrian and bicycle improvements in the vicinity of the Marine Drive interchange will substantially improve connections to the Marine Drive multi-use recreational trail.

The Council finds that the bridges across the North Portland Harbor will have an impact on the scenic and visual character of this segment. However, by locating the LRT bridges in close proximity to the existing and more dominant I-5 bridges, the Council concludes that visual impacts will be reduced. Additionally, by locating the LRT alignment to the west of I-5, views up the Columbia River from the I-5 bridges toward Mt. Hood are not affected.

Construction of the new LRT and highway bridges over the North Portland Harbor and the Columbia River could result in adverse impacts to wildlife habitat. Impacts to riparian habitat along North Portland Harbor would be limited to the loss of several relatively large cottonwood trees along the harbor shorelines. Since these trees occur in small, isolated stands surrounded by development, their loss would not adversely affect wildlife populations. Small, isolated stands of trees in an urbanized area afford relatively poor quality habitat due primarily to the lack of habitat diversity, lack of buffering from human activity and lack of movement corridors to other habitat areas.

Long-term impacts to fisheries include the removal of a small amount of channel bottom habitat due to construction of the bridge pier foundations. None of the bridge piers is expected to adversely modify critical habitat; however, elements such as cover, shelter, refuge, holding, or rearing might be adversely affected to a relatively small extent. No suitable spawning habitat, and limited rearing and holding habitat for juvenile salmonids, is present in the area of the bridge crossings. As a result of the analysis and findings presented in the *Biological Assessment for Threatened, Endangered, and Candidate Fish* and the approved Biological

Opinion, the Council concludes that, with implementation of a number of conservation measures, the South/North Project would not likely jeopardize populations of threatened or endangered fish species or adversely modify their critical habitat in the CRC project area. However, due to the extent of in-water work and the presence of many ESA-listed fish, it is acknowledged that adverse effects to individual fish and their critical habitat are likely to occur, but effects are avoided or minimized to the extent practicable. The Council notes that the National Marine Fisheries Service (NMFS) produced this finding in its Biological Opinion.

The Council finds that the following mitigation measures outlined for Threatened, Endangered, and Candidate Fish in the Expo Center/Hayden Island Segment are available to mitigate adverse impacts to the North Portland Harbor and the Columbia River and could be imposed as conditions of approval during the FEIS process and/or the local permitting process if reasonable and necessary:

- Implement erosion and sediment control measures to prevent sediment from entering surface waters.
- Time in-water construction activities based on discussions with NMFS and the Oregon Department of Fish and Wildlife, and take into consideration factors such as timing of fish migration and construction schedule and cost.
- Use of hydroacoustic attenuation measures to reduce impacts on the behavior of fish and sea lions.
- Conduct sediment sampling prior to construction of in-water bridge piers in order to determine the presence of and characterize potential contaminants.
- Limit the operation of equipment in the active river channel to the minimum necessary.
- Clean all equipment that is used for in-water work prior to entering the water.
- Do not store or transfer petroleum products within 150 feet of the active river channel, unless isolated within a hard zone with suitable containment measures in place.
- Assure the development and implementation of plans for the safe storage and containment of all hazardous materials used in project construction.
- Include measures in the plan for containment berms and/or detention basins, where appropriate.
- Develop a site-specific sediment control and erosion control plan prior to project implementation.

6.3.5 Criterion 7: Stormwater Runoff

“Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Stormwater runoff impacts specific to the Expo Center/Hayden Island segment are addressed in the following section. Stormwater impacts and mitigation measures are also described in the Water Quality and Hydrology Technical Report.

General Overview of Stormwater Runoff Impacts and Mitigation

The South/North Project intersects major rivers, minor watercourses and floodplains within the lower Columbia and Willamette River basins, including the Willamette and Columbia Rivers. Existing waterways in the South/North Project area receive large volumes of stormwater and surface runoff containing a variety of pollutants, including chemicals and nutrients from fertilizers and pesticides, roadway sediments, motor vehicles and other man-made or natural sources. Water quality in the corridor is typical of drainage basins with urban development.

Areas developed or under development increase the rate and volume of peak stormwater discharges. The peak runoff rate and volume of stormwater discharges usually increase when construction removes vegetation, compacts soils, and/or covers significant portions of a site with buildings or pavement. Typical problems associated with increases in peak discharge rates include higher flow velocities in streams, more erosion, and more frequent flooding. These problems degrade habitat areas, damage property, and require increased maintenance of culverts and stormwater facilities.

A range of federal laws, state statutes, and local and regional ordinances address hydrologic impacts from development. State and local regulations typically establish standards for controlling the peak rate of stormwater runoff. Regional standards, contained in Title 3 of Metro's *Urban Growth Management Functional Plan*, more broadly address flood mitigation, erosion and sediment control, and the protection of long term regional continuity and integrity of water quality and flood management areas. Federal National Flood Insurance Program criteria and Executive Order 11988 regulate development in flood prone and floodplain areas.

Potential sources of water quality degradation include pollutants from chemicals and nutrients from natural or man-made sources. Eroded sediments and other pollutants can be carried by stormwater to downstream receiving waters. Resulting water quality issues can impair the beneficial use of local waterways for recreation, wildlife habitat, and watering of livestock or other farm animals.

Water quality impacts are generally regulated by federal and state guidelines, usually through required water quality standards for receiving waters quality and limitations on the generation and release of urban pollutants.

Stormwater detention treatment facilities can be used to mitigate the effects of long-term and short-term hydrologic and water quality impacts changes. State and local regulations establish standards for detention stormwater treatment and other methods of stormwater control which can be applied as conditions of approval during local permitting proceedings. Mitigation for hydrologic and impacts is usually accomplished by reducing or attenuating peak runoff rates, by either detaining (store and release), retaining (store but do not release) through stormwater detention, or infiltrating runoff from a developed site. Stormwater detention provides water

quality benefits because storage promotes settlement of suspended sediments and other pollutants. Stormwater detention and water quality facilities are typically combined to use land more efficiently. "Dry" ponds, bioretention ponds, "wet" ponds, constructed treatment wetlands, retention ponds, biofiltration swales, biofiltration swales filter strips, underground vaults, bioslopes, and constructed wetlands dry wells are typically used stormwater treatment facilities. The Council finds that a range of measures are available and site-specific mitigation for hydrologic and water quality impacts will be refined and selected during the Final Design and local permitting processes.

All of these facilities detain stormwater by releasing runoff through a regulating structure, such as an orifice or weir. Stormwater detention provides water quality benefits because storage promotes settlement of suspended sediments and other pollutants. Stormwater detention and water quality facilities are typically combined to use land more efficiently.

Source control Best Management Practices (BMPs) are intended to mitigate pollutants generated through normal operation and use of buildings, roadways, and other urban facilities. The Council finds that water quality degradation resulting from erosion and sedimentation and the release of pollutants can be minimized through the use of BMPs during construction. Construction BMPs include use of barrier berms, silt fencing, temporary sediment detention basins, plastic covering for exposed ground, vegetative buffers (hay bales), and restricting clearing activities to dry weather periods to contain sediment on-site. Further requirements could include diapering of all dump trucks to avoid spillage, and cleaning of heavy equipment tires and trucks before they are allowed to drive off-site. A variety of special BMPs can also be used at crossings or adjacent to streams or watercourses during construction.

In general, the Council finds that water quantity and water quality and hydrology impacts created by the construction and operation of the CRC Project can be substantially mitigated by complying with the following: DEQ water quality standards; Army Corps of Engineers Section 404 permit regulations; Department of State Lands regulations for instream activities; NMFS conservation measures specified in the project Biological Opinion; Metro Title 3 regional standards; and City of Portland erosion control and stormwater regulations. These rules and regulations outline Best Management Practices to prevent or limit pollutants from entering surface waters through urban drainage systems. These types of measures could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the local permitting process.

Stormwater Runoff Impacts and Mitigation Options with the Expo Center/Hayden Island Segment

Within the Expo Center/Hayden Island segment, specific water bodies include the Columbia Slough, the Columbia River and North Portland Harbor. As described in the Water Quality and Hydrology Report, the Columbia Slough is a slow-moving, low-gradient drainage channel running nearly 19 miles from Fairview Lake in the east to the Willamette River in the west. Water levels are managed with pumps, weirs, and levees. The levee system protects most of the floodplain in the vicinity of I-5 against flooding. Within the project area, the Columbia Slough is currently on Oregon's 303(d) list because it does not meet water quality standards for four parameters.

The I-5 crossing of the Columbia Slough is in a highly urbanized area. Riparian habitat along the slough has largely been replaced by buildings and paved surfaces compared to historic conditions. Riparian areas along the Slough are generally not adequate to provide shade, bank stabilization, sediment control, pollution control, or stream flow moderation. Within the project area, I-5 is elevated on embankments or structures and, in general, the highway drainage systems do not handle runoff from outside the right-of-way.

I-5 crosses the Columbia River near river mile 106.5. North Portland Harbor, the portion of the Columbia River running south of Hayden Island, lies within the project area. Runoff from I-5 on Hayden Island drains directly into the Columbia River and North Portland Harbor. The east portion of Hayden Island is highly developed, with large hotels, a shopping center, residential communities, and other commercial activities. The western portion of the island is undeveloped and is comprised of pasture, woods, and wetland areas. Within the project area, the Columbia River is currently on Oregon's 303(d) list because it does not meet water quality standards for six parameters. DEQ does not differentiate between the North Portland Harbor and the Columbia River when compiling the 303(d) list.

Project data show four outfalls that drain to the Columbia River/North Portland Harbor within the project area. On Hayden Island, runoff from I-5 discharges directly to the Columbia River through roadside grates located along the entire span. Runoff from the bridge is not treated prior to release to the river.

As summarized in the Water Quality and Hydrology Report, the differences in long-term effects on water quality between the Columbia River Crossing Project and the No-Build Alternative are substantial. Although the Project would increase the total amount of pollutant generating impervious surfaces in the Columbia Slough Watershed and the Columbia River Watershed, the amount of untreated impervious surface would drop dramatically compared to existing conditions and the No-Build Alternative. This is because, with the Project, stormwater runoff from the entire Contributing Impervious Area (CIA) would be treated, while stormwater runoff from most of the existing impervious surfaces does not currently undergo stormwater treatment.

Based on the information contained in the Water Quality and Hydrology Report, the Council concludes that no adverse hydrologic or water quality impacts are expected in the Expo Center/Hayden Island Segment. It finds that the Project would increase overall impervious surfaces by about 28 acres, which could result in increased stormwater runoff rates and volumes and increase the amount of pollutants in stormwater. Without mitigation, this would affect the hydrology of project waterways. However, the Columbia Slough and the Columbia River are large water bodies and the project-related increase in stormwater volume would not result in a measurable increase of flows in these surface waters. Additionally, stormwater treatment design for the project corridor includes a number of stormwater treatment and/or infiltration facilities to reduce pollutants (including sediments and metals). Therefore, although the impervious surface area will increase by about 28 acres, untreated pollution generating surface area would be reduced from 219 acres to 0 acres.

The Council finds that, as described in the Water Quality and Hydrology Report, the Project will provide treatment not only for the new impervious area, but also for runoff from existing impervious surface area that does not currently receive treatment. The Council concludes that the project will provide treatment of approximately nine times the area of additional impervious surface being added as part of the Project and will result in overall positive effects to the water quality and hydrology of receiving waters. Stormwater runoff would be treated in compliance with current standards before being discharged to project area water features.

The Council recognizes that specific and detailed mitigation erosion control and water quality measures will be required for the construction of the LRT facilities and highway improvements in the Expo Center/Hayden Island segment. The project team has prepared a draft stormwater management design in order to evaluate general feasibility and water quality effects associated with the Project. For the portion of the CRC Project in Oregon, the draft was prepared to meet the stormwater management requirements of ODOT and the City of Portland. The draft design includes gravity pipe drainage systems that would collect and convey runoff from the new bridges, transit guideway, and road improvements. Stormwater treatment facilities would reduce total suspended solids (TSS), particulates, and dissolved metals to the maximum feasible extent before runoff reaches surface waters.

The following stormwater treatment devices are included in the draft stormwater management design:

- Bioretention ponds – 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 – shallow, permanent, vegetated ponds that function like natural wetlands. They remove pollutants through such means as sedimentation, microbial activity, and uptake by plants.
- Soil-amended biofiltration swales – channels with mild slopes and shallow depths of flow. The channels are dry between storm events and they treat runoff by filtration as runoff flows through the vegetated surface and amended soils.
- Soil-amended filter strips – similar to grass swales, filter strips are intended to treat sheet runoff from an adjacent roadway surface.
- Bioslopes – like filter strips, are intended to treat sheet runoff from an adjacent roadway surface. The percolating runoff flows through a special mixture of materials, which promotes the absorption of pollutants.

Based on the draft stormwater management design, the Council finds that a range of measures are available to mitigate stormwater impacts and site-specific mitigation for stormwater quantity and quality impacts associated with the LRT and highway improvements, including the bridge construction across the North Portland Harbor and the Columbia River. These measures will be refined and selected during the FEIS and local permitting processes.

6.3.6 Criterion 8: Historic and Cultural Resources

“Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts

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cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.”

Historic and cultural resource impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section following a more general discussion of historic and cultural resource impacts and mitigation. Historic and cultural resource impacts and mitigation measures are also described in the Historic Built Environment Technical Report (Historic Report), and the Archaeology Technical Report (Archaeology Report).

General Overview of Historic and Cultural Resource Impacts

Section 106 of the National Historic Preservation Act of 1966, as amended, and Executive Order 11593 require that a federal agency consider the effect of a federally assisted project on any historic district, sites, buildings, structures, objects or any archaeological sites listed in or eligible for inclusion in the National Register of Historic Places (NRHP).

Throughout earlier phases of the Columbia River Crossing Project, as with previously approved segments of the South/North Project, alternatives and options have been developed, evaluated, narrowed and refined. A significant objective in the narrowing and refinement of alternatives and options has been to avoid where practicable, or to minimize where avoidance is impracticable, potential impacts to historic and cultural resources. During preliminary and final engineering, further design work will be completed that would further attempt to avoid, minimize and/or mitigate adverse impacts to historic and cultural resources. Under federal procedures, the resulting impact analyses and commitment to feasible mitigation measures will be completed in coordination with the Oregon State Historic Preservation Officer (SHPO) and the Advisory Council for Historic Preservation (ACHP). A Memorandum of Agreement between FTA, FHWA, SHPO and ACHP and others will be executed to define how the Project will mitigate adverse effects to historic and cultural resources.

Project staff, in consultation with Oregon's SHPO, made a determination of the “area of potential effect” for that portion of the CRC Project within Oregon. The criteria of effect and criteria of adverse effect as set forth in the National Historic Preservation Act are highlighted below. The Council agrees with and adopts these criteria for purposes of measuring compliance with Criterion 8.

An undertaking has *an effect* on an historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the *National Register*. For the purpose of determining effect, alteration to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.

An undertaking is considered to have an *adverse effect* when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association. Adverse effects on historic properties include, but are not limited to:

- Physical destruction, damage, or alteration of all or part of the property;

- Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the *National Register*;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, lease or sale of the property.

The Historic Report includes an analysis of historic resources and historic districts within the Expo Center/Hayden Island segment to determine the National Register of Historic Places status. It also assesses short and long-term impacts of the Project on historic, cultural and archeological resources. The Council accepts the methodology for determining "adverse effect" established in the Historic Report, and it adopts and incorporates by reference herein the facts and conclusions set forth in that document.

The City of Portland has completed an inventory of cultural resources and designated significant resource sites in its comprehensive plan. Some resources, which are inventoried in the local comprehensive plans under LCDC Goal 5, are not necessarily defined as "significant" through the NEPA process. Conversely, the federal environmental documents include discussion of some resources that are not inventoried or protected in Portland's plan. Criterion 8 only requires identification of adverse impacts on significant historic and cultural resources *protected* in acknowledged comprehensive plans.

General Discussion of Historic and Cultural Resource Mitigation Measures

The Historic Report outlines general measures to avoid, minimize or mitigate for long-term impacts and short-term construction impacts. It also includes a more specific discussion of mitigation measures for resources that may be adversely affected by the CRC Project. The Council finds the following to be examples of avoidance, minimization and mitigation options:

1. Demolition of resources could be minimized in some instances through refinement in the design of the Project in a specific area.
2. Demolition could also be avoided through relocating the resource.
3. If these options are not feasible, recordation and salvage of the resource could mitigate for its loss.
4. Loss of access or isolation of resources could be minimized through design treatments such as creation of alternative access points, more visible signage, or traffic control to facilitate accessibility.
5. Noise and vibration impacts to resources could be minimized through design treatments and vibration suppression.
6. Visual impacts could be mitigated through enhanced design treatments. Station and shelter design, construction materials, and street improvements could be chosen to complement existing building and street settings. Stations could be moved to avoid

placement in front of historic resources. Where possible, overhead wiring could be attached to existing support structures.

7. Areas with a high probability of archaeological resources have been identified. A professional archaeologist would be on site to monitor construction activities in these specified areas.

The Council finds that the discussion of general mitigation measures included within the Historic Report provides a good base for more detailed mitigation commitments in the FEIS.

Federal, State and Local Review Processes to Reduce Resource Impacts

Federal and State Processes

Section 106 of the National Historic Preservation Act of 1966, described above, defines the federal review process designed to ensure that historic properties are considered during federal project planning and execution. The process is administered by the ACHP and coordinated at the state level by the SHPO. An agency must afford the ACHP a reasonable opportunity to comment on the agency's project. Section 106 requires that every federal agency take into account how each of its undertakings could affect historic properties.

For the purposes of Section 106, any property listed in or eligible for listing in the National Register of Historic Places is considered historic. The process has five steps as follows: 1) identify and evaluate historic properties; 2) assess effects of the project on historic properties; 3) if an adverse effect would occur, then consultation with the SHPO and other interested parties would occur, and if necessary, a Memorandum of Agreement would be developed which defines what will be done to reduce, avoid or mitigate the adverse effects; 4) ACHP comment; and 5) proceed with the project, incorporating the mitigation in the Memorandum of Understanding.

At the state level, the historic preservation process is defined in ORS Chapter 358 and in the Land Conservation and Development Commission's Goal 5. The state process is implemented by the local jurisdictions through the adoption of historic preservation identification and protection plans in their individual comprehensive plans. The state process limits local preservation options. Under current law, local protection of historic properties requires owner consent. However, local governments may preserve properties listed on the National Register. Within the City of Portland, demolition must be reviewed and may be denied.

State law in ORS Chapter 358 and LCDC's Goal 5 rule, OAR 660-023-0200, encourage the preservation, management, and enhancement of structures of historic significance. It authorizes local governments to adopt or amend lists of significant historic resource sites. However, owners of inventoried historic resources must be notified and may refuse local historic resource designation at any time prior to adoption of the designation. No property may be included on the local list of significant historic resources where the owner objects. Moreover, a property owner may remove from the property a local historic property designation that was imposed by the local government.

OAR 660-023-0200(7) encourages local governments to adopt historic preservation regulations regarding the demolition, removal or major exterior alteration of all designated historic resources. It encourages consistency of such regulations with the standards and guidelines recommended in the Standards and Guidelines for Archaeology and Historic Preservation published by the US Secretary of the Interior. Further, OAR 660-023-0200(9) prohibits local governments from issuing permits for demolition or modification of an inventoried significant historic resource for at least 120 days from the date a property owner requests removal of historic resource designation from the property. It requires that local governments protect properties that are listed on the National Register, including demolition review and design review.

Local Process

The City of Portland has a local process in place to address alteration or demolition of historic and cultural resources that are identified as significant and protected in local comprehensive plans. This process could be applied to address and to reduce adverse impacts to affected historic and cultural resources.

As described below, certain protected historic resources in the City of Portland would be adversely affected. City review processes to address and to reduce adverse impacts to such resources are provided in the City's Zoning Code at Chapter 33.445, Historic Resources Protection, and Chapter 33.846, Historic Reviews.

Under these chapters, two levels of historic resource designation are created: Historic Landmarks and Conservation Landmarks. The Historic Landmark designation offers the highest level of protection for resources of citywide significance. Resources in this designation have access to incentives for historic preservation, including transfer of development rights and the right to a more flexible range of uses (such as multi-family use in a single family zone; reuse of institutional and business buildings in residential zones for commercial or institutional purposes; and streamlined review procedures). However, owners doing projects that utilize incentives must consent to designation and agree not to demolish or modify the building without City approval.

Conservation Landmarks are available for resources whose significance is local rather than citywide. Although part of the city's inventory, these sites generally are not qualified to be Historic Landmarks.

The City has the option to deny demolition only for those resources designated as landmarks that have taken advantage of one or more of the preservation incentives offered by the code or are listed on the National Register. A condition for use of the incentives is the owners entering into a covenant with the city agreeing not to modify or demolish the resource without city approval. Also, demolition delays have been adjusted to meet the requirements of state law. The delay period is 90 days for Conservation Landmarks and 180 days for Historic Landmarks and resources in the Historic Resources Inventory. These delay periods start the day an application for demolition is received by the city.

Identified Significant and Protected Historic and Cultural Resources in the Expo Center/Hayden Island Segment

The Historic Report and the Portland Comprehensive Plan identify three significant and protected historic resources in the Expo Center/Hayden Island Segment.

- The northbound structure of the I-5 bridge (built in 1917); listed in the National Register of Historic Places (NRHP) in 1982.
- The carousel located at the Jantzen Beach Shopping Center; listed in the National Register of Historic Places.
- The Columbia Slough and Levee System as contributing elements of the Columbia Slough Drainage Districts Historic District. The State Historic Preservation Office determined this resource eligible in 2005.

Additionally, the 1960 Pier 99 commercial building has been determined to be NRHP-eligible for two reasons: (1) it is a good example of a Mid-Century Modern Commercial building designed and constructed in the “Googie” style; and (2) it was designed by Oregon architect John Storrs, whose innovative designs were an important contribution to the Northwest Regional style of architecture. However, the Pier 99 commercial building is not currently identified as a significant and protected resource in the Portland Comprehensive Plan.

The Archaeology Report states that no archaeological resources have previously been recorded within the Columbia River Crossing area of potential effect on the Oregon shore. The high degree of commercial development, along with a century of roadway construction and improvement within the area of potential effect, contributes to a low potential for historical archaeological features and deposits on the Oregon shore. Although the City of Portland Comprehensive Plan does not specifically identify and protect archeological resources, federal regulations, particularly Section 106 of the National Historic Preservation Act (NHPA), are applicable to such resources through the federal NEPA process.

Mitigation Options for Identified Historic and Cultural Resource Impacts in the Expo Center/Hayden Island Segment

Property acquisitions and physical changes are the primary source of long-term and direct effects to known and potential historic resources. Based on the findings in the Historic Report, the Council concludes that the CRC project will require the removal of the northbound bridge, which is included in the National Register of Historic Places and considered a significant resource in the Portland Comprehensive Plan. This northbound bridge structure has been a critical part of the transportation system and historic landscape for both Oregon and Washington since 1917.

The Council finds that a Memorandum of Agreement (MOA) to implement Section 106 of the National Historic Preservation Act will dictate the mitigation of effects to historic properties. Mitigation measures for the I-5 bridge are summarized below.

The Washington Department of Transportation (WSDOT) and ODOT would ensure that all efforts will be attempted to find an alternative use through a bridge marketing plan, including separating and relocating individual spans if relocation of the bridge in its entirety is not feasible. If it is not feasible to pursue moving and relocating the structure for adaptive reuse, documentation may be updated, including applicable photography and drawings. If appropriate, decorative or interpretive structural elements would be offered to local historical societies/museums or other interested parties. As the bridge is a critical component of the regional historic landscape, contributions would be made to interpretive programs and small projects which will result in documentation, waysides, exhibits, or other means of communicating the structure's history and meaning to the general public.

Based on the findings in the Historic Report, the Council concludes that the Columbia River Crossing project would have no adverse effects on the carousel located at the Jantzen Beach Shopping Center.

The project has an effect on the NRHP-eligible Columbia Slough Drainage Districts Historic District, but that effect is "not adverse." The Oregon Slough Levee is part of an extensive, historic system of engineered improvements to the area's drainage. A small portion of the levee, approximately 330 linear feet extending east of I-5, would need to be demolished and rebuilt in order to accommodate the ground improvements needed to stabilize soils below the I-5 ramps and bridges. There would also be modest modifications made to portions of two additional contributing properties: the North Denver Avenue Cross Levee and Union Avenue/Martin Luther King Fill/Cross Levee. Although localized alterations to contributing elements would occur, the integrity of each of the levees, as well as the overall system, would be maintained.

The Pier 99 Building would be displaced due to the construction of a ramp on I-5 between Marine Drive and Hayden Island. This would be an adverse effect. Although this building is not identified as significant or protected by the Portland Comprehensive Plan, it is identified as an NRHP-eligible structure. There is little likelihood that the structure can be relocated given the structural design and condition of the building. Documentation, including applicable photography and drawings, will be sought. If appropriate, decorative or interpretive building elements would be offered to local historical societies and museums.

Based on information in the Archaeology Report, the Council finds that long-term curation of any artifacts or samples recovered during archaeological investigations or during construction of the project will be determined in consultation with agencies, property owners, and appropriate tribes. Long-term curation of recovered materials is an essential element of archaeological investigations and is required as part of federal and state permitting processes.

6.4 Ruby Junction Maintenance Facility Findings and Mitigation Measures

As indicated in Section 2.3 of these findings, the Council authorized the modification and expansion of the previously approved Ruby Junction Maintenance Facility in 2008 to accommodate additional light rail vehicles associated with the Portland to Milwaukie Project. In its 2008 LUFO findings supporting that action, the Council noted: “The Ruby Junction expansion also is expected to serve additional light rail vehicles needed for future LRT expansion to Vancouver, Washington and potentially Oregon City.”¹⁹ Accordingly, the 2008 LUFO was approved with the expectation that the Ruby Junction Maintenance Facility would at some future time serve light rail vehicles associated with the CRC Project. With this 2011 LUFO, that expectation becomes a reality. As implied in the 2008 LUFO findings, the Council finds that such use can be fully accommodated within the location boundaries established in the 2008 LUFO.

Section 6.5 of the 2008 LUFO findings identified the impacts relevant to LCDC Criteria 3-8 that were expected to occur at the Ruby Junction Maintenance Facility as a consequence of expansion of that facility within the newly established location boundaries. Because all activity associated with the CRC Project will occur within the 2008 boundaries, the Council finds that additional impacts beyond those identified in the 2008 LUFO findings are not likely. The Council finds that increased light rail activity within the previously established boundaries will not result in any additional displacements or adverse economic, social or traffic impacts beyond those contemplated in 2008. For reasons stated in the 2008 findings, it also finds that use of the facility by light rail vehicles serving the CRC Project will not increase noise in the vicinity of the facility or alter its findings with respect to natural hazards, natural resources, stormwater runoff or historic or cultural resources. The Council continues to adhere to those 2008 findings, which it incorporates herein by this reference.

¹⁹ 2008 LUFO Findings of Fact and Conclusions of Law at page 91.

7.0 Compliance with Substantive Criteria (3-8) Short Term (Construction) Impacts

7.1 Introduction

This section summarizes the short-term impacts associated with construction of the light rail and highway improvements in the Expo Center/Hayden Island Segment. The primary objectives of including short-term, construction impacts in the LUFO findings are to:

- Identify the location, importance and duration of potential, major construction impacts; and
- Identify potential mitigation measures (in general terms) for major impacts.

Linear projects such as light rail transit are typically divided into various segments or line sections for construction of the trackway, structures, stations and related work. In sections where the track is located within a separate right-of-way, extensive clearing and grading may be required. During the grading phase, culverts and other permanent drainage structures will be installed. Underground utility services may be relocated during the grading phase to avoid interference with light rail construction.

Following the grading and preliminary site work, installation of light rail utility duct banks, catenary pole foundations, platform foundations, and major structures such as bridges will begin. Bridgework will be accompanied by foundation construction that may involve pile driving or other specialized operations. Other activity outside the trackway also may occur during this period, such as construction or relocation of roadways and construction of traction power substations and signal buildings.

The next construction phase involves the installation of track work, catenary poles, catenary wire, signals, communications cables and other system-wide elements. Once all elements of the LRT system are complete, integrated testing and start-up will begin.

For both the light rail transit and highway improvements, construction of the bridges over the Columbia River will be the most substantial element of the Project, and this element sets the sequencing for the other Project components. The main river crossing and immediately adjacent highway improvement elements would account for the majority of the construction activity necessary to complete the Project. Construction of the I-5 Columbia River bridges is expected to last approximately four years. The general sequencing of constructing the bridges would likely entail the following steps:

- Initial preparation – mobilize construction materials, heavy equipment and crews; prepare staging areas; install temporary piles to support work and anchor barge platforms
- Installation of drilled shafts – install drilled shafts to support the bridge pier columns
- Shaft caps – construct and anchor concrete foundations on top of the drilled shafts to support column piers

- Pier columns – construct or install pier columns on the shaft caps
- Bridge superstructure – build or install the horizontal structure of the bridge spans across the piers; the superstructure would be steel or reinforced concrete; concrete could be cast-in-place or precast off-site and assembled on-site.

Interchanges on each end of the bridge would first be partially constructed so that all I-5 traffic could be temporarily rerouted onto the new southbound (western) Columbia River bridge. Constructing the southbound approaches for the Hayden Island interchange (and SR 14 interchange in Washington) would require approximately 3 years. Certain portions of the Hayden Island interchange (and SR 14 interchange) must be completed before traffic can be moved onto the new southbound lanes and construction of the remaining northbound lanes and interchange ramps can proceed. Once I-5 traffic in both directions is rerouted to the new western I-5 bridge, the new northbound segments of the Hayden Island interchange (and SR 14 interchange) would be constructed.

The Marine Drive interchange construction would need to be coordinated with construction of the southbound lanes coming from Vancouver. While this interchange can be constructed independently from the work described above, the completion and utilization of the ramp system between Hayden Island and Marine Drive requires the work to occur in the same period.

Constructing the Project would entail many different activities, some of which would disrupt traffic. Typical construction methods would require shifting I-5 traffic onto temporary alignments, narrowing lanes and shoulders to accommodate equipment and workers, shortening merge and exit distances, reducing posted speed limits, and closing or detouring some traffic movements. For I-5, it is anticipated that three southbound and three northbound lanes would be maintained during all weekdays, except when the final changeover occurs between the old bridges and the new bridges. Local streets and driveway accesses may be closed temporarily and traffic detoured. All parcels impacted by temporary access closures or detours will have alternate access routes.

The following summarizes the types of activities anticipated to construct the CRC project:

- Over-water bridge construction. This work would include the steps outlined above.
- Over-water bridge demolition of the existing I-5 bridges. The components of the existing I-5 bridges would be dismantled and removed. The main components include the bridge decks, the counterweights for the lift span, towers, decks trusses, piers and piles.
- Highway and over-land bridge construction. The reconstruction of mainline I-5 and associated interchanges and local roads would involve a sequence of activities that would be repeated several times, including on-land bridge and retaining wall construction, the excavation of embankments, and laying the pavement driving surface.

Construction would require staging areas to store construction material, to load and unload trucks, and for other construction support activities. The existing I-5 right-of-way would

likely accommodate most of the common construction staging requirements. However, some construction staging would likely be needed outside the existing right-of-way, and temporary property easements from adjacent or nearby property owners may be required.

7.2 Short Term Construction Impacts and Mitigation Measures

7.2.1 Criterion 3: Neighborhood Impacts

“Identify adverse economic, social and traffic impacts on affected residential, commercial and industrial neighborhoods and mixed use centers. Identify measures to reduce those impacts which could be imposed as conditions of approval during the National Environmental Policy Act (NEPA) process or, if reasonable and necessary, by affected local governments during the local permitting process.”

- “A. Provide for a light rail route and light rail stations, park-and-ride lots and vehicle maintenance facilities, including their locations, balancing (1) the need for light rail proximity and service to present or planned residential, employment and recreational areas that are capable of enhancing transit ridership; (2) the likely contribution of light rail proximity and service to the development of an efficient and compact urban form; and (3) the need to protect affected neighborhoods from the identified adverse impacts.”**
- “B. Provide for associated highway improvements, including their locations, balancing (1) the need to improve the highway system with (2) the need to protect affected neighborhoods from the identified adverse impacts.”**

The Columbia River Crossing Project will result in adverse short-term economic, social and traffic impacts through disruptions to existing land uses. However, these impacts will be temporary in duration and should end when the construction activities are completed. Construction of light rail facilities and highway improvements will adversely impact local economic and social interests located adjacent to or nearby construction or staging areas by interfering with residences and businesses, disrupting traffic and pedestrian movement, displacing parking, altering accesses, and causing noise, vibrations, dust, congestion, increased truck traffic near residences and businesses, and visual impacts. Rerouting, detours and lane closures will create temporary additional traffic through neighborhoods, with associated noise, dust and congestion. Construction machinery, trucks, and general construction activities will be temporary negative visual features of the project. Businesses that would be likely to feel the greatest impact are those that would experience the longest construction periods, those that have many other convenient competitors and those that are most dependent upon convenient access.

Economic and Social Impacts

Throughout the Expo Center/Hayden Island segment, construction will have short-term and temporary impacts to businesses and neighborhoods of the nature described above. During the FIES and preliminary engineering phase, specific mitigation plans will be developed to address short-term economic and social impacts to businesses and residences. These measures will include maintaining access to existing uses and providing screening to minimize dust and visual impacts. Wherever possible, the Project will provide alternative access and ensure that access is maintained to all properties during construction. Businesses that require access at all times and generate many trips (e.g., delivery services, drive-ins) may be inconvenienced. Utility services also may be interrupted as a result of construction. In the event that access or utility service to a residence or businesses would be temporarily disrupted, advance notice would be provided and the length of the disruption would be minimized to the extent practical.

Temporary construction impacts on neighborhoods could result from increased traffic congestion, truck traffic, noise, vibration and dust. Temporary street closures, traffic reroutes and detours could increase traffic within neighborhoods and impede access to community facilities. These short-term impacts include partial closures of streets, temporary rerouting or relocation of driveways, noise impacts from pile driving and bridge pier construction, and impaired access for elderly and mobility-impaired residents.

For neighborhoods affected by construction, the Council finds that TriMet and ODOT can work with neighborhood representatives to identify issues of concern and potential mitigation measures. Potential mitigation measures for short-term impacts include:

- Developing construction management plans for incorporation into contracts following close coordination with neighborhood and business associations and with representatives of public facilities/utilities located adjacent to the alignment/corridor
- Providing on-going coordination during construction to keep affected neighborhood and business area representatives informed about the schedule and location of construction work and anticipated modifications to access
- Limiting construction hours for certain activities in sensitive areas
- Providing fencing around construction and staging areas

Construction activities also could reduce accessibility to police, fire departments and other public safety and emergency service providers. Construction activities will, at times, impede the movement of emergency vehicles by temporarily narrowing or reducing the number of travel lanes or by detouring traffic and road segment closures. To ensure the most effective, continuous access to construction site vicinity uses for public safety and emergency service providers, the Council finds that the following measures could be employed:

- Develop construction management plans, for incorporation into construction contracts, in close coordination with affected police and fire departments and other emergency service providers

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- Involve emergency service providers in planning for traffic management during construction in order to identify alternate emergency routes in advance of construction
- Maintain regular coordination with emergency service providers during construction to give them advance notice of when, where and for how long traffic capacity constraints on streets will be employed, and to plan for how local emergency access will be maintained

In summary, the Council finds that numerous measures are potentially available to mitigate impacts to businesses and neighborhoods. Potential mitigation measures beyond those listed above include:

- Management of construction activities to reduce dust, noise and vibration
- Fencing and buffering to reduce construction impacts in sensitive areas
- Use of berms, hay bales, plastic sheeting and other similar measures to reduce surface erosion and runoff into water bodies and storm sewers
- Provision of temporary alternative parking and pedestrian access

Traffic Impacts

Construction of the LRT and highway improvements in the Expo Center/Hayden Island segment would result in temporary impacts to local and regional traffic operations. These impacts would include increased congestion on several major traffic facilities in the corridor including I-5 and, potentially I-205, impacts resulting from traffic relocations or detours, full or partial street closures, and increased truck traffic associated with construction activity. Impacts could also result from the intrusion of non-local traffic into residential areas as a result of temporary street closures and traffic detours, disruptions to vehicular and pedestrian access to businesses and community services, and the temporary loss of on- or off-street parking.

A major element of the Project would be construction of new bridges over North Portland Harbor and the Columbia River to accommodate vehicular, light rail, and non-motorized traffic coupled with a partial or complete reconstruction of I-5 from south of the Victory Boulevard Interchange to the new bridges. Complete reconstruction of freeway interchanges at N Marine Drive and Hayden Island would be included. Another major element of the Project would be construction of the light rail station on Hayden Island. High levels of truck traffic are anticipated in connection with earthwork and the delivery of materials at the bridge crossings, freeway mainline segments, and interchanges. Several construction staging areas would be needed.

Construction in the vicinity of Marine Drive is expected to include partial closure of this street and/or development of detour routing to accommodate vehicular traffic, particularly trucks moving between the freeway and the Columbia Corridor and Rivergate industrial areas. Temporary access may need to be provided to Delta Park and the residential/business areas on the east side of the freeway and to the Expo Center on the west side. Existing transit, bicycle,

and pedestrian connections must also be maintained, including access to the Expo Center light rail station and the 40-mile loop trail.

Construction activities on Hayden Island include reconstruction of the existing I-5 interchange, including the development of a collector-distributor system of auxiliary freeway lanes, modifications to local traffic circulation, and a new light rail station and trackage. Temporary access routes to and from I-5 would need to be maintained to ensure continual multimodal access to the island for residents and businesses, as well as connections on the island between areas to the east and west of the freeway. A high level of truck activity associated with the freeway, bridge, ramp and construction of local facilities is anticipated on Hayden Island.

Transit impacts during construction could include service delays, relocation or temporary elimination of bus stops, street detours, and deterioration in reliability for bus routes using certain roadways and facilities within the corridor. Short-term construction would impact bus operations along I-5 and on Hayden Island.

Mitigation Strategies for Construction Impacts to Traffic, Transit and Bike and Pedestrian Mobility

As highlighted above, short-term construction impacts will likely take the form of roadway closures, detours and/or lane reductions, increased truck traffic, pedestrian access restrictions and local access restrictions. Mitigation measures for construction impacts to traffic and highways could include a variety of activities, ranging from scheduling construction activities to minimize conflicts during peak travel periods to using alternative construction techniques or equipment. The Council finds that measures to mitigate the short-term traffic impacts in the Expo Center/Hayden Island Segment could include, but are not limited to, the following:

- Work with appropriate jurisdictions to obtain approval of traffic control plans.
- Develop and implement a transportation management plan with affected businesses and community interests. This plan would address a variety of traffic, transit, and alternative mode strategies to minimize the transportation impacts of project construction. The plan would also identify detour routes where necessary to maintain traffic movement. This would be particularly important during construction of the Marine Drive interchange that serves the Port of Portland.
- Wherever possible or practical, limit or concentrate work areas to minimize disruptions to vehicular traffic and bus and pedestrian circulation, as well as to business access.
- Identify, provide and/or advertise temporary parking locations to replace parking temporarily displaced by construction.
- As appropriate, develop and implement functional and reasonable alternative construction techniques to minimize traffic impacts. These techniques might include activities such as limiting construction to non-daylight hours in certain locations. Use of two or three shifts per day to reduce construction time could be implemented in

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critical traffic areas, subject to development of adequate traffic control plans, noise control measures, and budget and schedule allowances.

The Council also finds that TriMet has years of experience helping communities and small businesses overcome the challenges of transit construction activities. Light rail guideway construction may require rerouting the buses on Hayden Island. Minor rerouting of buses would be necessary as new ramps and access points are opened at the Hayden Island interchange.

TriMet and other organizations could conduct a large communications campaign to inform the public about transit changes. The temporary routing, potential for more crowded buses and slower travel times can be communicated through TV, radio, web site, newspaper or other multimedia instruments to broadcast rider alerts to potential impacted customers.

Keeping businesses open and accessible during light rail construction in the Expo Center/Hayden Island segment would be a top priority. During previous light rail transit construction projects, TriMet has taken steps to keep construction disruption to a minimum while maintaining access to businesses, and responded rapidly to concerns and potential issues.

Measures to minimize construction impacts to bicycle and pedestrian mobility through the project areas will also be implemented during construction. Such measures could include:

- Coordination with local jurisdictions and bicycle and pedestrian advocacy groups to disseminate information about construction activities and associated temporary closures and detours near construction zones.
- Temporary enclosures to maximize the safety of bicyclists and pedestrians traveling beneath structures under construction.
- Additional signage and/or lighting along popular bicycle and pedestrian routes that may experience an increase in vehicle traffic due to traffic detours.
- Traffic calming measures in work zones to improve safety for bicyclists, or alternate routes on parallel streets where convenient and effective.

The Council finds that while tolling of I-5 during construction is permissible under federal statutes, no recommendations or decisions about tolling during construction have yet been made. Tolling during construction could serve as a demand reduction measure to reduce traffic during the construction phase. The Council finds that the Oregon and Washington Transportation Commissions will make decisions on this issue following consultation with the Project's local partners and a public outreach and education process.

Criterion 4: Noise Impacts

"Identify adverse noise impacts and identify measures to reduce noise impacts which could be imposed as conditions of approval during the

NEPA process or, if reasonable and necessary, by affected local governments during the permitting process.”

As with any large project, construction of light rail and highway improvements and bridges involves the use of heavy equipment and machinery that result in intense noise levels and occasionally high vibration levels in and around the construction site. Sections of the LRT alignment and highway improvements in the Expo Center/Hayden Island segment are adjacent to noise sensitive uses such as houseboats and hotel rooms.

As described in the Noise Report, four general construction phases would be required to complete the project: 1) land preparation, 2) constructing new structures, 3) miscellaneous construction activities, and 4) demolition activities.

Major noise-producing equipment used during the preparation stage could include concrete pumps, cranes, excavators, haul trucks, loaders, tractor-trailers and vibratory equipment. Maximum noise levels could reach 82 to 86 dBA at the nearest residences (50 to 100 feet) for normal construction activities during this preparation phase. Major noise and vibration-producing activities would occur primarily during demolition and preparation for the new bridges. Activities that have the potential to produce a high level of vibration include pile driving, vibratory shoring, soil compacting, and some hauling and demolition activities.

The loudest noise sources during the phase of constructing new structures would include pile drivers, cement mixers, concrete pumps, pavers, haul trucks, and tractor trailers. Maximum noise levels would range from 82 to 94 dBA at the closest receiver locations.

Following the heavy construction, miscellaneous construction activities such as installation of bridge railings, signage, lighting, roadway striping, and others would occur. These less intensive activities are not expected to produce noise levels above 80 dBA at 50 feet except on rare occasions, and then only for short periods.

Demolition of existing structures would require heavy equipment such as concrete saws, cranes, excavators, hoe rams, haul trucks, jackhammers, loaders, and tractor-trailers. Maximum noise levels could reach 82 to 92 dBA at the nearest residences. Demolition would occur at various locations and times during the construction process.

The Council finds that adverse noise impacts associated with construction are temporary and can be effectively mitigated by avoiding construction on Sundays, legal holidays, and during the late evening and early morning hours in noise sensitive areas. Additionally, the Council finds that equipping motorized construction equipment with sound control devices, and developing construction contract documents that include noise limit specifications, reinforced with state/local ordinances and regulations, can be effective techniques for minimizing adverse noise impacts associated with construction.

If specific noise complaints are received during construction, the contractor could be required to implement one or more of the following noise mitigation measures:

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- Locate stationary construction equipment as far from nearby noise-sensitive properties as possible.
- Install temporary or portable acoustic barriers around stationary construction noise sources.
- Shut off idling equipment.
- Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
- Notify nearby residents whenever extremely noisy work will be occurring.
- Operate electrically powered equipment using line voltage power rather than generators.

Criterion 5: Natural Hazards

“Identify affected landslide areas, areas of severe erosion potential, areas subject to earthquake damage and lands within the 100-year floodplain. Demonstrate that adverse impacts to persons or property can be reduced or mitigated through design or construction techniques which could be imposed during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Although no *landslide areas* or *areas of severe erosion potential* have been identified in the Expo Center/Hayden Island segment, construction activities at stream crossings and near water bodies could result in erosion and have detrimental effect on water quality. To avoid and minimize such impacts, the project will prepare and implement stormwater pollution prevention plans and grading plans, hydroseed, manage stockpiled fill, and employ other best management practices (BMPs) for erosion control.” Construction activities will specifically comply with:

- WSDOT Standard Specifications for Road, Bridge and Municipal Construction M 41-10
- ODOT Erosion Control Manual
- City of Vancouver VMC Chapter 14.24, Erosion Control
- City of Portland Erosion and Sediment Control Manual

Inspection and observation monitoring and reporting could be conducted throughout the project to ensure the appropriate erosion-control measures are being conducted.

The Council finds that construction-related impacts associated with landslides, earthquakes, and the 100-year floodplain are not anticipated, and potential construction-related impacts associated with erosion can be effectively mitigated for through the measures discussed above.

Criterion 6: Natural Resource Impacts

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“Identify adverse impacts on significant fish and wildlife, scenic and open space, riparian, wetland and park and recreational areas, including the Willamette River Greenway, that are protected in acknowledged local comprehensive plans. Where adverse impacts cannot practicably be avoided, encourage the conservation of natural resources by demonstrating that there are measures to reduce or mitigate impacts which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Natural resource impacts specific to the Expo Center/Hayden Island segment are addressed in the following section.

Fish and Wildlife Habitat. Short-term impacts to fisheries include the impact pile driving of temporary piles and use of barges. The installation of up to 1,500 temporary steel piles will result in behavioral disturbance and injury or death to ESA-listed and other native fish species. The Project will use hydroacoustic attenuation measures, such as bubble curtains, to reduce initial sound levels from impact pile driving, resulting in less severe impacts to fish in the project area. Through timing impact pile driving activities and use of attenuation measures, impacts to ESA-listed fish are minimized to the extent practicable. Due to the extent of in-water work and the presence of many ESA-listed fish, it is acknowledged that adverse effects to individual fish and their critical habitat are likely to occur, but the continued existence of any species will not be jeopardized. Adverse effects are avoided or minimized to the extent practicable. The Council notes that NMFS produced this finding in their Biological Opinion. In addition to this mitigation, the Council finds that the mitigation measures outlined above in Section 6.3.4 of these findings for Threatened, Endangered, and Candidate Fish are available to mitigate adverse impacts to the Expo Center/North Portland Harbor and the Columbia River and could be imposed as conditions of approval during the FEIS process and/or the local permitting process if reasonable and necessary.

The Project would temporarily impact terrestrial resources, such as migratory birds and species of interest, through noise impacts and removal or degradation of habitat. Mitigation measures to address these impacts include impact avoidance and impact minimization. Impact avoidance would be addressed by timing vegetation removal to occur outside of nesting seasons for migratory birds. Demolition of existing structures, if necessary, would likely be scheduled outside of nesting seasons for native migratory birds, to avoid direct impacts to active nests.

Impact minimization would be addressed by implementing Best Management Practices (BMPs) such as erosion and sediment control to protect riparian buffers and sensitive terrestrial habitats (for example, for riparian species such as pond turtles). Swallows may nest on the concrete piers but are assumed not to be nesting on steel portions of the existing I-5 bridges. The I-5 bridges could be inspected at least one full year prior to commencement of construction activities to determine whether any species of interest or migratory birds are using the bridges for nesting or roosting. If such species are present, exclusionary devices may be installed on the bridges during the non-nesting season to prevent them from being

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used for nesting or roosting during construction activities. If high-disturbance activities must take place during the nesting season, the Columbia River Crossing project team would coordinate with US Fish & Wildlife Service, Oregon Department of Fish and Wildlife, and Washington Department of Fish and Wildlife to establish work buffer zones around the nest(s) during nesting season.

Scenic and Open Space Areas. During construction the visual quality of views to and from the project area would be temporarily altered. Construction-related signage and heavy equipment would be visible in the vicinity of construction sites. Vegetation may be removed from some areas to accommodate construction of the bridges, new ramps, and the light rail transit guideway. This would degrade or partially obstruct views or vistas.

Nighttime construction would be necessary to minimize disruption to daytime traffic. Temporary lighting may be necessary for nighttime construction of certain project elements. This temporary lighting would affect residential areas by exposing residents to glare from unshielded light sources or by increasing ambient nighttime light levels.

Mitigation for temporary construction-related effects would include:

- Shielding of construction site lighting to reduce spillover of light onto nearby residences and businesses,
- Locating construction equipment and stockpiling materials in less visually sensitive areas, when feasible and in areas not visible from the road or to residents and businesses in order to minimize visual obtrusiveness, and
- Cover exposed soils as soon as possible with vegetation.

Riparian Areas. To address temporary loss of riparian vegetation resulting from project impacts, mitigation measures could include streambank revegetation and reshaping to restore habitat function, removal of noxious weeds in certain areas, and revegetation of disturbed areas with native species.

Wetland Areas. Construction will occur near several identified wetland areas in the Expo Center/Hayden Island segment. Temporary disturbances to wetland-related wildlife activity, hydrology, and water quality will be avoided as much as possible through the use of BMPs such as silt fences, construction fencing, and wildlife exclusionary netting during the construction process.

Park and Recreational Areas. Temporary effects to park and recreation resources include the temporary use of parkland to stage construction and store materials; increased noise, glare, dust, and vibration; and temporary closures, detours, and congestion that could delay users traveling to parks or recreational activities. Mitigation activities to address these impacts could include:

- Restoring landscaping to original condition following construction and protect remaining trees close to construction areas.
- Providing adequate signage for any limited or closed access points and detour routes.

- Adopting a joint public information campaign with parks' jurisdictions for some of the longer closures.
- Maintaining safety for bicyclists and pedestrians traveling on trails and between facilities with temporary enclosures, additional signage and lighting, etc.

Criterion 7: Stormwater Runoff

“Identify adverse impacts associated with stormwater runoff. Demonstrate that there are measures to provide adequate stormwater drainage retention or removal and protect water quality which could be imposed as conditions of approval during the NEPA process or, if reasonable and necessary, by local governments during the permitting process.”

Stormwater runoff impacts specific to the Expo Center/Hayden Island segment are addressed in the following section.

The in-water construction of bridge piers could stir up sediments from the riverbed, which would increase turbidity. In-water work includes the use of barges and work bridges in the Columbia River and North Portland Harbor, equipment that would be temporarily anchored to the riverbed. Temporary cofferdams would also be installed, but would not be dewatered, for the piers nearest the shoreline, where the water is shallow. Turbidity caused by any activity inside the cofferdams (including installation of permanent shafts as well as temporary piles) would be contained within the cofferdams. Sediment would be disturbed during the installation and removal of the cofferdams. During the demolition of the existing structures, riverbed sediment would be disturbed when the timber piles of the I-5 bridges are cut off below the mudline.

There are no known records of contaminated sediments in the Columbia River portion of the project area. Therefore, there is very little risk that in-water work in the Columbia River would re-suspend contaminated sediments. Contaminated sediments have been identified in the North Portland Harbor, but they are likely outside of the project footprint. If there is potential that in-water work could disturb these sediments, they would be analyzed in accordance with regulatory criteria, and if necessary, removed from the river and disposed of properly. Removed sediments may be disposed of in a permitted upland disposal site, if required.

Potential sources of toxic contaminants associated with in-water work include refueling track-mounted equipment located on the barges or work bridges, lead-based paint from the existing bridges, turbidity and concrete debris from wire-saw-cut concrete during demolition, green concrete (concrete that has not fully cured) associated with bridge construction, potential spills from construction equipment, and materials accidentally entering the Columbia River and North Portland Harbor during over-water work. Full containment of fuel, other hazardous

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materials, and green concrete would be required to prevent these materials from entering the Columbia River and North Portland Harbor, in accordance with project specifications.

On land, construction activities occurring below-grade may require the removal of groundwater through pumping, a process known as dewatering. Therefore, constructing roads, transit lines, and other infrastructure below the surrounding surface can alter groundwater conditions. If there are nearby hazardous materials sites, dewatering can increase the likelihood of contaminants migrating through the groundwater and into surface waters. The following elements of the Project within the Expo Center/Hayden Island segment are relatively close to high ranking potential hazardous materials sites and near-surface groundwaters, and work at these sites would require below-grade construction techniques:

- Marine Drive Interchange
- North Portland Harbor Bridges
- Hayden Island Interchange
- Columbia River Crossing

Left unmitigated, construction of these elements could result in moderate risks for the migration of existing contamination, potentially affecting both ground and surface water quality. In addition to existing contamination, the installation of shafts and piles below ground includes the risk of introducing new contamination, for example from green concrete, into groundwater. Further discussion of contamination issues associated with below-grade construction is included in the Hazardous Materials Technical Report.

Without proper management, land-based construction activities may have temporary adverse effects on water quality in nearby water bodies. Construction involves ground disturbances that can increase soil erosion substantially, especially for construction activities along river or stream banks. The Project would involve ground disturbance near North Portland Harbor and the Columbia River within the Expo Center/Hayden Island Segments. If runoff contains extra sediment from erosion, waterways can become turbid (cloudy) and can build up excessive sediment deposits. Runoff and soil erosion can also transport pre-existing hazardous materials and construction-related hazardous materials into water bodies, some of which may dissolve in water or are water-transportable. These materials can be harmful to aquatic life.

The construction of the CRC Project would require at least one large site to stage equipment and materials, and may also need a large site for use as a casting yard for fabricating segments of the new bridges. Each site being considered, including one in Oregon, is adjacent to the Columbia River. The existing conditions on these sites range from a developed and paved port terminal to a currently undeveloped site. Staging and casting/assembly site activities may increase stormwater runoff over existing conditions and may increase pollutant levels in the runoff. However, any staging and/or casting site would be required to meet all applicable stormwater requirements, including the implementation of erosion and sediment controls. All necessary permits would be secured prior to site development and operations for any major staging or casting yard.

The Council finds that water quality degradation resulting from erosion and sedimentation and the release of pollutants can be minimized through the use of BMPs during construction. Construction BMPs include use of barrier berms, silt fencing, temporary sediment detention basins, plastic covering for exposed ground, vegetative buffers (hay bales), and restricting clearing activities to dry weather periods to contain sediment on-site. Further requirements could include diapering of all dump trucks to avoid spillage, and cleaning of heavy equipment tires and trucks before they are allowed to drive off-site. A variety of special BMPs can also be used at crossings or adjacent to streams or watercourses during construction.

Criterion 8: Historic and Cultural Resources

“Identify adverse impacts on significant historic and cultural resources protected in acknowledged comprehensive plans. Where adverse impacts cannot practicably be avoided, identify local, state or federal review processes that are available to address and to reduce adverse impacts to the affected resources.”

Historic and cultural resource impacts specific to the Expo Center/Hayden Island Segment are addressed in the following section.

As discussed above in Section 6.3.6 of these Findings, three significant and protected historic resources exist in the Expo Center/Hayden Island Segment:

- The northbound structure of the I-5 bridge (built in 1917); listed in the National Register of Historic Places (NRHP) in 1982.
- The carousel located at the Jantzen Beach Shopping Center; listed in the National Register of Historic Places.
- The Columbia Slough and Levee System as contributing elements of the Columbia Slough Drainage Districts Historic District.

The impacts to the northbound structure of the I-5 bridge and to the Columbia Slough and Levee System would be permanent, as opposed to temporary. The carousel is located with the Jantzen Beach Shopping Center and would not experience any temporary effects.

Mitigation for any cultural resources impacted during construction is as described in Section 6.3.6 of these LUFO findings.

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As a result of improvements to I-5 and the local street network, including access management measures associated with highway improvements, some area traffic patterns will change. Drivers are likely to choose routes that can take advantage of the new roadway capacity and intersections that operate better as a result of the Project. Some local businesses will experience an increase in drive-by traffic, while others will experience a decrease, especially if access becomes more out-of-direction. A significant decrease in drive-by traffic, for some businesses, may result in an adverse effect on business revenues. For example, the Project includes a new design for the North Marine Drive/Union Court intersection. The new design will improve mobility, traffic operations and safety. However, it will also reduce traffic volumes at North Marine Way and North Vancouver Way. There are businesses at this location that could experience a decline in revenues as a result of this change in the local traffic patterns. Similarly, access management measures associated with the Marine Drive and Hayden Island interchanges could make access to certain businesses more out-of-direction and less convenient, which could impact overall business revenues. Out-of-direction travel associated with changing traffic patterns or access management measures also adds costs in terms of increased fuel consumption for patrons of affected businesses. The Council finds that during the preliminary and final engineering processes, engineering staff will try to minimize impacts associated with traffic pattern changes and access management measures to the extent practicable through design refinements.

The Council heard testimony that in some instances, impacts associated with changes in traffic patterns or access management resulting in more out-of-direction travel will severely impact existing businesses, such as fast food restaurants, a hotel and convenience stores that have not been identified as being displaced, to the point that they would not be profitable. Initially, the Council finds that for some of these businesses located on Hayden Island, the roadway modifications resulting in these impacts are consistent with the City of Portland's adopted Hayden Island Plan and that testimony objecting to the provisions of that plan constitutes an unlawful collateral attack on that plan. That stated, the Council finds that a process is available to consider these kinds of impacts through final design and development of the Interchange Area Management Plan. During these processes, there will be a detailed analysis of impacts on affected properties. If damages to a business are found to be different from those currently projected, such that a full displacement is justified and warranted, then the property could be fully displaced. And while the Council heard testimony that current economic conditions may put redevelopment plans for Hayden Island "on hold", it finds that planning addresses development over the long-term and that economic conditions are cyclical, such that redevelopment is likely to occur when the economy improves.

The project will require relocation of certain utility facilities and lines. Utility relocations typically are addressed during preliminary engineering and final design. The Council finds that the costs of relocating utilities impacted by the project are addressed, and can be paid, as provided in existing law.

For some, bridge tolling may constitute an adverse economic impact. Tolling of interstate facilities must be consistent with Title 23 U.S.C. Section 129, the federal law that specifies the circumstances under which interstate facilities may be tolled. The CRC Project qualifies,

near the light rail right-of-way, near substations, or in the light rail vehicles), EMF emissions would be below exposure guidelines. Because light rail electric power substations tend to generate the highest EMF intensities in the field measurements, the substations have been designed and sited to minimize exposure to users of the system, the general public, and sensitive users.

The Council heard testimony regarding health concerns and vibration impacts to the manufactured housing community on Hayden Island. Mitigation can include monitoring vibration and halting construction if thresholds are exceeded; monitoring dust and halting working if thresholds are exceeded; and covering debris or application of water to avoid release of dust into the air.

The manufactured housing community also expressed concern about access on and off the island during construction, especially for emergency vehicles. Mitigation could include construction of the local bridge over the North Portland harbor as a first stage of construction.

Social benefits include cleaner air by providing improved transit access in the region, resulting in less automobile driving than would otherwise occur and less congestion and air pollution. Cleaner air also is provided by decreasing congestion through improvements to the highway system. Social benefits also include improved quality of life from lower and more reliable transit travel times, resulting in more time for people to spend doing things other than commuting.

A greenhouse gas emissions analysis was prepared for the Columbia River Crossing Project and is detailed in the Energy Technical Report. The report includes a macroscale analysis to provide a picture of the regional emissions, as well as a microscale analysis that focuses more on the project area. The Project is expected to reduce regional emissions by approximately 130 metric tons of CO₂e /day, which equates to a reduction of approximately 0.5 percent. For the 12.2-mile length of I-5 surrounding the CRC project area, the Project is expected to reduce emissions by roughly 21 metric tons of carbon dioxide equivalent during the AM and PM peak periods, or 5.4 percent.

The differences in long-term effects on water quality between the Project and the No-Build Alternative are substantial. Although the total amount of pollution-generating impervious surface (PGIS)¹⁶ would slightly increase for the Project, the amount of untreated impervious surface would drop dramatically compared to existing conditions and the No-Build Alternative. This is because under the Project, stormwater runoff from all new or reconstructed impervious surface area would be treated, while stormwater runoff from most of the existing PGIS does not currently undergo stormwater treatment.

¹⁶ Pollution-generating impervious surfaces include highways, parking lots, sidewalks and other surfaces that do not absorb water and to which contaminants may adhere, so that when stormwater strikes the surface, it runs off to a nearby surface, carrying some of these contaminants with it. If the water runs off to soil, these contaminants can enter the soil, causing harmful effects. Additionally, PGIS are often warmer than the surrounding surfaces, and runoff from these surfaces that enters nearby rivers or lakes can raise water temperatures, causing harmful effects.

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE 1998	)	RESOLUTION NO. 11-4280
LAND USE FINAL ORDER FOR THE)	
SOUTH/NORTH LIGHT RAIL PROJECT AND	)	INTRODUCED BY COUNCILOR REX
ADOPTING A LAND USE FINAL ORDER FOR	)	BURKHOLDER
THE EXPO CENTER/HAYDEN ISLAND)	
SEGMENT OF THE PROJECT INCLUDING THE)	
I-5 COLUMBIA RIVER CROSSING BRIDGE)	
AND ASSOCIATED HIGHWAY)	
IMPROVEMENTS		

WHEREAS, the Oregon Legislature enacted Oregon Laws 1996, Chapter 12 (the Act), establishing procedures for developing the South/North Light Rail Project through adoption by the Metro Council of a Land Use Final Order (LUFO); and

WHEREAS, in accordance with section 4 of the Act, the Oregon Land Conservation and Development Commission adopted criteria to govern Council review of an application for a LUFO for the South/North Light Rail Project, or any segment of it, on May 30, 1996; and

WHEREAS, the Metro Council endorsed a Locally Preferred Alternative (LPA) for the I-5 Columbia River Crossing Project by Resolution No. 08-3960B (For the Purposes of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions), adopted July 17, 2008, that includes extension of South/North Light Rail from the Expo Center to Vancouver, Washington; and

WHEREAS, among the conditions of Council endorsement of the LPA was a list of concerns and considerations, contained in Exhibit A to Resolution No. 08-3960B, to be addressed before the Council would approve a land use final order for the project; and

WHEREAS, by Resolution No. 11-4264 (For the Purpose of Concluding that the Concerns and Considerations Raised about the Columbia River Crossing Project in Exhibit A to Resolution No. 08-3960B Have Been Addressed Satisfactorily), adopted June 9, 2011, the Council accepted the responses to the concerns and considerations, based upon the assessment set forth in Exhibit B to Resolution No. 11-4264, and the acknowledgement that further refinements and decisions, involving the Council, would be made to address the concerns and considerations during later design, engineering and financial phases of project development, with involvement of the Council and the local community and its elected representatives; and

WHEREAS, Metro's Regional Transportation Plan (RTP) calls for extension of light rail from the Expo Center to Vancouver, Washington, as part of the I-5 Columbia River Crossing Project and places the project on the RTP's Financially Constrained Roadway Network; and

WHEREAS, section 6.3.2.1 of the RTP required reconsideration of the I-5 Columbia River Crossing Project and amendment of the RTP if the number and design of auxiliary lanes on the I-5 Columbia River Bridge or approaches to the bridge are inconsistent with the description of the project in the RTP; and

WHEREAS, in accordance with section 6 of the Act, on June 23, 2011, the LUFO Steering Committee recommended that TriMet submit to Metro an application for, and the Metro Council adopt, an amendment to the 1998 South/North Light Rail LUFO to approve the light rail route, a station and highway improvements within the Expo Center/Hayden Island Segment of the South/North Light Rail Project; and

WHEREAS, in accordance with section 6 of the Act, in a letter from Matt Garrett, Director, the Oregon Department of Transportation (ODOT) recommended that TriMet submit to Metro an application for, and the Metro Council adopt, an amendment to the 1998 South/North Light Rail LUFO to approve the light rail route, a station and highway improvements within the Expo Center/Hayden Island Segment of the South/North Light Rail Project; and

WHEREAS, in accordance with section 6 of the Act, on July 13, 2011, TriMet filed an application for a LUFO for the Expo Center/Hayden Island segment of the South/North Light Rail Project with the light rail route, station and highway improvements recommended by both the LUFO Steering Committee and ODOT; and

WHEREAS, the light rail route, station and highway improvements are in the form of boundaries within which the light rail route, station and highway improvements will be located, as required by section 6 of the Act; and

WHEREAS, the number and design of auxiliary lanes on the I-5 Columbia River Bridge and the approaches to the bridge project proposed in the TriMet LUFO application are consistent with the I-5 Columbia River Crossing Project described in the RTP; and

WHEREAS, Metro published a notice in *The Oregonian*, containing all the information required by section 7 of the Act, on July 14, 2011, of a public hearing before the Metro Council to consider TriMet's LUFO application on August 11, 2011;

WHEREAS, Metro provided additional public notice of the August 11, 2011, public hearing by mailing postcards to all persons who own property within 250 feet of the proposed light rail alignment and stations and by posting notice at Metro's website, both on July 14, 2011; and

WHEREAS, Metro sent notice of the public hearing on July 15, 2011, to ODOT, Clackamas and Multnomah counties and the cities of Portland, Milwaukie, Gladstone, Gresham and Oregon City; and

WHEREAS, the Council finds and determines that *The Oregonian* is a newspaper of general circulation in the region and the above-described notices are reasonably calculated to give notice to persons who may be affected substantially by a decision to approve TriMet's LUFO application; and

WHEREAS, on July 14, 2011, Metro made available for public inspection a staff report addressing compliance of TriMet's application with the requirements of the Act; and

WHEREAS, the Council held a public hearing on the TriMet LUFO application on August 11, 2011; and

WHEREAS, the Council President made a statement at the beginning of the hearing containing the information required by section 7 of the Act; and

WHEREAS; the Council considered TriMet's application, the recommendations of the LUFO Steering Committee and ODOT, the staff report, the Findings of Fact and Conclusions of Law and all public testimony presented on the application; now, therefore,

BE IT RESOLVED THAT the Metro Council:

1. Hereby amends the 1998 Land Use Final Order (LUFO) for the South/North Light Rail Project, and adopts the LUFO for the Columbia River Crossing Light Rail Project, Expo Center/Hayden Island Segment of the South/North Light Rail Project, attached and incorporated into this resolution as Exhibit A, including the locations of the light rail route, station and highway improvements extending from the Expo Center to the Oregon-Washington line, and as shown in Exhibit A to be identical to the TriMet LUFO application.
2. Adopts the Findings of Fact and Conclusions of Law, attached and incorporated into this resolution as Exhibit B, as the Council's written findings demonstrating how the application and Council's decision comply with the applicable criteria.

ADOPTED by the Metro Council this 11th day of August, 2011.

Tom Hughes, Council President

Approved as to form:

Alison Kean Campbell, Acting Metro Attorney

8/12/2011

**Columbia River
CROSSING**

A long-term, multi-modal solution

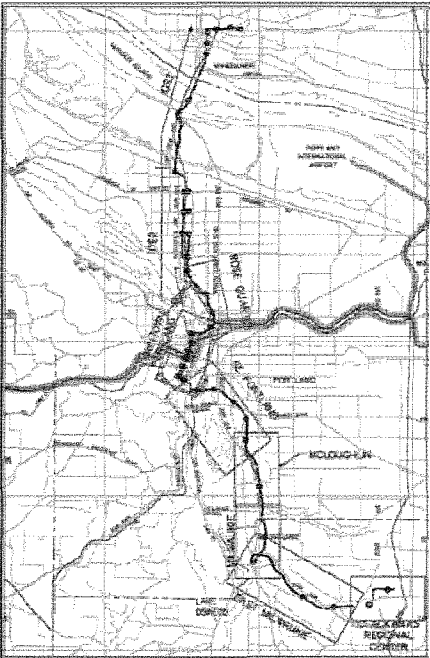
Steve Witter
CRC Transit Manager

Metro Council
August 11, 2011



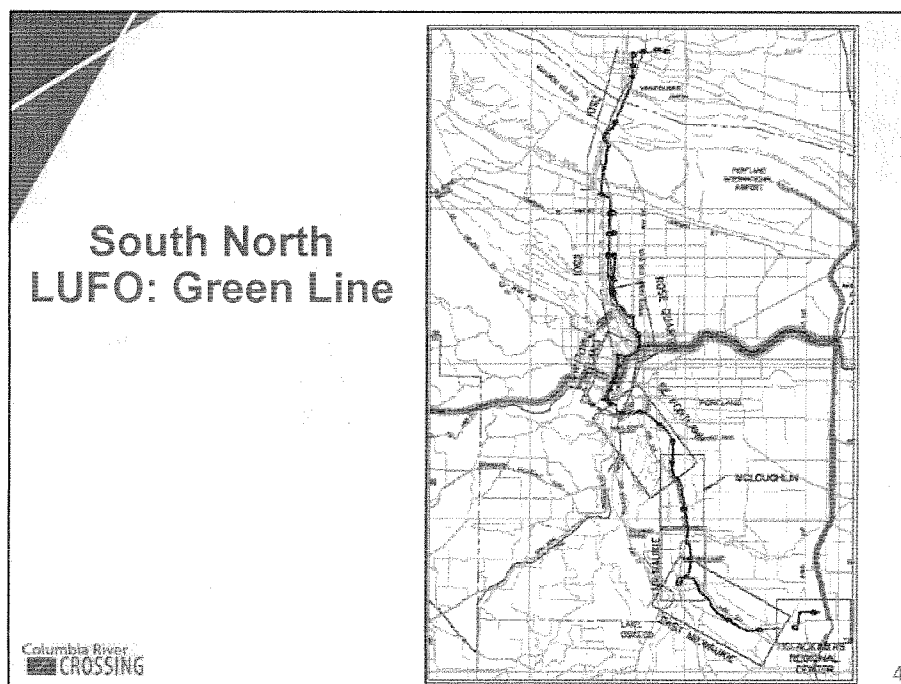
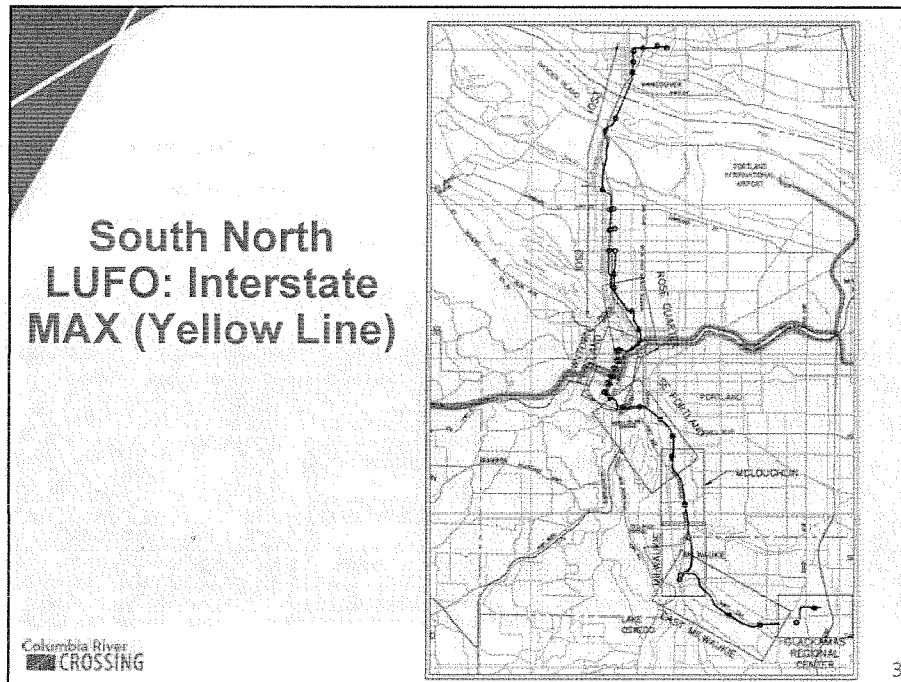
 Oregon Department of Transportation
  Washington State Department of Transportation
 Federal Transit Administration • Federal Highway Administration
City of Vancouver • City of Portland • SW Washington Regional Transportation Council • Metro • C-TRAN • TriMet

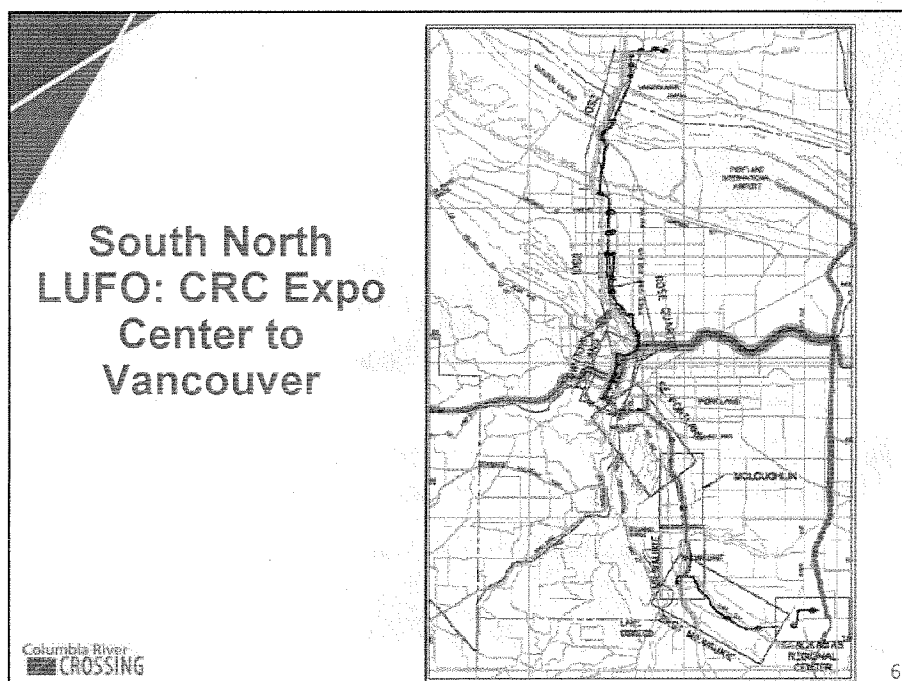
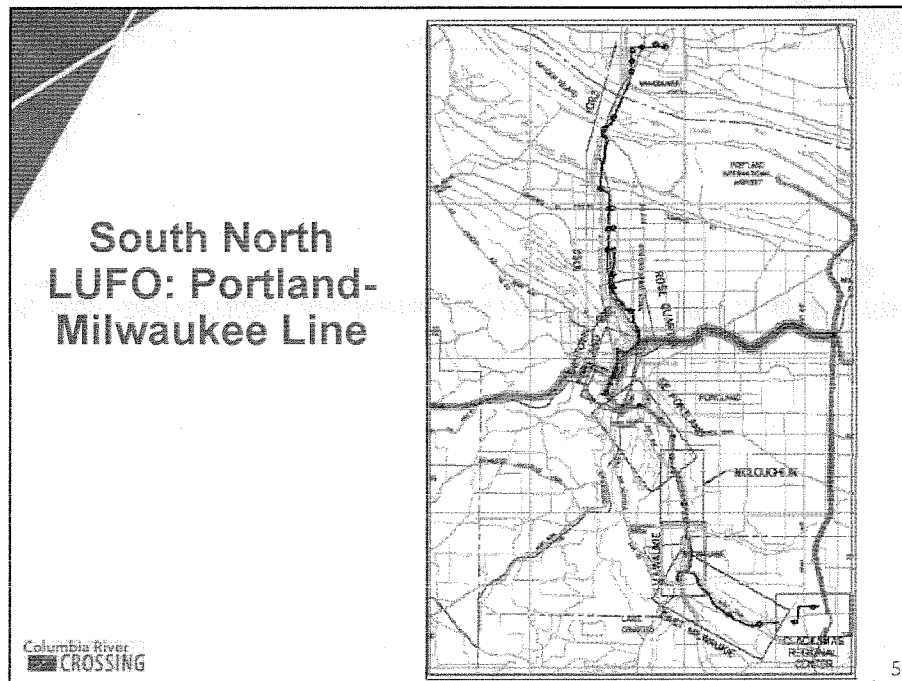
**Original
South North
LUFO**



**Columbia River
CROSSING**

2





Origin and Development of CRC

Purpose

Examine transportation needs and economic consequences of investments in the I-5 Trade Corridor

Determine the level of investment needed in the corridor for highway, transit, and heavy rail improvements

Develop a long term, comprehensive solution for five miles of Interstate 5 between Portland and Vancouver



1999 2000 2001 2002 2003-2004 2005 2006 2007 2008 2009 2010 2011

Outcomes

- Recommended the region initiate a public process to develop a plan for improvements to the I-5 corridor

- Recommended a set of major multi-modal investments in the I-5 corridor

- Recommended undertaking an EIS for a new river crossing with extension of light rail to Vancouver

- Defined purpose and need of multi-modal project (2005-06)

- Identified solutions, developed framework for screening concepts and developing alternatives (2005-06)

- Evaluated effects of alternatives (2007)

- Draft EIS published (2008)

- Design refinements (2008-2011)

- Publish Final EIS (September 2011)

7



Problem definition/purpose and need



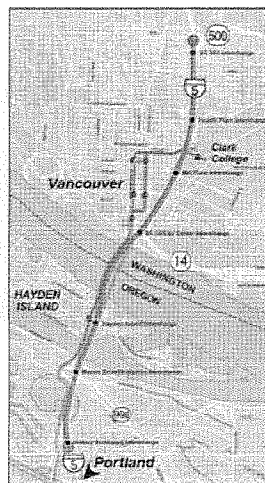
- Collisions
- Congestion
- Limited transit options
- Freight immobility
- Poor bike and ped access/connectivity
- Earthquake risk



8

Long-term, comprehensive solution to improve safety and reduce congestion

- Light rail extension to Vancouver
- Replacement I-5 bridge
- Improvements to closely-spaced highway interchanges
- Pedestrian and bicycle facility improvements



Columbia River
CROSSING

9

Project development principle

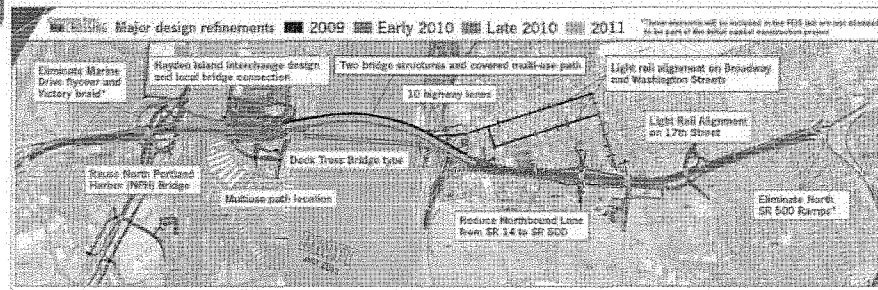
“Unified, multi-modal project”

- Project benefits realized through combination of transit, bridge and highway elements
- Supported by 2010 Consolidated Appropriations Act

Columbia River
CROSSING

10

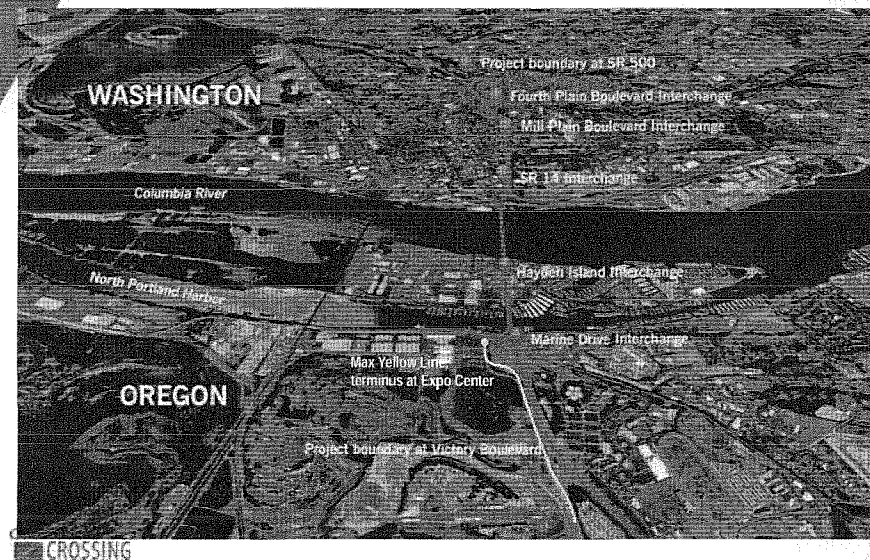
Major design refinements of LPA



Columbia River
CROSSING

11

CRC project area



12

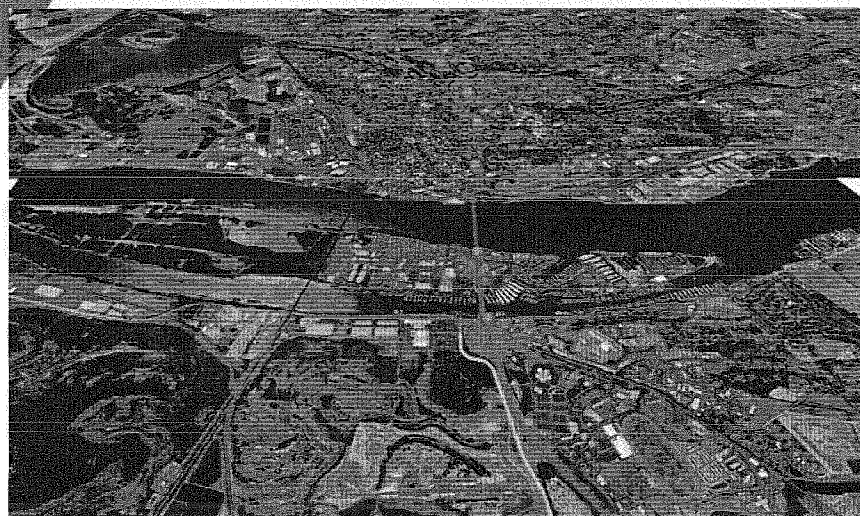
CRC LRT system extension



Columbia River
CROSSING

13

LRT system – Marine Drive

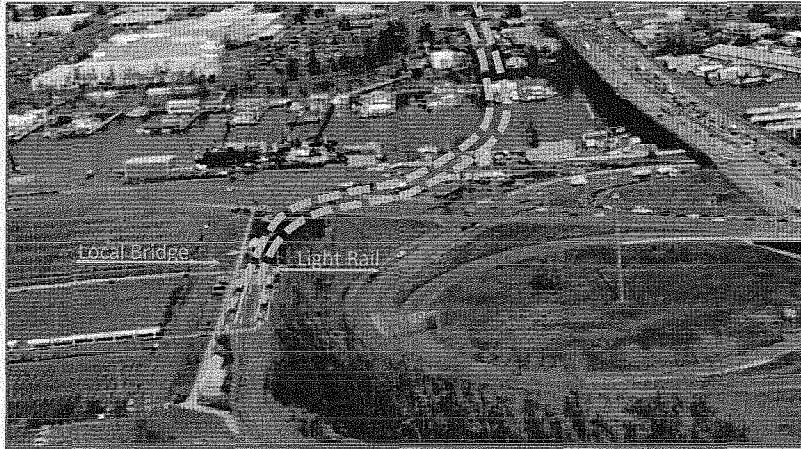


Columbia River
CROSSING

14

Connections to Hayden Island

(looking north)



Columbia River
CROSSING

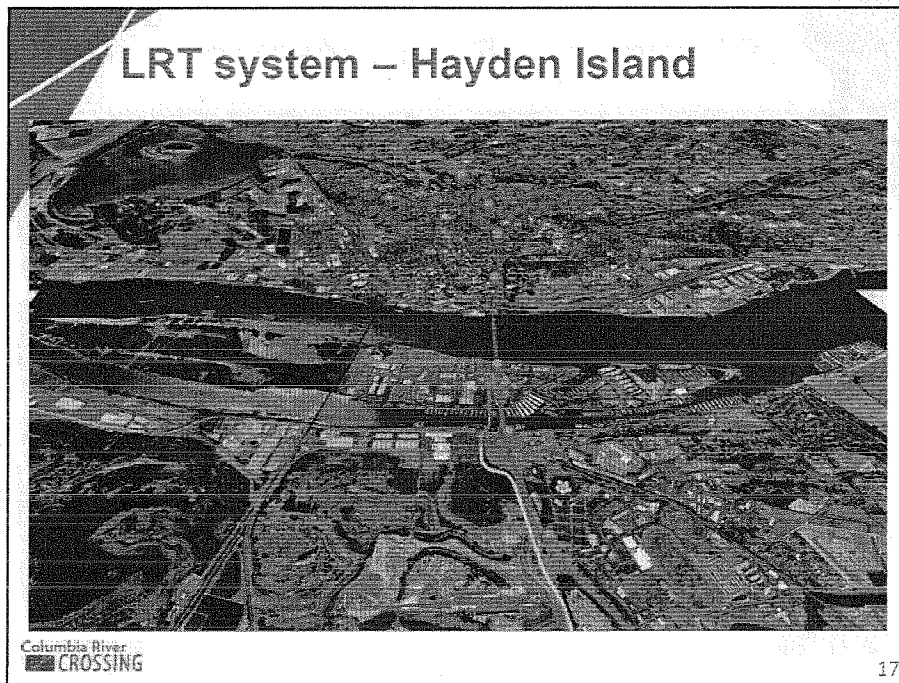
15

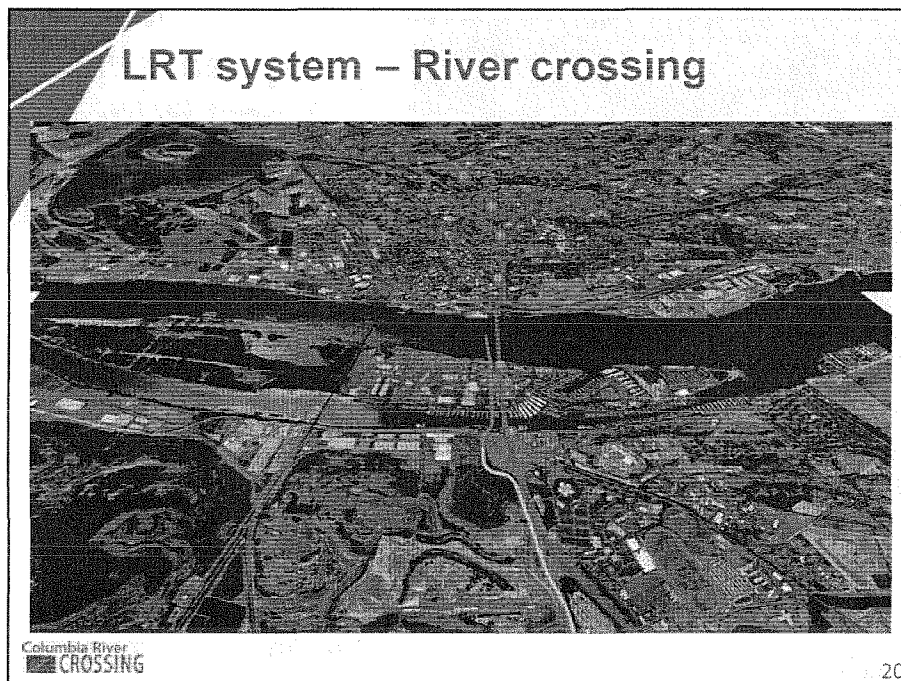
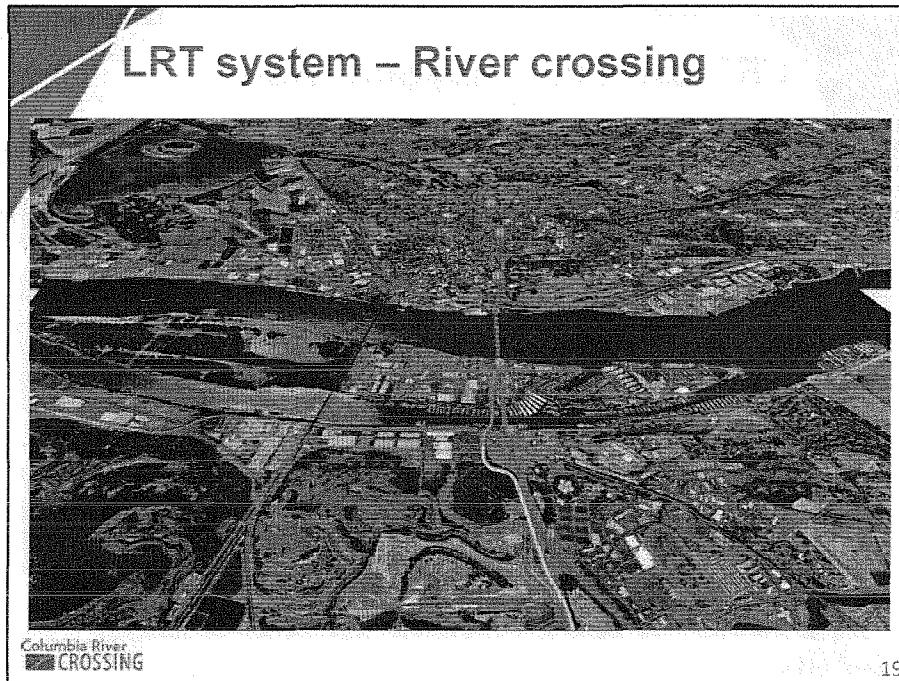
LRT system – Hayden Island



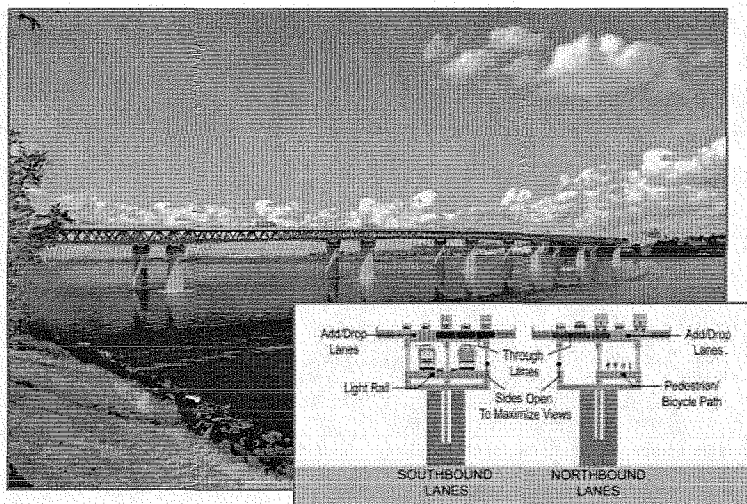
Columbia River
CROSSING

16





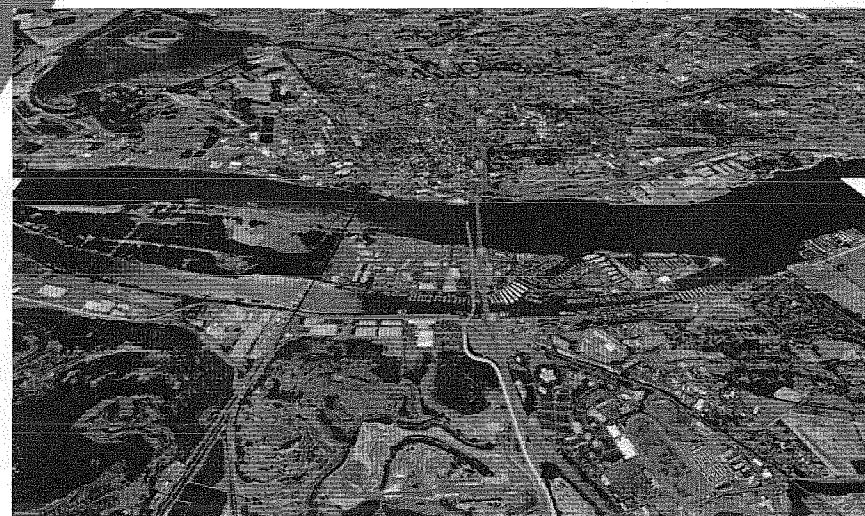
LRT system – River crossing



Columbia River
CROSSING

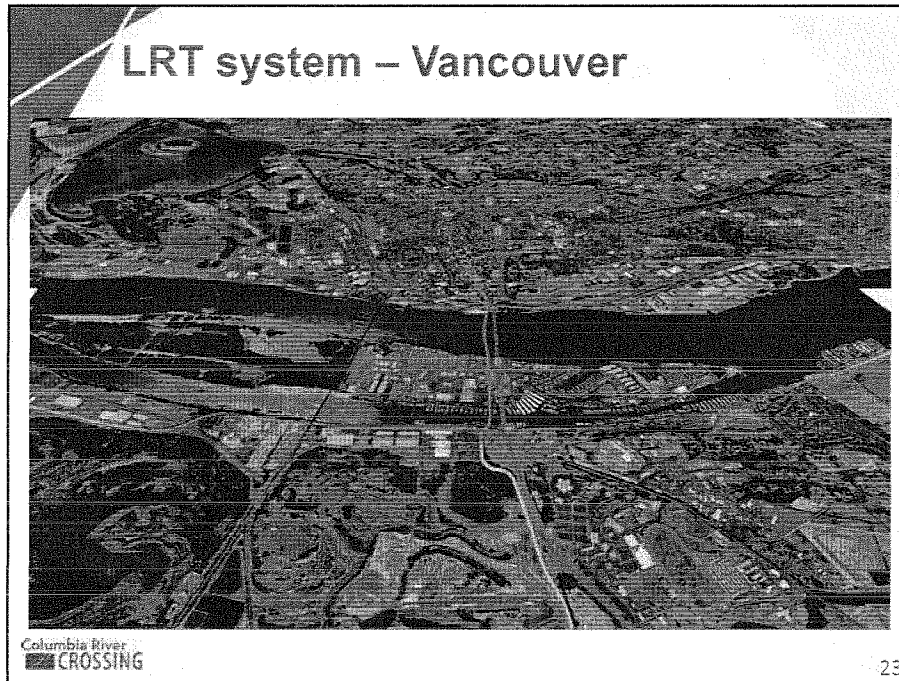
21

LRT system – Vancouver



Columbia River
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22



**Columbia River
CROSSING**

700 Washington Street, Suite 300
Vancouver WA, 98660

Washington 360-737-2726
Oregon 503-256-2726
Toll-Free 866-396-2726

www.ColumbiaRiverCrossing.org

feedback@columbiarivercrossing.org

Oregon Department of Transportation

Washington State Department of Transportation

Federal Transit Administration • Federal Highway Administration
 City of Vancouver • City of Portland • SW Washington Regional Transportation Council • Metro • C-TRAN • TriMet



Metro

No. 1

Aug. 11, 2011

Columbia River Crossing Land Use Final Order Public Hearing

(Please print)

Name (required)

Joe Rowe

Affiliation (if any)

One person lobby

Address (required)

6325 N Albina #4, Portland OR 97217

E-mail (optional)

jrowe@igc.org

☒ Send me written notification of adoption of the LUFO (requires valid mailing address).

Testimony (use back or attach additional sheets if necessary)

There has been no open debate on the CRC in public nor the floors in Salem. I've been told by the people in power that all concerns have been heard and addressed and we need to start building jobs now.

The people don't need your permission to hold a presidential debate. We don't need your permission to hold a CRC Debate.

I invite everyone to ~~walk~~ watch the debate team for the common sense alternative. Who will be on the CRC Team? 6 empty chairs? Rex Burkholder? Earl Blumenauer has said the debate is over.

Join the people's debate Noon Saturday Oct 29th
Attach a copy of your testimony and any supporting material to this form. Make sure your name is on all material. If you choose not to testify orally, you may testify in writing by leaving this form, along with any prepared materials, with staff or by depositing it in the comment box. Only oral testimony at the hearing and written testimony received prior to the close of the hearing will be included in the record.



Metro

No. 24 Addition
Aug. 11, 2011 to
#1

Columbia River Crossing Land Use Final Order Public Hearing

(Please print)

Name (required)

Joseph Rowe

Affiliation (if any)

one person lobby

Address (required)

6325 N Albina #4, Portland OR 97217

E-mail (optional)

jrowe@cigc.org (503) 282-7693

☒ Send me written notification of adoption of the LUFO (requires valid mailing address).

Testimony (use back or attach additional sheets if necessary)

See my oral testimony as #1

I appeal the resolution as
stated in bill # 3478
Section 5

Attach a copy of your testimony and any supporting material to this form. Make sure your name is on all material. If you choose not to testify orally, you may testify in writing by leaving this form, along with any prepared materials, with staff or by depositing it in the comment box. Only oral testimony at the hearing and written testimony received prior to the close of the hearing will be included in the record.

Exhibit — Submitted by Joseph Rowe

68th OREGON LEGISLATIVE ASSEMBLY--1996 Special Session

Aug 11

2011

NOTE: Matter within { + braces and plus signs + } in an amended section is new. Matter within { - braces and minus signs - } is existing law to be omitted. New sections are within { + braces and plus signs + } .

See

Page

7

LC 280-1

XX/4/28/0

House Bill 3478

Sponsored by SPECIAL SESSION COMMITTEE ON GOVERNMENT AFFAIRS

SUMMARY

The following summary is not prepared by the sponsors of the measure and is not a part of the body thereof subject to consideration by the Legislative Assembly. It is an editor's brief statement of the essential features of the measure as introduced.

Provides siting procedures for South North light rail project.

Provides procedures for review of land use decisions made pursuant to siting of South North Line.

Declares emergency, effective on passage.

A BILL FOR AN ACT

Relating to procedures for the siting of the South North light rail line; creating new provisions; repealing ORS 197.550, 197.553, 197.556, 197.559, 197.562, 197.565, 197.568, 197.571, 197.574, 197.577, 197.581, 197.584 and 197.590; and declaring an emergency.

Be It Enacted by the People of the State of Oregon:

SECTION 1. { + As used in sections 1 to 13 of this Act, unless the context requires otherwise:

(1) 'Administrator' means the State Court Administrator.

(2) 'Affected local governments' means:

(a) For the project, the cities and counties within which the light rail route, stations, lots and maintenance facilities, and the highway improvements for the project will be located.

(b) For the project extension, the cities and counties within which the light rail route, stations, lots and maintenance facilities, and the highway improvements for the project extension will be located.

(3) 'Board' means the Land Use Board of Appeals.

(4) 'Commission' means the Land Conservation and Development Commission.

(5) 'Council' means the elected legislative body of Metro.

(6) 'Court' means the Oregon Supreme Court.

(7) 'Criteria' means the land use criteria established by the commission, as provided in section 4 of this Act.

(8) 'Development approval' means approval of a proposed development of land based on discretionary standards designed to regulate the physical characteristics of a use permitted outright, including but not limited to site review and design review.

(9) 'Draft Statement' means the Draft Environmental Impact Statement for the project or project extension prepared pursuant to regulations implementing the National Environmental Policy Act of 1969.

(10) 'Final Statement' means the final Environmental Impact Statement for the project or project extension, as may be amended from time to time, or any supplementary assessments or statements, prepared pursuant to regulations implementing the National Environmental Policy Act of 1969.

(11) 'Full Funding Grant Agreement' means the contractual agreement entered into between the Federal Government and the local grant recipient establishing the maximum federal financing contribution for construction of the project or project extension and setting forth terms, conditions and limitations for federal financing of the project and project extension.

(12) 'Highway improvements' means the highway improvements, if any, to be included in the project or project extension. The highway improvements shall be selected from among the highway improvements, if any, described in a Draft Statement or Final Statement for the project or project extension.

(13) 'Land use final order' means a written order or orders of the council deciding:

(a) The light rail route for the project or project extension, including its location;

(b) Stations, lots and maintenance facilities for the project or project extension, including their locations; and

(c) The highway improvements for the project or project extension, including their locations.

(14) 'Light rail route' means the light rail alignment to be included in the project or project extension. The light rail route shall be selected from among light rail route alternatives described in a Draft Statement or Final Statement for the project or project extension.

(15) 'Locally Preferred Alternative Report' means a decision adopted in accordance with federal requirements determining whether or not to build the South North MAX Light Rail Project and, if to build, recommending the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, to be included in the South North MAX Light Rail Project.

(16) 'Locations' means the boundaries within which the light

rail route, stations, lots and maintenance facilities, and the highway improvements shall be located, as provided in section 6 of this Act.

(17) 'Measures' includes any mitigation measures, design features, or other amenities or improvements associated with the project or project extension.

(18) 'Project' means the portion of the South North MAX Light Rail Project within the Portland metropolitan area urban growth boundary, including each segment thereof as set forth in the Phase I South North Corridor Project Locally Preferred Alternative Report as may be amended from time to time or as may be modified in a Final Statement or the Full Funding Grant Agreement. The project includes the light rail route, stations, lots and maintenance facilities, and any highway improvements to be included in the project.

(19) 'Project extension' means the portion of the South North MAX Light Rail Project within the Portland metropolitan area urban growth boundary as set forth in the Phase II South North Corridor Project Locally Preferred Alternative Report as may be amended from time to time or as may be modified in a Final Statement or the Full Funding Grant Agreement. The project extension includes the light rail route, stations, lots, and maintenance facilities, and any highway improvements to be included in the project extension.

(20) 'Stations, lots and maintenance facilities' means the light rail stations, light rail park-and-ride lots and light rail vehicle maintenance facilities to be included in the project or project extension, to be selected from among alternatives described in a Draft Statement or Final Statement for the project or project extension.

(21) 'Steering Committee' means a committee staffed by Metro through the time of adoption of the initial land use final order for the project or project extension, and thereafter staffed by Tri-Met, comprised at least of representatives of the Department of Transportation, Tri-Met and elected officials of the affected local governments and Metro, whose specific membership and manner of function shall be determined by intergovernmental agreement between Metro, Tri-Met, the Department of Transportation and the affected local governments for the project or project extension.

(22) 'Tri-Met' means the Tri-county Metropolitan Transportation District of Oregon. + }

SECTION 2. { + (1) The Legislative Assembly finds that a failure to obtain maximum federal funding for the South North MAX Light Rail Project in the upcoming federal transportation authorization act will seriously impair the viability of the transportation system planned for the Portland metropolitan area, the ability of the area to implement a significant portion of its air quality and energy efficiency strategies and the ability of affected local governments to implement significant parts of

Section
2

their comprehensive plans. The Legislative Assembly further finds that to maximize the state's and metropolitan area's ability to obtain the highest available level of federal funding for the South North MAX Light Rail Project and to assure the timely and cost-effective construction of the project, it is necessary:

(a) To establish the process to be used in making decisions in a land use final order on the light rail route, light rail stations, light rail park-and-ride lots, light rail maintenance facilities and any highway improvements to be included in the South North MAX Light Rail Project, including their locations;

(b) To expedite the process for appellate review of a land use final order; and

(c) To establish an exclusive process for appellate review.

(2) Sections 1 to 13 of this Act shall be liberally construed to accomplish the purposes enumerated in subsection (1) of this section.

(3) It is the intent of the Legislative Assembly that residents of neighborhoods within the Tri-County Metropolitan Transportation District of Oregon affected by land use decisions, limited land use decisions or land divisions resulting from the siting, construction or operation of any MAX Light Rail line, either as individuals or through their neighborhood associations, shall have the opportunity to participate in such decisions and divisions.

(4) The Legislative Assembly deems the procedures and requirements provided for in sections 1 to 13 of this Act, under the unique circumstances of the South North MAX Light Rail Project, to be equivalent in spirit and substance to the land use procedures that otherwise would be applicable. + }

SECTION 3. { + Notwithstanding any other provision of law, the procedures and requirements provided for in sections 1 to 13 of this Act shall be the only land use procedures and requirements to which the following land use decisions shall be subject:

(1) Decisions on the light rail route for the project and project extension, including its location;

(2) Decisions on the stations, lots and maintenance facilities for the project and project extension, including their locations; and

(3) Decisions on the highway improvements for the project and project extension, including their locations. + }

SECTION 4. { + The Land Conservation and Development Commission shall establish criteria to be used by the council in making decisions in a land use final order on the light rail route, stations, lots and maintenance facilities, and the highway improvements for the project and project extension, including their locations. The provisions in ORS chapters 183, 192, 195, 197, 215 and 227 and in any other law or regulation shall not apply to proceedings of the commission under sections 1 to 13 of this Act. The following procedures shall govern the proceedings of the commission in establishing criteria:

(1) The commission shall publish notice of a public hearing on criteria to be established by the commission in a newspaper of general circulation within the Portland metropolitan area at least 20 days prior to the public hearing. The notice shall:

(a) Identify the general subject matter of the hearing and the date, time and place of the hearing;

(b) State that any criteria to be proposed to the commission must be filed at the Salem office of the Department of Land Conservation and Development at least 10 days prior to commencement of the hearing and will be available for public inspection following filing;

(c) State that appeals from an order establishing criteria must be filed within seven days following the date written notice of the order is mailed;

(d) State that failure by a person to raise an issue at the hearing in person or in writing, or failure to provide sufficient specificity to afford the commission an opportunity to respond to the issue raised, shall preclude appeal by that person to the court on that issue;

(e) State that persons whose names appear on petitions submitted into the public hearing record will not be considered by that action to have provided oral or written testimony at the hearing; and

(f) State that written notice of adoption of an order establishing criteria will be provided only to persons who provide oral or written testimony at the hearing and who also provide, in writing, a request for written notice and a mailing address to which notice should be sent.

(2) The commission also may provide such other notice as it deems appropriate to inform interested persons of the hearing. However, no other form of notice is required.

(3) A copy of the staff report, if any, shall be available for public inspection at least four days prior to the public hearing.

(4) The commission shall hold a public hearing on the criteria to be established by the commission. At the commencement of the hearing, a statement shall be made to those in attendance that:

(a) Identifies the general subject matter of the hearing;

(b) States that appeals from an order establishing criteria must be filed within seven days following the date written notice of the order is mailed;

(c) States that failure by a person to raise an issue at the hearing in person or in writing, or failure to provide sufficient specificity to afford the commission an opportunity to respond to the issue raised, shall preclude appeal by that person to the court on that issue;

(d) States that submittal of proposed criteria at the hearing will not be accepted unless the proposed criteria were filed at the Salem office of the Department of Land Conservation and Development at least 10 days prior to the commencement of the hearing;

(e) States that persons whose names appear on petitions submitted into the public hearing record will not be considered by that action to have provided oral or written testimony at the hearing; and

(f) States that written notice of adoption of an order establishing criteria will be provided only to persons who provide oral or written testimony at the hearing and who also provide, in writing, a request for written notice and a mailing address to which notice should be sent.

(5) The commission shall allow for the submission of oral and written testimony at the hearing, subject to such hearing procedures as the commission may deem necessary. The commission may exclude irrelevant, immaterial or unduly repetitious testimony. The commission shall not allow the submission of proposed criteria at the hearing unless the proposed criteria were filed at the Salem office of the Department of Land Conservation and Development at least 10 days prior to the commencement of the hearing. Minutes of the hearing shall be taken.

(6) The commission shall close the hearing and adopt an order establishing the criteria within 14 days following commencement of the hearing. In establishing the criteria, the commission shall consider those statewide planning goals and those plan policies that are relevant to decisions regarding the light rail route, stations, lots and maintenance facilities, and the highway improvements, and their locations. The commission's order shall include a brief statement explaining how the criteria established reasonably reflect those statewide land use planning goals and those plan policies that are relevant to decisions regarding the light rail route, stations, lots and maintenance facilities, and the highway improvements, and their locations.

(7) Following establishment of the criteria, the commission as soon as reasonably possible shall:

(a) Notify in writing the council, Tri-Met, the Department of Transportation, the affected local governments and any person who provided oral or written testimony at the hearing and who also provided, in writing, a request for written notice and a mailing address to which notice should be sent of its order and the criteria it has established; and

(b) Make copies of its order and the criteria available for public inspection at the Salem and Portland offices of the Department of Land Conservation and Development.

(8) The commission shall adopt the order described in subsection (6) of this section within 90 days following the effective date of this Act. + }

SECTION 5. { + (1) Notwithstanding ORS 183.400, 183.482, 183.484, 197.825 or any other law or regulation, exclusive jurisdiction to review a Land Conservation and Development Commission order establishing criteria under section 4 of this Act is conferred on the court.

(2) Proceedings for review of the commission's order shall be instituted when any person who is adversely affected files a notice of intent to appeal with the administrator that meets the following requirements:

(a) The notice shall be filed within seven days following written notice of the commission's order.

(b) The notice shall state the nature of the commission's order, in what manner the commission rejected the position raised by the petitioner before the commission and, with supporting affidavit, facts showing how the petitioner is adversely affected. The petitioner shall be considered adversely affected if:

(A) The petitioner provided oral or written testimony at the commission's hearing; and

(B) The petitioner proposed criteria, as provided in section 4 (5) of this Act, that the commission rejected in its order, or the petitioner, in the petitioner's testimony at the hearing, opposed the criteria which the commission selected in its order.

(c) The petitioner shall deliver a copy of the notice of intent to appeal by personal service to the commission at the Salem office of the Department of Land Conservation and Development, at the Salem office of the Department of Transportation, to the Attorney General, to the council at the office of Metro's executive officer, to Tri-Met at the office of Tri-Met's general manager and to the affected local governments.

(3) Within seven days following filing of the notice of intent to appeal, the commission shall personally deliver to the court a certified copy of the record of its criteria proceedings. The record shall include only:

(a) The commission's order establishing the criteria;

(b) Any written report received by the commission from the Department of Land Conservation and Development at the hearing;

(c) Proposed criteria submitted to the commission as provided in section 4 (5) of this Act and written testimony submitted to the commission at the hearing;

(d) Minutes of the public hearing before the commission;

(e) The published notice of public hearing; and

(f) Proof of mailing to persons entitled to notice of the commission's order.

(4) Within 14 days following the filing of the notice of intent to appeal, the petitioner shall file the petitioner's brief. The petitioner shall personally deliver the brief to the administrator, to the Attorney General, to the council at the office of Metro's executive officer, to Tri-Met at the office of Tri-Met's general manager and to the affected local governments. The brief shall comply with the specifications for opening briefs set forth in the rules of appellate procedure.

(5) Within 28 days following the filing of the notice of intent to appeal, the commission, Metro, Tri-Met, the Department of Transportation and any affected local government, unless Metro,

Section
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2(b)

Tri-Met, the Department of Transportation or an affected local government is the petitioner, may file an answering brief that shall comply with the specifications for answering briefs set forth in the rules of appellate procedure.

(6) On review, the court may reverse or remand the commission's order only if it finds that the order:

(a) Violates constitutional provisions;
(b) Exceeds the statutory authority of the commission; or
(c) Was adopted by the commission without substantial compliance with the procedures in section 4 of this Act in a manner that prejudiced the substantial rights of the petitioner. Failure of the commission to notify a person entitled to written notice under section 4 (7)(a) of this Act shall not be a ground for reversal or remand if evidence of mailing to that person is provided. The court shall not substitute its judgment for that of the commission as to any issue of fact or as to any issue within the commission's discretion.

(7) The court shall not stay any action by the council under sections 1 to 13 of this Act pending the court's review under this section.

(8) The court may decide the matter on the briefs or it may hold oral arguments. The court shall decide the matter at its earliest practicable convenience, consistent with sections 1 to 13 of this Act. + }

SECTION 6. { + (1) A land use final order shall establish the light rail route, stations, lots and maintenance facilities, and the highway improvements for the project or project extension, including their locations, as provided in this section and in accordance with the procedures identified in section 7 of this Act.

(a) Prior to publication of the public hearing notice described in section 7 (1) of this Act, and following receipt of recommendations from the Department of Transportation and the Steering Committee, Tri-Met shall apply to the council for a land use final order approving the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations. The applied for locations shall be in the form of boundaries within which the light rail route, stations, lots and maintenance facilities, and the highway improvements shall be located. These boundaries shall be sufficient to accommodate adjustments to the specific placements of the light rail route, stations, lots and maintenance facilities, and the highway improvements for which need commonly arises upon the development of more detailed environmental or

engineering data following approval of a Full Funding Grant Agreement.

(b) Following a public hearing as provided in section 7 (3) of this Act, the council shall either adopt a land use final order establishing the facilities and locations applied for by Tri-Met

Section
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6(b)

or continue the public hearing and refer the proposed facilities and locations back to Tri-Met for further review.

(c) Upon referral by the council, Tri-Met shall consider amendments to its proposed facilities and locations and then forward a further application to the council for hearing and adoption. The council shall either adopt a land use final order establishing the facilities and locations applied for by Tri-Met or again continue the hearing and refer the proposed facilities and locations back to Tri-Met for further review and application to the council.

(2) Any siting of the light rail route, a station, lot or maintenance facility, or a highway improvement outside the locations established in a land use final order, and any new station, lot, maintenance facility or highway improvement, shall require a land use final order amendment or a new land use final order which shall be adopted in accordance with the process provided for in subsection (1) of this section. + }

SECTION 7. { + The council shall apply the criteria established by the commission in making decisions in a land use final order on the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations. The provisions in ORS chapters 183, 192, 195, 197, 215, 227, 267 and 268 and in any other law or regulation shall not apply to proceedings of the council under sections 1 to 13 of this Act. The following procedures shall govern the council's proceedings in adopting a land use final order:

(1)(a) The council shall publish notice of a public hearing on the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, as to which decisions will be made in the land use final order of the council in a newspaper of general circulation within Metro's jurisdictional area at least 14 days prior to the hearing.

(b) The notice shall:

(A) Identify the general subject matter of the hearing and the street address where a staff report and the criteria may be found;

(B) Identify the date, time and place of the hearing;

(C) State that appeals from decisions in a land use final order must be filed within 14 days following the date the land use final order is reduced to writing and bears the necessary signatures;

(D) State that failure by a person to raise an issue at the hearing in person or in writing, or failure to provide sufficient specificity to afford the council an opportunity to respond to the issue raised, shall preclude appeal by that person to the board based on that issue;

(E) State that persons whose names appear on petitions submitted into the public hearing record will not be considered by that action to have provided oral or written testimony at the hearing; and

(F) State that written notice of adoption of the land use final order will be provided only to persons who provide oral or written testimony at the hearing and who also provide, in writing, a request for written notice and a mailing address to which notice should be sent.

(c) The council also shall provide such other notice as is, in its judgment, reasonably calculated to give notice to persons who may be substantially affected by its decision. No other form of notice is required.

(2) A copy of the staff report shall be available for public inspection at least seven days prior to the public hearing. The staff report shall set forth and address compliance with the criteria. The staff report also shall include a description of the proposed boundaries within which the light rail route, stations, lots and maintenance facilities, and the highway improvements shall be located, as recommended by Tri-Met under section 6 (1) of this Act. The staff report may be amended as the staff considers necessary or desirable prior to the public hearing without further notice.

(3) The council shall hold a public hearing on the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, as to which decisions will be made in the land use final order. At the commencement of the hearing, a statement shall be made to those in attendance that:

(a) Lists the criteria or directs those present to a place at the hearing location where any person may obtain a list of the criteria at no cost;

(b) Lists generally the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, as to which decisions will be made in the land use final order;

(c) States that testimony shall be directed towards the application of the criteria to the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, as to which decisions will be made in the land use final order;

(d) States that appeals from decisions in a land use final order on the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, must be filed within 14 days following the date the land use final order is reduced to writing and bears the necessary signatures;

(e) States that failure by a person to raise an issue at the hearing, in person or in writing, or failure to provide sufficient specificity to afford the council an opportunity to respond to the issue raised, shall preclude appeal by that person to the board based on that issue;

(f) States that written notice of adoption of the land use final order will be provided only to persons who have provided

oral or written testimony at the hearing and who also have provided, in writing, a request for written notice and a mailing address to which notice should be sent; and

(g) States that persons whose names appear on petitions submitted into the public hearing record will not be considered by that action to have provided oral or written testimony at the hearing.

(4) The council shall allow for the submission of oral and written testimony at the hearing, subject to such hearing procedures as the council may deem necessary or appropriate for the adoption of land use final orders. The council may exclude irrelevant, immaterial or unduly repetitious testimony.

(5) The council may take official notice at the hearing of any matter identified in ORS 40.065 and 40.090 or as authorized by the resolution, if any, of the council establishing hearing procedures for the adoption of land use final orders.

(6) The council shall close the hearing and shall adopt by resolution a land use final order. The council may continue the matter as provided in section 6 (1) of this Act or as it otherwise considers necessary for the purpose of land use final order adoption.

(7) The land use final order shall be accompanied by written findings demonstrating how the decisions on the light rail route, stations, lots and maintenance facilities, and the highway improvements, including their locations, comply with the criteria.

(8) Following adoption of a land use final order, the council as soon as reasonably possible shall:

(a) Provide media notice of the adoption; and

(b) Provide written notice of the adoption to persons who:

(A) Provided oral or written testimony at the hearing; and

(B) Provided at the hearing, in writing, a request for written notice and a mailing address to which written notice should be sent. Persons whose names appear on petitions provided at the hearing shall not be considered to have provided oral or written testimony at the hearing. The written notice of adoption provided hereunder shall indicate the date of written adoption and signature of the land use final order, identify the place at and time during which a copy of the land use final order may be obtained and state that appeals from decisions in the land use final order must be filed within 14 days following written adoption and signature of the land use final order.

(9) The procedures established by this section establish the only opportunities that the council must provide for interested persons to participate in the proceedings of the council in adopting a land use final order. Subject to the other provisions established by this section, the council by resolution may establish additional procedures to govern its proceedings in adopting a land use final order. + }

SECTION 8. { + (1) The state, and all affected counties, cities, special districts and political subdivisions shall:

(a) Amend their comprehensive or functional plans, including public facility plans and transportation system plans and their land use regulations, to the extent necessary to make them consistent with a land use final order; and

(b) Issue the appropriate development approvals, permits, licenses and certificates necessary for the construction of the project or project extension consistent with a land use final order. Development approvals, permits, licenses and certificates may be subject to reasonable and necessary conditions of approval, but may not, by themselves or cumulatively, prevent implementation of a land use final order.

(2) Notwithstanding the provisions of subsection (1)(a) of this section or any other provision of state or local law, a land use final order shall be fully effective upon adoption.

(3) For purposes of subsection (1)(b) of this section, an approval condition shall be considered not reasonable or necessary, or shall be considered to prevent implementation of a land use final order, if:

(a) The measure has been deleted or deferred from the project or project extension in the Full Funding Grant Agreement; or

(b) The Steering Committee determines in accordance with the provisions of the intergovernmental agreement described in section 1 (21) of this Act that:

(A) There are not sufficient federal, state and local funds within the project or project extension budget to pay for the measure;

(B) The measure will significantly delay the completion or otherwise prevent the timely implementation of the project or project extension; or

(C) The measure will significantly negatively impact the operations of the project or project extension.

(4) Applications for development approvals under subsection (1)(b) of this section shall be treated as land use decisions and not as limited land use decisions.

(5) Plan and land use regulation amendments, to the extent required under subsection (1)(a) of this section shall not be reviewable by any court or agency.

(6) Development approvals and permit, license and certificate decisions under subsection (1)(b) of this section may be the subject of administrative and judicial review as provided by law. However, determinations of the Steering Committee made pursuant to subsection (3) of this section shall not be reviewable and shall control in the event of conflict.

(7) Each state agency, special district or affected local government that issues a development approval, permit, license or certificate for the project or project extension shall continue to exercise enforcement authority over the development approval, permit, license or certificate. + }

SECTION 9. { + (1) Notwithstanding ORS 183.482, 183.484, 197.825 or any other law or regulation, exclusive jurisdiction for review of a land use final order relating to the project or project extension is conferred on the Land Use Board of Appeals and the court as provided by sections 1 to 13 of this Act.

(2) Review of a land use final order relating to the project or project extension shall be initiated within 14 days following the date that the land use final order is reduced to writing and bears the necessary signatures by personal delivery to the board, to the administrator and to Metro at the office of Metro's executive officer of a notice of intent to appeal as required by this section.

(3) A person may petition for review of a land use final order relating to the project or project extension if the person:

(a) Personally delivered a notice of intent to appeal the land use final order as provided for in subsection (2) of this section; and

(b) Appeared before the council orally or in writing at the land use final order hearing on the project or project extension.

(4) A person's failure to raise an issue at the land use final order hearing, in person or in writing, or failure to provide sufficient specificity to afford the council an opportunity to respond to the issue raised, shall preclude that person from petitioning for review based on that issue.

(5) A notice of intent to appeal shall:

(a) Contain an affidavit stating the facts that support the petitioner's standing as provided in subsection (3) of this section;

(b) State with particularity the grounds on which the petitioner assigns error; and

(c) State the residence or business address of the petitioner to which documents may be delivered, and the telephone and facsimile number or numbers where the petitioner may be reached during normal business hours.

(6) Metro shall personally deliver to the board and to the administrator a certified copy of the record of the council's land use final order proceedings within seven days following the filing and delivery of a notice of intent to appeal as provided in subsection (2) of this section. Metro shall make copies of the record available to the public for the actual costs of copying. The record shall consist of the land use final order, the written findings accompanying the land use final order, the notice of the land use final order hearing, any audio cassette recordings of the hearing, a statement of matters that were officially noticed at the hearing, the staff report and any amendments thereto and documents accepted into the record at the hearing. Metro shall make a copy of the record available for inspection by petitioners and shall provide a copy of the record to any petitioner upon request for the actual costs of copying.

(7) Any objection to the record shall be personally delivered

or transmitted by facsimile to the board, to the administrator and to Metro at the office of Metro's executive officer within four days following delivery of the record to the board. Within four days thereafter, responses of Metro to objections to the record shall be personally delivered or faxed to the board, to the administrator and to the residences or business addresses of the persons objecting. Thereafter, the board shall rule expeditiously on objections. The board's ruling on objections

shall not affect the briefing schedule or decision timelines set forth in sections 1 to 13 of this Act.

(8) No stays or continuances of proceedings shall be permitted. No person may intervene in and thereby be made a party to the review proceedings, except that Tri-Met, the Department of Transportation and the affected local governments shall have standing to and may intervene on their own behalf.

(9) Within 14 days following the filing of the notice of intent to appeal, a petitioner shall personally deliver a petition for review and brief to the board, to the administrator, to Metro at the office of Metro's executive officer and to Tri-Met, the Department of Transportation or an affected local government if it has filed a motion to intervene in the review proceeding. The petition for review and brief shall set out in detail each assignment of error and shall identify those portions of the record in which the petitioner raised in the land use final order hearing the issues as to which error is assigned. The petition for review and brief shall comply with the specifications for opening briefs set forth in the rules of appellate procedure.

(10) Within 28 days following the filing of the notice of intent to appeal, Metro and any intervening party shall personally deliver to the board, to the administrator and to any petitioner at the petitioner's residence or business address their briefs in response to a petition for review and brief. Responding briefs shall comply with the specifications for answering briefs set forth in the rules of appellate procedure.

(11) Within 35 days following the filing of the notice of intent to appeal, the board shall hear oral argument in the manner provided for in its administrative rules. The board shall issue a final opinion within 28 days following oral argument. The board's final opinion shall affirm or remand the council's land use final order, stating the reasons for the decision.

(12)(a) The board shall remand the land use final order only if it finds that the council:

- (A) Improperly construed the criteria;
- (B) Exceeded its statutory or constitutional authority; or
- (C) Made a decision in the land use final order on the light rail route, on stations, lots or maintenance facilities, or the highway improvements, including their locations, that was not supported by substantial evidence in the whole record. The existence in the whole record of substantial evidence supporting

a different decision on the light rail route, stations, lots or maintenance facilities, or the highway improvements, including their locations, shall not be a ground for remand if there also was substantial evidence in the whole record supporting the land use final order.

(b) Failure to comply with statutory procedures, including notice requirements, shall not be grounds for invalidating a land use final order.

(c) The board shall affirm all portions of the land use final order that it does not remand.

(13) Upon issuance of its final opinion, the board shall file the opinion with the administrator and transmit copies to the parties. The board also shall inform the parties of the filing of the final opinion by telephone or facsimile. Within seven days following issuance of its final order, the board shall file with the administrator a copy of the record of the board.

(14) Neither the board nor the court shall substitute its judgment for that of the council as to any issue of fact or any issue within the discretion of the council. + }

SECTION 10. { + (1) Any party appearing before the Land Use Board of Appeals under section 9 of this Act and objecting to the board's final opinion may petition the court for review of the final opinion as provided for in this section. The petition shall be filed with the administrator and served on the board and all parties within 14 days following the board's issuance of its final opinion in the manner provided for filing and service in the rules of appellate procedure. The petition shall be in the form of a brief and shall state, with particularity and with supporting authority, each reason asserted for reversal or modification of the board's decision. Insofar as practicable, the petition shall comply with the specifications for petitions for review in the rules of appellate procedure.

(2) If a petition for review has been filed, then within 14 days thereafter, any other party appearing before the board may, but need not, file a response to the petition for review. In the absence of a response, the party's brief before the board shall be considered as the response. A party seeking to respond to the petition for review shall file its response with the administrator and serve it on the board and all parties in the manner provided for filing and service in the rules of appellate procedure. The response shall be in the form of a brief and shall comply with the specifications for responses to petitions for review in the rules of appellate procedure.

(3) The court may decide the matter on the briefs, or it may hold oral argument. The court may adopt the board's final opinion as its own, affirm without opinion or issue a separate opinion. The court shall decide the matter at its earliest practicable convenience, consistent with sections 1 to 13 of this Act.

(4) The court shall affirm or remand the land use final order, in whole or in part. The court shall affirm all parts of the

final order that it does not remand. The court shall base its decision on the standards for review set out in section 9 (12) of this Act. If the court remands, the council shall respond as to those matters remanded by adopting by resolution a land use final order on remand. The provisions of section 7 of this Act shall govern the proceedings of the council in adopting a land use final order on remand. Upon adoption of a land use final order on remand, Metro shall immediately file with the administrator the land use final order on remand and the record of the council. Metro shall personally deliver copies of its land use final order on remand to the parties before the court and shall inform the parties of the filing of the final order on remand by telephone or facsimile.

(5) If the court remands, the court shall retain jurisdiction over the matters remanded. Within 14 days following adoption of a land use final order on remand, the parties before the court may submit memoranda to the court with respect thereto and shall personally deliver copies of the memoranda to other parties before the court. The court may limit the length of such memoranda. The court's decision on the land use final order on remand shall be based on the standards set forth in section 9 (12) of this Act. + }

SECTION 11. { + (1) If, as a condition of executing a Full Funding Grant Agreement, the Federal Government requires the deletion or deferral of portions of the approved project or project extension, or the deletion or deferral of measures expressly provided for in a Final Statement, a determination of which improvements or measures to delete or defer shall be made in accordance with the provisions of the intergovernmental agreement described in section 1 (21) of this Act.

(2) If, subsequent to execution of a Full Funding Grant Agreement, additional deletions or deferrals are required due to insufficient funds in the budgets for the project or project extension, a determination of which improvements or measures to delete or defer shall be made in accordance with the provisions of the intergovernmental agreement described in section 1 (21) of this Act. + }

SECTION 12. { + (1) Upon execution of a Full Funding Grant Agreement, the council shall amend the land use final order to be consistent with the terms and conditions of the Full Funding Grant Agreement.

(2) The following amendments to a land use final order shall be considered technical and environmental and shall not be subject to judicial or administrative review:

(a) Amendments resulting from adoption of a Final Statement;
(b) Amendments required to ensure consistency with an executed Full Funding Grant Agreement; and

(c) Amendments to defer or delete a portion of the project or project extension as provided for in section 11 (2) of this Act. + }

SECTION 13. { + No action taken by the commission, the council, the board or the court under sections 1 to 13 of this Act shall be invalid due to a failure to meet a timeline established by sections 1 to 13 of this Act. + }

SECTION 14. { + ORS 197.550, 197.553, 197.556, 197.559, 197.562, 197.565, 197.568, 197.571, 197.574, 197.577, 197.581, 197.584 and 197.590 are repealed. + }

SECTION 15. { + This Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this Act takes effect on its passage. + }



Metro

No. 2
Aug. 11, 2011

Columbia River Crossing Land Use Final Order Public Hearing

(Please print)

Name (required) Dan McFarling

Affiliation (if any) AORTA

Address (required) 20505 SW Cheville Ct Aloha OR 97007

E-mail (optional) OregonRail@aol.com

☒ Send me written notification of adoption of the LUFO (requires valid mailing address).

Testimony (use back or attach additional sheets if necessary)

Attach a copy of your testimony and any supporting material to this form. Make sure your name is on all material. If you choose not to testify orally, you may testify in writing by leaving this form, along with any prepared materials, with staff or by depositing it in the comment box. Only oral testimony at the hearing and written testimony received prior to the close of the hearing will be included in the record.

Testimony
Before the METRO Council
Columbia River Crossing, LUFO
August 11, 2011

The LUFO statute was adopted in order to facilitate resolution of landuse decisions relative to light rail construction.

LUFO NOT APPLICABLE.

Within the urban growth boundary, the light rail component of this Mega-freeway project is a local access bridge for road traffic and light rail to Hayden Island. This local access bridge has no physical connection with Interstate . Road traffic on this local access bridge has no direct connection with I-5.

The LUFO statute is not applicable to this mega-freeway project except, perhaps, for the minor component just described.

LOCAL ACCESS BRIDGE NEEDED.

A local access bridge with light rail to Hayden Island makes good sense. It would reduce traffic turbulence on I-5, reducing congestion and increasing safety. It would create jobs. It would be affordable.

COMMON SENSE ALTERNATIVE.

Wasting time and money pursuing an unfunded proposal that will not be built when options like the Common Sense Alternative are available merely postpones progress. Look at the Common Sense Alternative. It improves traffic flow for all modes: road, rail and waterway. It can be phased. It creates both long term and short term family wage jobs and promotes a healthier environment. It meets future needs. And it is affordable.

Dan L. McFarling
20585 SW Cheshire Court
Aloha, Oregon 97007
503.642.4077

Does it make any sense, when there are so many **unmet** needs to maintain existing infrastructure, to ignore those needs in favor of expending limited resources tearing down bridges that have been determined by both Oregon and Washington's DOT's to be **sound infrastructure with many more decades of useful life?**



Metro

No. 3

Aug. 11, 2011

Columbia River Crossing Land Use Final Order Public Hearing

(Please print)

Name (required) JIM HOWELL

Affiliation (if any) AORTA

Address (required) 3325 NE 45TH AVE

E-mail (optional) JIMHOWELL89@HOTMAIL.COM

☐ Send me written notification of adoption of the LUFO (requires valid mailing address).

Testimony (use back or attach additional sheets if necessary)

Attach a copy of your testimony and any supporting material to this form. Make sure your name is on all material. If you choose not to testify orally, you may testify in writing by leaving this form, along with any prepared materials, with staff or by depositing it in the comment box. Only oral testimony at the hearing and written testimony received prior to the close of the hearing will be included in the record.

James M. Howell
3325 NE 45th Avenue
Portland, OR 97213

Telephone: 503-284-7182
Email: jimhowell89@hotmail.com

August 11, 2011

Testimony to: Metro Council
RE: Resolution No. 11-4280

Please do not approve Res. 11-4280 as proposed for the following reasons.

1. The definition of the "Project" is far too broad and has little to do with the South/North Light Rail Project adopted by Metro Council on July 28, 1998 (Resolution No. 98-2673), which this resolution would amend.
2. Light rail can be extended north, within the Urban Growth Boundary, without modifying the I-5 Freeway and therefore none of the freeway project should be included in this resolution.
3. Of the (14) highway improvements listed on pages 4. and 5. of Exhibit A of Res. No.11-4280, the only highway improvement directly linked to light rail is described by item 5. ***"A new integrated light rail/vehicle/bicycle/pedestrian bridge west of I-5 connecting Hayden Island with Expo Center and N. Expo Road."*** All other items should be eliminated and the project's boundary should be modified to include only this limited corridor.



Metro

No. 4

Aug. 11, 2011

Columbia River Crossing Land Use Final Order Public Hearing

(Please print)

Name (required)

JOSEPH CORTRIGHT

Affiliation (if any)

IMPRESA, INC

Address (required)

1424 NE HINOTE ST., PORTLAND, OR 97212

E-mail (optional)

jcortright@gmail.com

☒ Send me written notification of adoption of the LUFO (requires valid mailing address).

Testimony (use back or attach additional sheets if necessary)

— Submitted via email —

Attach a copy of your testimony and any supporting material to this form. Make sure your name is on all material. If you choose not to testify orally, you may testify in writing by leaving this form, along with any prepared materials, with staff or by depositing it in the comment box. Only oral testimony at the hearing and written testimony received prior to the close of the hearing will be included in the record.

August 11, 2011

Metro President Hughes
Metro Councilors Burkholder, Colette, Craddick, Harrington, Hosticka, Roberts
Metro
800 NE Grand Avenue
Portland, OR 97232

RE: Resolution No. 11-4280
Land Use Final Order for the Columbia River Crossing

Dear President Hughes and Metro Councilors:

I submit the following testimony for your consideration as you deliberate on findings of fact for Resolution No. 11-4280 amending the Land Use Final Order (LUFO) for the Columbia River Crossing.

I have been retained by Plaid Pantries, Inc., to undertake an economic and financial analysis of the Columbia River Crossing. For 16 years, I have been principal economist for my firm, Impresa, Inc. Prior to that, I served for 12 years as the chief economic development staff person for the Oregon Legislature. In addition to providing research and analysis for a wide range of public and private clients, I am a non-resident Senior Fellow at the Brookings Institution, Senior Research Advisor for CEOs for Cities, and current chair of the Governor's Council of Economic Advisers. My vita is attached.

Over the past four years, I have carefully studied the financial aspects of the Columbia River Crossing. Based on my analysis, detailed below, I conclude that it is highly unlikely that necessary funding for the construction of the project will be forthcoming from the sources and in the amounts described in the project's draft financial plan. My analysis is divided into four parts, as follows:

1. CRC project financing is highly uncertain.
2. There is no assurance that the project can be constructed for the currently budgeted amount.
3. CRC traffic projections are inaccurate.
4. TIFIA funding is unlikely to offset shortfalls in toll bond funding.

My analysis strongly suggests that the record before you is inadequate to support the appropriate findings for a Land Use Final Order; I would therefore recommend that you return this matter to Tri-Met for further work.

1424 NE Knott Street
Portland, OR 97212
503.213.4443
www.impresaconsulting.com

1. CRC project financing is highly uncertain.

The CRC depends on a complex, multi-part financing plan. None of the parts of the plan have yet been approved by any of the bodies that must approve such funding. There are four key elements to this financing plan: toll bonds, Oregon and Washington appropriations, federal New Starts funding, and federal highway funding.

Source	Amount (Millions)
Toll Bond Proceeds and Revenues	\$1,358.8
Oregon & Washington Appropriations	900.0
Federal New Start Funding	\$850.0
Federal Highway Earmark	\$400.0
Other Funds	56.2
Total	\$3,565.00

(Columbia River Crossing 2010c, Table 1-3 "Integrated Capital Finance Plan," page 1-7)

The CRC financing plan rests on seven key assumptions about decisions that will be made and amounts that will be provided for project funding:

1. Washington legislative approval of facility tolling.
2. Washington legislative approval of funding for the state share of the project.
3. Oregon legislative approval of funding for the state share of the project.
4. Earmarking or Federal Highway Administration approval of funding for the highway portion of the project.
5. Federal Transit Administration approval of New Starts Funding
6. Oregon and Washington Treasurers' approvals for the authorization of toll-backed revenue bonds
7. Voter approval in the CTRAN district or a portion thereof of operating funds for light rail.

In order to construct the project as currently described by the Project Sponsors Council, all of these financial approvals must be made, and made at the full amount budgeted. If any of these sources of funds or approvals is not made, or if funding is provided at less than the budgeted amount or if funding or approval is delayed, there is no assurance that all of the component parts of the project will be constructed.

In addition, there are important inter-dependencies among different funding sources. Some funds are legally required as matching funds to secure the availability of other funding. For example, availability of Federal Transit Administration funding assumes contributions from both states and from tolling are available to be counted as "matching" money for the FTA, and further, that there is an assured source of local operating funds.

Shortfalls in one funding source could trigger reductions in funding from other sources. Already, Clark County's Regional Transportation Council has raised questions about the equity of increasing costs for local users if federal funding is less than anticipated (Regional Transportation Council 2011).

There are major risks that one or several of these assumptions are incorrect and that expected sources of funding will not materialize, and additional risks that they will not materialize in the amounts budgeted or on the schedule currently planned.

Assumption 1. Washington legislative approval of facility tolling. The CRC finance plan assumes that nearly one-third of project funding will come from tolls paid by bridge users. The Washington Legislature must specifically adopt legislation authorizing tolling on the I-5 bridges (RCW 47.56.075). It has not done so. Moreover, in November 2011, Washington voters will consider Initiative 1125 which will attach additional conditions to toll funded projects, including requirements of specific legislative approval of toll rates and toll rate increases, and a general ban against varying toll-rates by time of day (Washington Secretary of State 2011). The CRC's financial plan assumes variable rate tolling, and therefore would not comply with the limitations of the proposed initiative.

If the Washington Legislature fails to approve tolling of the Columbia River Crossing, between \$1.0 and \$1.3 billion will have to be cut from the project budget, this may make the project as a whole untenable.

Assumption 2. Washington legislative approval of funding for the state share of the project. The draft CRC finance plan assumes the Washington Legislature will appropriate \$450 million dollars as the state share of the project. The Washington Legislature has not approved, nor even received, a request for this level of funding. The current ten-year state transportation budget makes no allocation of state transportation funds for construction of the Columbia River Crossing. Each biennium, the Washington Legislature adopts a multi-year listing indicating, project-by-project funding levels for the current biennium, and the four subsequent biennia. The list adopted by the 2011 Washington Legislature provides funding for further planning of the CRC, but no construction funding, and no amounts beyond the 2011-13 biennium. In contrast, the Legislature has already appropriated \$1.4 billion for the Alaska Way Viaduct replacement project and \$1.6 billion for the Highway 520 floating bridge project through the current biennium, and scheduled an additional \$635 million for the Alaska Way Viaduct replacement for 2013-2017, and \$679 million for the Highway 520 floating bridge project for 2013-19 (Washington Legislative Evaluation and Accountability Program Committee 2011).

Providing the state share of the Columbia River Crossing will likely necessitate an increase in state gas taxes. Washington's available state gas tax revenues are almost fully pledged for debt service; by 2014, an estimated 70% of state gas tax revenues will go to debt service (Washington Department of Transportation 2011, page E-178). State gas tax revenues are falling below projections: the state now forecasts that revenues over the

next decade will fall \$400 million short of earlier projections and over the next sixteen years will be \$1.6 billion short, due higher fuel prices, less driving and more fuel efficient vehicles (Washington Department of Transportation 2010a).

Washington's unwillingness or inability to provide state funds for the CRC is illustrated by its directive that the state undertake a study of public private partnerships as an alternative means of financing major transportation projects. The 2011 Washington Legislature has required a study of public private partnerships be undertaken for a series of named construction projects. If the state elects to proceed with a public-private partnership for the CRC, its contribution may not come in the form of state revenues, and may not be timely, or in the amounts anticipated. That report is not scheduled to be submitted until December 2011 (Chapter 367, 2011 Washington Laws, Section 204).

The CRC has already failed to meet its own deadlines for applying for state funding. The project's draft finance plan dated September 2010, indicated that the project would seek state legislative funding in the 2011 session (Columbia River Crossing 2010c). The official project schedule, dated May 31, 2011, also indicates that state funding approval would be obtained in 2011 (Columbia River Crossing 2011).

Assumption 3. Oregon legislative approval of funding for the state share of the project. The draft CRC finance plan assumes the Oregon Legislature will fund \$450 million dollars as the state share of the project. The Oregon Legislature has not approved, nor even received, a request for this level of funding. Oregon has pledged a significant share of the state's portion of recent gas tax and vehicle registration fees to pay debt service on bonds for projects already committed, not including construction of the CRC. A gas tax increase will be subject to referendum in Oregon.

Like Washington, Oregon has borrowed heavily against future transportation revenues, and obligated the proceeds to projects built or now under construction. Combined with the termination of federal stimulus funds, state highway capital construction budgets are expected to decline from a level of more than \$800 million annually to about \$300 million annually (Esteve 2011).

As a result, obtaining sufficient funding for the CRC would necessitate an increase in state gas taxes. Political support for the Columbia River Crossing in the Oregon Legislature is highly questionable: The 2011 Oregon Legislature failed even to pass a memorial (HJM 22) asking Congress to provide funding for the CRC.

The CRC has already failed to meet its own deadlines for applying for state funding. The project's draft finance plan dated September 2010, indicated that the project would seek state legislative funding in the 2011 session (Columbia River Crossing 2010c). The official project schedule, dated May 31, 2011, also indicates that state funding approval would be obtained in 2011 (Columbia River Crossing 2011).

If the Oregon Legislature does not approve funding for the state share of the Columbia River Crossing, the project would have to be dramatically scaled back or canceled altogether.

Assumption 4. Earmarking or Federal Highway Administration approval of funding for the highway portion of the project.

The CRC financial plan assumes that as part of the transportation reauthorization process Congress will provide \$400 million for the Columbia River Crossing.

Proposed reauthorization legislation makes no provision for either earmarks or projects of national and regional significance.

The CRC anticipates that federal highway funding of \$400 million will come from an earmark of federal funding by Congress or from a special program providing funding for projects of national significance (Columbia River Crossing 2010c, page 2-6). CRC advocates have made the claim that these earmark funds are money over and above federal funding that would otherwise come to Oregon or Washington:

“Federal highway funds are being sought from a category known as Projects of National Significance. Very few projects in the country and no other projects in the region can compete for these funds These sources are unique to the CRC project and do not affect other Oregon projects.”
(Garrett, 2011)

The category of “Projects of National and Regional Significance” was established in the SAFTEA-LU transportation funding bill of 2005. All of the funds in that program were earmarked by Congress for 25 named projects, and funding under this section ran from fiscal year 2005 to fiscal year 2009. There is currently no legal authorization for a “Projects of National Significance” category.

Neither the draft Senate nor the draft House legislative concepts make any provision for earmarks or for allocations to projects of national or regional significance. The Senate reauthorization concept specifically bans earmarks (Boxer & Imhofe 2011). House Transportation and Infrastructure Committee chair has also said that his reauthorization legislation will not include earmarks (Mica 2011a). Neither of the legislative drafts before Congress (Boxer and Imhofe 2011, and Mica 2011b), have any provision for allocating funds for projects of national or regional significance. This source of funding is at best speculative.

Federal funding for transportation faces major reductions. The Federal Highway Trust Fund, the source of funding for both the highway and transit portions of the project is nearly broke. According to the Congressional Budget Office, outlays now exceed revenues under current law by more than \$10 billion annually, and the trust fund will run

out of money within the next two years. Over the next decade the fund is expected to have a deficit of \$115 billion (Kile 2011).

A majority of the current 18.4 cent per gallon federal gas tax sunsets on September 30, 2011, and unless Congress votes to extend the tax, there will be a massive shortfall in federal revenue. In the wake of the recent battle over raising the federal debt ceiling, there is a strong possibility that there will be opposition to extending the repeal (Tau and Smith 2011).

The debt limit ceiling increase provides for a reduction in federal spending over the next decade in the amount of more than \$2 trillion. While the exact expenditure categories for reductions have not been established, it is likely that funding for transportation will be reduced from current levels. The debt ceiling increase and deficit reduction agreement reached by the President and Congress includes plans to cut discretionary domestic spending by \$2.1 trillion over the next decade (Kane & Montgomery 2011). The exact sources of these cuts have not been identified, but transportation funding generally and the New Starts program in particular have been the target of budget reductions.

Transportation funding is especially vulnerable because gas tax revenues have failed, by an increasingly wide margin, to cover spending necessitating frequent bailouts of the Highway Trust Fund. Over the past three years, Congress has transferred nearly \$35 billion dollars in general fund monies to the Highway Trust Fund to maintain spending levels; without these transfers funding would have to be reduced by almost one third (Mica 2011b). This is unlikely to continue in the current economic, fiscal and political climate.

The combined effect of all of these factors—a looming deficit in the Highway Trust Fund, the exclusion of earmarks from transportation reauthorization in both the Senate and House, pressure to further reduce spending to comply with the debt limit extension agreement—all mean that federal funding of \$400 million, over and above current federal highway funds flowing to the region, is highly unlikely. According to Congressman Peter DeFazio, the outlook for funding for the Columbia River Crossing is now “very, very, very, very grim. (Fought and Cooper 2011)

Assumption 5. Federal Transit Administration approval of New Starts funding. The CRC finance plan assumes that the Federal Transit Administration will provide \$850 million in “New Starts” funding for the light rail portion of the CRC.

The FTA New Starts program faces all of the same funding difficulties that confront funding for the highway portion of the project. Monies for the New Starts program are funded through the Highway Trust Fund, which as noted above, is facing insolvency, and has been supported by nearly \$35 billion in transfers from the General Fund over the past three years.

New Starts is a competitive program with limited funding. It is not clear that the Columbia River Crossing project can be competitive, especially if funding for the New Starts program is reduced in coming years. The Independent Review Panel noted that the FTA program is highly competitive, and that the federal share of the transit portion of the CRC is higher than all but one other project in the New Starts process. The IRP warned that weaknesses in the financial commitment by local agencies to the project and overly optimistic financial assumptions were a risk to obtaining New Starts funding (Independent Review Panel 2010, pages 180-184). In addition, eligibility for funding under the New Starts program is contingent, in part, on a demonstrated local financial commitment to project capital and operating costs. Reductions in transit service or financial weakness in CTRAN due to the failure of either of two pending sales tax increase measures in Clark County could jeopardize the eligibility of CRC for federal New Starts funding (See Assumption 7 below).

In addition, the CRC financial plan assumes that the project will be able to get the equivalent of almost 100 percent federal funding for the transit-related portion of the project. Its hopes of doing so are based on an amendment attached to an earlier appropriation bill that in effect directs the FTA to treat the locally funded portions of the highway aspects of the CRC as the “local match” for the transit portions of the CRC. It is customary for FTA to fund a far smaller fraction of the capital costs of such projects. While the law allows for a federal share of up to 80 percent of project costs, 50 percent match is more common. FTA may insist on a lower level of federal funding and a higher local matching share for the CRC. This is exactly what happened with the Milwaukie Light Rail project. The region originally planned on 60 percent federal financing of the project, but the FTA approved a federal share of only 50 percent, forcing local sponsors to come up with additional funds and reduce the project scope.

Shortfalls in FTA funding for the light rail portion of the project could jeopardize the entire project. The State Treasurer's report found that:

Failure to win Federal funding for the transit portion of the project may require rethinking of the overall project scope, timeline and financing plan.
(Oregon State Treasurer 2011)

Assumption 6. Oregon and Washington Treasurer's approval for the authorization of toll-backed revenue bonds. The Columbia River Crossing's financial plan has long assumed that one-third of the project's overall budget could be financed by issuing bonds against future toll revenues. Such bonds would be required to be approved by the Oregon and Washington Treasurers. The treasurers may decline to issue such bonds, and they may also restrict the amount of bonds that can be issued based on a more accurate assessment of future toll revenues.

The CRC financial plan has a number of very optimistic assumptions about bond financing. It assumes that the two states will issue general obligation bonds—i.e. securities backed by the full faith and credit of the two states and repayable from general

funds if toll revenues aren't adequate (Columbia River Crossing 2010c, page 2-13). The financial projections prepared to support these bonds assumed a high level of growth of traffic and regular annual increases in toll rates charged to users.

Toll revenue projections have been widely found to suffer from optimism bias, according to independent reviews by the Transportation Research Board, an arm of the National Academies (Kriger 2006).

In 2011, the Oregon State Treasurer retained Robert Bain of RB Consult to review the CRC finance plan and traffic projections. Bain concluded that:

- Traffic and revenue analyses prepared for the CRC were unsuitable for credit analysis
- CRC traffic projections were confusing and outdated
- Authors of the traffic projections failed to examine historical data or verify their models against actual trends
- Diversion estimates to I-205 were “worrying.”
- Overall, the CRC appears to have overestimated traffic.
- Toll revenue appears to be over-estimated by 25 percent.

(Bain 2011)

The underlying traffic models used to construct the CRC financial plan are inaccurate. This point is explored more fully in section 3 of this report.

The analytical cornerstone of any borrowing secured by future toll revenues is the preparation of an independent investment grade financial analysis. Such an analysis rigorously assesses the underlying financial, traffic and economic assumptions behind toll revenue forecasts, frequently adjusting them downward to offset “optimism bias” in agency-sponsored forecasts (Bain 2009). The Independent Review Panel (2010), the Oregon State Treasurer (2011), and the Bain (2011) report prepared for the Oregon State Treasurer have all called for the preparation of an investment grade financial analysis for the Columbia River Crossing. Such an analysis will be required both to obtain bond funding and is also a requirement for eligibility for TIFIA loans from the federal government (Federal Highway Administration 2011). The CRC has not undertaken an investment grade financial analysis, nor does the May 31, 2011 project schedule show any timetable for preparing an investment grade analysis (Columbia River Crossing 2011). Until an investment grade analysis is prepared no one can be sure of how much money can be borrowed against future toll revenues from the Columbia River Crossing. Even local agencies have indicated that the lack of an investment grade analysis impairs their ability to commit to the project. The Clark County Regional Transportation Council has withheld any approval of funding for the CRC, saying:

The information in the finance chapter is reasonable, it does not mean that RTC has committed to fund or build the project. An investment grade analysis of the financial plan has yet to occur and is necessary in order to satisfy RTC's concerns

regarding cost sharing, project costs, and potential project phasing.
(Regional Transportation Council 2011).

Based on negative experience with the Tacoma Narrows Bridge expansion project, the Washington State Treasurer has adopted new and more conservative requirements for future borrowings for transportation projects. The Tacoma Narrows Bridge financial plan assumed that the state would raise tolls aggressively over a period of years, and that traffic would increase steadily over time. These assumptions produced a “back-loaded” debt repayment schedule, with progressively larger payments due to be made each year. In practice, it has been difficult to raise tolls, and traffic is not growing as fast as predicted. To limit risk that tolls will produce insufficient revenue, the Washington Treasurer has specifically prescribed that future toll-backed borrowings not assume any increases in toll rates, and that debt service have a level payment schedule (like a conventional mortgage). The financial plan for the CRC assumes steady 2.5 percent annual increases in toll rates and a heavily back-loaded debt repayment schedule. The elimination of these provisions has the effect of reducing the borrowing potential of forecast toll revenues by \$318 million (Oregon State Treasurer 2011).

The current financial plan for the Columbia River Crossing calls for tolling the I-5 bridge, but not the I-205 bridge. The presence of a non-tolled alternative in close proximity to a newly tolled facility is a red flag for bond rating agencies and bond buyers (Bain 2009). The ready availability of a non-tolled alternative makes it difficult for bond purchasers to be assured that the tolled facility will produce sufficient revenue to repay bonds, and makes it likely that toll rate increases will divert traffic to the non-tolled facility rather than providing increased revenue. In the absence of tolling the I-205 bridge as well as the I-5 bridge it may be difficult to sell toll-backed bonds. Alternatively, the principal amount of such bonds may be much lower than the amounts now assumed in the Columbia River Crossing financial plan.

Assumption 7. Voter approval in the CTRAN district or a portion thereof of operating funds for light rail.

In Washington state, transit districts are required to obtain voter approval before undertaking high capacity transit investments. Washington law provides: “Transit agencies participating in joint regional policy committees shall seek voter approval within their own service boundaries of a high capacity transportation system plan and financing plan.” (RCW 81.104.030(1)).

Currently, it appears that the Clark County Transit District (CTRAN) will undertake an election in November 2012 to secure funding and approval for the light rail facility (Florip 2011). If this vote fails, CTRAN will lack funding to operate the light rail facility. CRC currently has no alternative plan to secure voter approval for high capacity transit or provide funds for light rail operation. This would directly jeopardize CTRAN's participation in the light rail portion of the project, and also indirectly preclude FTA New Starts funding for the project (See Assumption 4).

In the meantime, in November 2011, Washington voters may approve Initiative 1125 (Washington Secretary of State 2011) requiring legislative approval of toll increases and banning peak period tolling differentials; inasmuch as current CRC forecasts are based on the assumption of much higher peak period tolls, this would result in different amounts of revenue than have been currently modeled.

Also in November 2011, CTRAN voters will consider a measure to raise the sales tax in Clark County by two-tenths of one-percent to pay for bus service in the county. CTRAN officials have indicated that if this measure should fail, bus service would have to be reduced. These same CTRAN officials have indicated that the Federal Transit Administration is unlikely to approve funding for a project for new light rail service if a transit agency has insufficient funds to maintain its current level of bus service (Florip 2011).

2. There is no assurance that the project can be constructed for the currently budgeted amount.

The current finance plan for the Columbia River Crossing assumes that the project can be constructed for approximately \$3.6 billion. Whether or not the project can actually be financed depends on the reliability and accuracy of these cost estimates. If costs should be higher than those now estimated, it would not be possible to build the project as described with the resources available in the current financial plan even assuming that all of the projected resources are realized. Our earlier analysis suggests that the total 30 year cost of constructing, financing and operating the Columbia River Crossing, and the other facilities needed to make the project work will be approximately \$10 billion (Cortright 2010).

The current cost estimates for the Columbia River Crossing are out-of-date and subject to revision. The estimates quoted in the findings and staff report are based on data prepared prior to the selection of the current composite truss design. The Columbia River Crossing has held a subsequent Cost Estimate Validation Process (CEVP) workshop in May, 2011, but has not yet released the results of this analysis (Eidlin 2011).

Early on, the project identified the need for formal agreements to establish responsibility for dealing with cost overruns. The Draft Environmental Impact Statement was quite clear:

“WSDOT, ODOT, C-TRAN, TriMet, and possibly the Cities of Vancouver and Portland, must prepare agreements on roles and responsibilities for project development, construction, and capital funding that address such issues as project management and decision-making, capital cost sharing, how potential cost-overruns are managed, and contracting procedures.”
(CRC, Draft Environmental Impact Statement, 2008 page 4-42).

No agreements have been yet signed that establish the liability for paying for cost overruns.

Large projects such as the Columbia River Crossing routinely exceed pre-construction cost estimates. Such cost overruns are not conjectural: they are a routine occurrence in mega-projects like the CRC (Flyvbjerg 2009). Major projects undertaken by the Oregon Department of Transportation (ODOT) have regularly exceeded pre-construction cost estimates by very large margins. ODOT's current three largest projects, the Pioneer Mountain Eddyville project on US 20 between Corvallis and Newport, the MLK/Grand Avenue Viaduct in Portland and the proposed Newberg-Dundee bypass now all have estimated costs that exceed by 100% or more the amounts discussed at the time the projects were at the point in the review process that CRC is today (Cortright 2010).

ODOT's largest current construction project, Pioneer Mountain-Eddyville—a 7-mile long rebuild of U.S. Highway 20 between Corvallis and Newport—is more than 100 percent over budget. When it was planned in 2003, the project was supposed to cost about \$110 million and be complete by 2009. Highway officials confidently stated:

“The estimated cost of the Pioneer Mountain to Eddyville project is \$110 million dollars (2003 dollars). Construction is anticipated to begin in 2005 and take about 4 years to complete.”

(Federal Highway Administration and Oregon Department of Transportation, 2003)

The original design-build contract awarded in 2005 was valued at \$129.9 million. After construction problems emerged, ODOT subsequently agreed to add \$47 million to the contractor's compensation. Costs have continued to increase and the project is still incomplete: construction has been on-hold for more than a year because several bridge columns are out of plumb. Today, the project is not complete and has expended more than \$234 million—more than double the original estimate (AASHTO, 2010).

By comparison, the amount the Oregon and Washington Departments of Transportation have spent on planning the CRC (roughly \$130 million) is the same order of magnitude as the original budget for the U.S. 20 widening. The construction budget for the CRC—about \$3.8 billion—is more than ten times larger than the U.S. 20 widening. Despite entering into a public private partnership that was supposed to insulate it from the risks of cost-overruns, the US 20 project the project cost has doubled and the project will take at least three years longer to complete than originally planned.

The next large project in ODOT's pipeline is the Newberg-Dundee bypass. Its cost has also more than doubled as it has moved through the planning process. At the time of the Draft Environmental Impact Statement on the proposed Newberg-Dundee bypass (2003), total project costs were estimated at \$222 million. Just two years later, after additional, more precise engineering analyses, the cost had ballooned 40 percent, to more than \$311 million (Oregon Department of Transportation, 2005). Today, it is estimated that completing this project may require between \$752 and \$880 million (Federal Highway Administration and Oregon Department of Transportation, 2010).

Cost overruns will likely jeopardize the validity of the current financing plan. The potential liability for cost overruns is likely to deter funders from participating in the project. Lenders, including both bond purchasers and TIFIA, are unlikely to finance the project unless adequate provision is made for potential cost overruns (if the project is incomplete or delayed, their repayment would be at risk).

3. CRC traffic and toll revenue forecasts are inaccurate

Financing of the Columbia River Crossing project depends on accurate estimates of future traffic levels under tolling. The CRC finance plan has estimated that up to \$1.4 billion in project costs can be supported by borrowing against future toll revenues. This claim is based on traffic modeling undertaken for the Draft Environmental Impact Statement, published in May 2008 (Columbia River Crossing 2008). This modeling has been supplemented by an analysis of tolling in January 2010 (Columbia River Crossing 2010a, 2010b).

The traffic and toll revenue forecasts prepared for the Columbia River Crossing are not accurate. The original forecasts were prepared based on 2005 base year data, and were published in 2007, and incorporated in the May 2008, Draft Environmental Impact Statement. The Columbia River Crossing has not produced new forecasts of travel since that time.

In February 2009, the Oregon Department of Transportation received a report prepared by Parsons Brinckerhoff, David Evans and Associates Inc., and Stantec Consulting Services Inc. The authors of this report all happen to be contractors for the Columbia River Crossing project. The report is entitled *Tolling White Paper 3: Travel Demand Model Sufficiency*. This document is available on the Internet at the following address: <http://www.oregon.gov/ODOT/TD/TP/docs/LRPU/twp3.pdf>

ODOT's report finds that the current models used to forecast traffic in Oregon, and specifically in the Portland Metropolitan Area, including the Metro model, are inadequate to accurately predict traffic volumes on tolled facilities, such as the proposed Columbia River Crossing. Consider ODOT's summary of this report:

Existing models in Oregon are rated as excellent for the purposes they were designed, and some are internationally recognized. However, Oregon models have not been specifically designed to evaluate toll projects, so **planners are not able to confidently forecast travel patterns for projects that are considering tolling/pricing. Existing models are not able to determine how travelers would change their mode, route, travel time, or destination in response to tolling/pricing.**

Oregon Department of Transportation, Tolling and Travel Demand Model Sufficiency, Highlights of Tolling White Paper 3, March 2009, page 1, http://www.oregon.gov/ODOT/TD/TP/docs/LRPU/Highlight3.pdf#Tolling_White_Paper_3
(Emphasis added)

Exhibit 1 presents excerpts from the ODOT report illustrating the specific technical reasons current models are incapable of accurately predicting traffic on tolled facilities.

As the ODOT study shows, the Oregon Department of Transportation and the principal contractors for the Columbia River Crossing concur that the traffic forecasting methods used by the CRC are not accurate or reliable. Accurate estimates of future traffic levels are central to assessing the need for this project, justifying its size, evaluating its environmental impacts, and most crucially, determining the viability of its financial plan.

Furthermore, in light of this information, it is clear that the analysis that was provided to the Metro Council, on page 2 of Exhibit B, of Resolution 11-4264, was incorrect. That page recites findings from CRC's Tolling Study, which relied on the existing Metro model. And the consultants conclude further that these problems could have been fixed; but they have not been. They wrote: "We specifically propose a method that would help to eliminate built-in optimistic biases and produce reliable and conservative forecasts, (Parsons Brinckerhoff, et al 2009)" but that has not been done for the CRC.

In its findings and its staff report, Metro makes no effort to defend the accuracy of these forecasts or respond to the criticisms presented. The record clearly shows, and is un-rebutted, that the models used to predict future traffic levels and in turn to predict future toll revenues are inaccurate.

In previous public discussions of the CRC, several defenses have been offered of the reliability of CRC modeling. Among other things, CRC advocates have claimed:

1. The model has been peer-reviewed
2. The decline in traffic on I-5 is a short term problem due to the 2008-09 recession
3. The IRP approved the model, or the problems identified by the IRP have been fixed
4. The CRC projections are based on the Metro transportation model

These claims are incorrect.

CRC's peer review panel does not validate the accuracy of CRC projections. In 2008, the CRC hired transportation planners from metropolitan planning organizations in other states to spend two days reviewing CRC traffic forecasts. The group was provided with a narrow list of questions constructed by CRC advocates. They did not invite or receive testimony from any critics of the CRC traffic projections. The participants were provided with a briefing book prepared by CRC staff. The briefing book contained no information about criticisms made of the CRC projections. Nor did it contain historical data on traffic over the I-5 and I-205 bridges. Nor did it contain data showing that after the base year of the CRC projections (2005) traffic levels had declined for three consecutive years. (See Columbia River Crossing 2010b). In its report, the peer review panel concluded only that the CRC methods and assumptions used were "within standard practice." The panel did not vouch for the accuracy or reliability of the CRC forecast numbers. As noted by the Government Accountability Office (2005), and the

Transportation Research Board (2007), the problem is that the standard four-step transportation models consistently over-estimate traffic congestion, and as pointed out above, are incapable of accurately predicting traffic on tolled facilities.

Independent analyses of CRC projections by the State Treasurer and CRC consultants discredit the reliability of CRC projections. As noted above, the report prepared by three CRC consultants—Parsons Brinckerhoff, David Evans and Associates, and Stantec—concludes that the model use for the CRC cannot accurately predict traffic levels for tolled facilities. In addition, the Bain report concluded that traffic levels were over-estimated and not suitable for credit analysis (Bain 2011).

The recession does not explain the decline in I-5 traffic. It has been claimed that the decline in traffic since 2005 is attributable to the economic recession which began in December 2007. Robert Bain, the consultant to the Oregon State Treasurer conclusively disposed of this argument in his report:

Traffic volumes using the I-5 Bridge have flattened-off over the last 15-20 years; well before the current recessionary period. This is highlighted by the red dotted trend line in the chart below which was estimated up to and including the year 2006 (i.e. it omits the recent 2007 – 2010 period characterised by fuel price hikes and economic recession). The clear inference is that the flattening-off is a long-term traffic trend; not simply a manifestation of recent circumstances.
(Bain 2011, page 3)

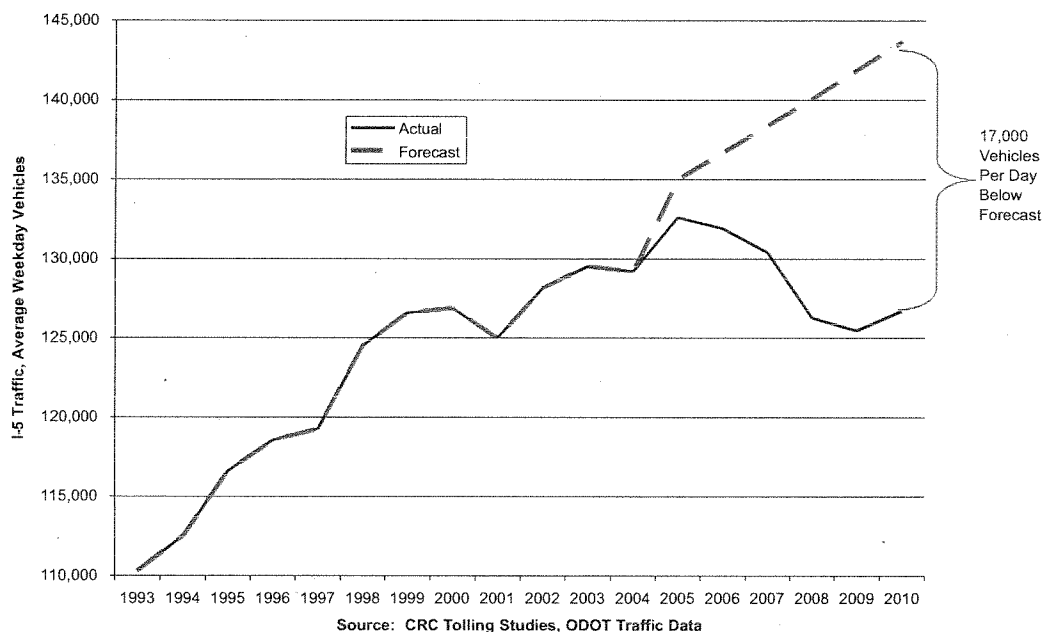
The data shows that historically, previous recessions have had only minor and transitory impacts on traffic growth changes. The current stagnation in traffic growth on I-5 is a decade-long trend, reflecting fundamental changes in travel behavior and a response to much higher fuel prices. In addition, the CRC modeling makes no allowance for recessions. Traffic levels are assumed to increase steadily each year without interruption.

Actual traffic data show that CRC traffic projections are wrong. The CRC projections are that traffic on the I-5 bridges should have reached 143,700 vehicles per day in 2010. Actual traffic levels were 126,700 vehicles per day in 2010, 17,000 vehicles per day below the CRC forecast. These figures are based on our analysis of ODOT's data on traffic levels on I-5, through November 2010. These data show:

- Traffic growth rebounded modestly in 2010. According to ODOT's calculation, for the first 11 months of 2010, traffic levels were up 1 percent over the 12 months of 2009. (Compared to the first 11 months of 2009, traffic in the first 11 months of 2010 was up 0.7%).
- Traffic in 2010 was 126,700 vehicles per average weekday.
- This traffic level is still almost 6,000 vehicles per day below the 2005 peak of 132,600.

- The 2010 traffic level is 17,000 vehicles per day below the DEIS forecast of 143,700 vehicles per day in 2010.
- At ODOT's calculated current rate of growth of 1.0% per year, 2030 traffic will be 154,400; this is about 30,000 vehicles per day **less** than the DEIS forecast.
- In order to reach the DEIS forecast, traffic growth would have to almost double -- to 1.9% per year -- and grow that fast every year for the next two decades. Over the past decade, traffic has increased that fast in only one year (2002).

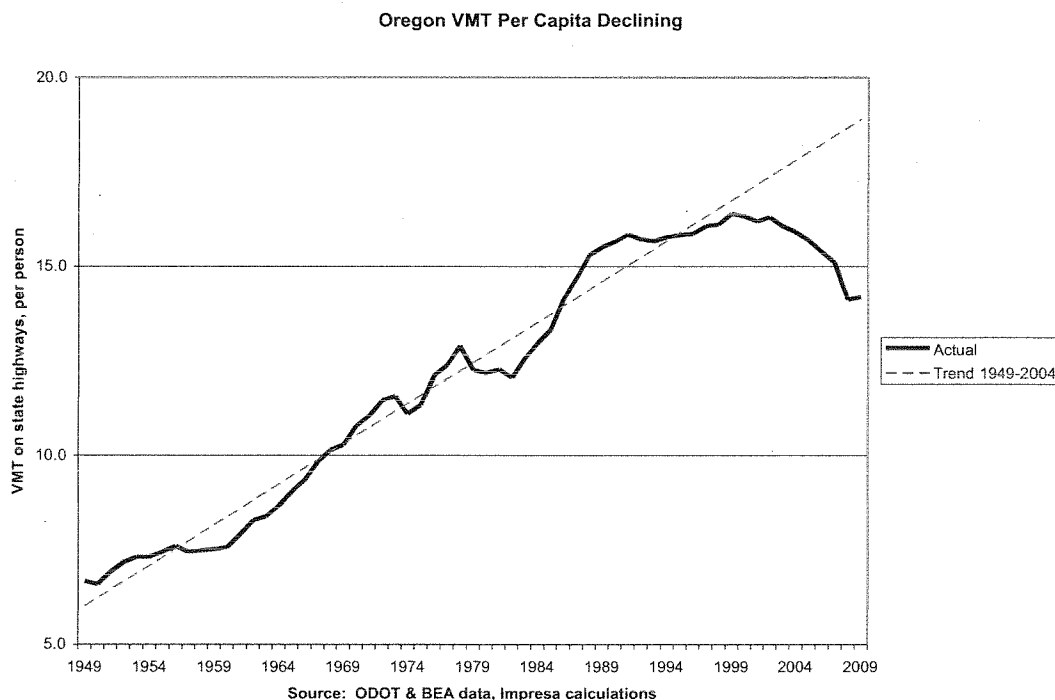
CRC Forecast v. Actual



This 17,000 vehicle per day shortfall from projections would have a material adverse effect on project financing. The shortfall to date coupled with the much lower than predicted level of growth would produce financial results similar to those outlined in my original report. In that report (page 15), I showed that a slower than projected rate of traffic growth on the I-5 bridges would produce a debt service payment shortfall of more than \$1 billion over the life of the project (Cortright 2010).

In addition, the question is not merely whether traffic is increasing again now, but whether they will recover to the previous levels, and whether they will grow at anything close to the rate CRC projected in the DEIS. The evidence shows the growth rate is much slower than forecast, raising serious questions about the project's financial viability.

The decline in CRC traffic is symptomatic of a wider national trend. Overall per capita vehicle miles traveled continue to decline nationally. The doubling of fuel costs since 2005 has produced a dramatic change in travel behavior. This is confirmed by ODOT's own data on travel on state highways; vehicle miles traveled per capita on state highways peaked in 1999, and are 13% below that level. On a per capita basis, Oregonians are driving on state highways at rates lower than at any time since 1987. This shift is not a small or temporary change induced by the recession—it is a long term shift in the nation's driving habits that is not captured in transportation models calibrated in an era of cheap energy.



This trend is also confirmed by similar data from the Washington DOT. Between 2006 and 2009, per capita vehicle miles traveled in Washington State have declined 3.9% (Washington State Department of Transportation, 2010b)

The CRC has not addressed traffic projection issues identified by the Independent Review Panel in July 2010. In 2010, Governors Kulongoski and Gregoire appointed an Independent Review Panel (IRP) to examine the CRC. CRC advocates have implied that the Independent Review panel validated CRC traffic projections. For example, in defending CRC projections, Metro Councilor Burkholder claimed that "The Independent Review Panel that was convened came in, had some good criticisms, every criticism has been responded to and we've adopted almost every one of those." (Metro Council Recording, June 9, 2011).

In fact, the IRP raised numerous significant questions about the project, traffic projections and related issues, many of which are still unaddressed. Specifically:

- The IRP said that the CRC would need to do new and more finely detailed traffic projections (Independent Review Panel 2010, p 179). These have not been prepared.
- The IRP said that the CRC should do a sensitivity analysis of 8-, 10- and 12-lane configurations (Independent Review Panel 2010, p. 119). These have not been prepared.
- The IRP said that the City of Portland and ODOT should “fully program” a solution for the Rose Quarter bottleneck (Independent Review Panel 2010, p. 114). This has not been done.

The failure to adequately address the recommendations made by the Independent Review Panel is likely to reduce the support for the Columbia River Crossing among prospective funders both in the public and private sectors.

CRC altered the output of the Metro model to shift traffic to the I-5 bridge. While it is frequently claimed that CRC projections should be trusted because they are the product of the Metro transportation planning model, it is worth noting that the CRC traffic forecasters manually adjusted the outputs of the Metro model in what they called “post-processing.” The reasonableness of this adjustment is not supported. The CRC claims that an analysis of 2005 actual traffic data shows that actual traffic on I-5 was underestimated, relative to I-205 by the regional model. The authors made no apparent attempt to see if their adjustment was supported by data in any subsequent year. But each year after 2005, traffic volumes have been proportionately higher on I-205 than I-5, undercutting the stated basis for this “post-processing” adjustment.

According to the report, the effect of the “post-processing” adjustment was to increase traffic volumes assigned to the I-5 bridges by 6 percent over the levels predicted by the regional transportation model without this modification. Despite its technical sounding name “post-processing” really represents a judgment on the part of the CRC to disregard the outputs of the Metro travel demand model, and to manually choose the values for traffic.

4. TIFIA funding is unlikely to offset shortfalls in toll bond funding

The CRC financial plan contemplates that a portion of project costs may be borrowed from the federal Transportation Infrastructure Finance and Innovation Act (TIFIA) program. The TIFIA program allows states to borrow funds from the federal treasury for

a period of up to 35 years, and to defer repayment (while continuing to accumulate interest on outstanding balances) for the initial five years of the loan. States are generally expected to repay debt from dedicated funding sources, such as toll revenues.

In the wake of the State Treasurer's critical analysis of the assumptions of toll bond projections, CRC proponents have suggested that TIFIA can be used to fill some portion of the nearly \$600 million hole in the CRC's proposed bond financing package. TIFIA is unlikely to fill this hole for several reasons. First, like bonds, TIFIA loans have to be repaid. Revenues pledged to repay toll bonds cannot also be used to repay TIFIA loans, and vice versa. Second, TIFIA is a competitive program with limited resources. Oregon and Washington will have to compete with other states, and there is no assurance that the project will qualify for TIFIA funding, or qualify in sufficient amounts to provide a substantial financial gain to the project. The Treasurer's report warned that the TIFIA process is becoming "increasingly competitive." (Oregon State Treasurer 2011). Third, in order to qualify for TIFIA financing, either the toll bonds or the TIFIA loan must achieve an investment grade rating—which it has neither sought nor obtained. Fourth, the federal government is likely to treat the TIFIA loan as part of its contribution to the project, and reduce support from other sources. Indeed, one of the criteria for approving TIFIA loans is the extent to which TIFIA assistance would reduce the contribution of Federal grant assistance to the project (Federal Highway Administration 2011).

Conclusion

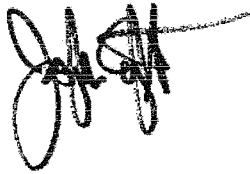
At this point, it is highly unlikely that the Columbia River Crossing project will attain the funding necessary for construction. None of the major sources of construction funding—toll-backed revenue bonds, state appropriations from Oregon and Washington, and federal highway and transit funds have been obtained. The financial and political environment is now more constrained than ever: both Oregon and Washington have heavily leveraged their existing transportation funds, and are experiencing revenue shortfalls due to lower levels of driving and higher fuel efficiency. As a result, state funding would necessitate increased fuel taxes. Similarly, the federal highway trust fund is experiencing a significant net outflow and faces insolvency in the next two years. Reauthorization legislation proposed in Congress would at best maintain the current level of funding, and may reduce federal transportation spending one-third. And both the House and Senate reauthorization bill drafts have precluded earmarks. An already difficult political and financial environment has been made much more difficult by the passage of the debt ceiling/deficit reduction agreement, which calls for a further \$2 trillion in cuts in federal spending in the next decade.

The looming state and federal funding shortfall is likely to be exacerbated by the risk and high likelihood of cost overruns, which are endemic in mega-projects like the CRC, and which have not been addressed as part of its financial plan. The project's traffic projections have been shown to be wrong by five years of actual experience, and their authors now admit the models used are incapable of accurately predicting traffic on tolled

facilities such as the proposed CRC. Finally, the hope that the federal TIFIA lending program will solve the project's financial shortfalls is misplaced.

In sum, the extensive risk and uncertainty associated with the current plans for financing the Columbia River Crossing means that there is little likelihood that the project can be financed and built as described.

Very truly yours,

A handwritten signature in black ink, appearing to read 'JC', with a large loop and a horizontal line extending to the right.

Joseph Cortright

Attachments

Exhibit 1: Summary of Parsons Brinckerhoff, et al (2009) Report
Vita

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Exhibit 1: Excerpts and Comments from ODOT White Paper

Parsons Brinckerhoff, David Evans and Associates Inc., and Stantec Consulting Services Inc. for the Oregon Department of Transportation. *Tolling White Paper 3: Travel Demand Model Sufficiency*. February 2009.

The report's key conclusion about existing traffic models:

None of these models, however, was specifically developed for evaluating tolling applications, and therefore **all of them lack to varying degree one or more of the essential modeling features** described in this paper. Furthermore, given the requirements placed upon travel demand models by the financial community, and recent advances in bringing travel behavior research into practice, Oregon statewide and MPO **models could and should be improved prior to using them to forecast toll traffic and revenue.**

Equally as important as the improvement of the models in and of themselves is the undertaking of a fundamental shift in how models are used to produce toll traffic and revenue forecasts. **A thorough analysis of the risks associated with the forecast needs to become an integral part of the forecasting process.** Typical risks associated with toll projects are related to the model itself, to the model input data, and to specific circumstances associated with particular projects.
(Parsons Brinckerhoff, et al, page 50)

The full report and its appendices are over 100 pages long, and provide a detailed analysis of the current modeling practice and the requirements needed to accurately forecast traffic levels, and associated revenues for tolled facilities. This report shows that the current Metro model, despite being "state of practice" is not adequate to accurately predict traffic levels for a tolled facility such as the CRC. Models need to be improved in a variety of ways, including:

- Point estimates need to be replaced with probabilistic range forecasts (pages 31-32). The CRC models use a single point estimate, not ranges.
- Current models use too few categories of travelers and as a result are susceptible to aggregation bias (page 30). The current CRC modeling does not include a sufficient range of categories to accurately predict demand.
- The forecast should include a range of scenarios of employment and population growth in the corridor (page 36). The current CRC forecast contains no analysis of different future population or employment levels.
- Value of time (VOT) estimates are out-dated and need to be better segmented; point estimates of value of time need to be replaced with ranges (page 37).
"All existing Oregon models use VOT estimated from surveys dating from the mid-1990s, or borrowed from other metropolitan areas in the state, and therefore, are considered high risk." (page 37).

- The current Metro model does not address time of day choice.
“Time-of-day choice, instead, is insensitive to level of service attributes (time or costs). Therefore, as currently specified, this model assumes that tolls do not effect shifts in traffic demand across time periods.” (pages 17-18)
- The model needs to be subjected to systematic risk analysis to evaluate the effects of underlying variation in model estimates (page 38). The CRC modeling effort has not been subjected to systematic risk analysis.
- The model needs to be validated for the specific facility and corridor in question, and be shown to accurately produce traffic patterns
“Therefore a critical step before initiating a road pricing or traffic and revenue study is ensuring that the model is well-validated at a geographic scale commensurate with the scale of the project.” (page 41)
- The current model is inadequate for financial analysis of the CRC. The current CRC modeling has not been calibrated based on actual, post 2005 traffic levels, which show a 17,000 vehicle shortfall from CRC projections.
“Extensive, newly collected data and more rigorous corridor-focused model calibration. It is essential to recalibrate the model based on the most recently collected data, including traffic counts, special surveys (e.g., users of a particular toll facility), and speed measurements.” (page 29).
- The model needs to address uncertainty. The current CRC model does not address uncertainty or bias.
“**Considerable uncertainty exists in traffic forecasts for new highway projects.** A review of forecasts using data from highway and transit projects across the globe found that the difference between forecasted and actual traffic is more than 20% for about one half of the highway projects examined, and about 40% for approximately one-quarter of all highway projects (Flyvbjerg et al., 2005 and 2006). **While such uncertainty is not unexpected, it is often largely ignored by designers and transportation planners.** This appendix provides more detail on this discussion.
Even greater uncertainty characterizes forecasts of the demand for tolled roadways, compared to other roadways, because of the presence of additional unknown variables, such as the toll schedule and motorists’ willingness to pay for using the road.” (page 89 emphasis added).
- The model needs to include an explicit risk analysis to eliminate optimism bias and produce reliable conservative forecasts. This has not been done.
“Risk analysis adds a layer of complexity to the forecasting process, but it is not beyond the modeling resources already available at the state and MPO levels. We specifically propose a method that would help to eliminate built-in optimistic biases and produce reliable and conservative forecasts.” (Page 51)

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Professional Experience

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Executive Officer, Oregon Joint Legislative Committee on Trade and Economic Development, Salem, Oregon, 1983 to 1995.

Served as Oregon Legislature's chief analyst of long-term economic trends, policy advisor on economic development issues, and staff person responsible for developing and writing new legislation and overseeing existing programs.

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Metro

No. 5

Aug. 11, 2011

Columbia River Crossing Land Use Final Order Public Hearing

(Please print)

Name (required)

Kay Williford

Affiliation (if any)

Address (required)

9407 NE Gortz Ct

E-mail (optional)

Kaywill2@msn.com

☒ Send me written notification of adoption of the LUFO (requires valid mailing address).

Testimony (use back or attach additional sheets if necessary)

I live off MLK 1/2 mile (N) Columbia Blvd. I have noted w/ the increased traffic (esp. w/ Hayden Meadows gaining large shopping stores soon i.e. Wal-Mart or Costco etc) MLK will be the ONLY way to take excess traffic from I5 & in/out Hayden Meadows. This means our community (41 homes) & a trailer lot (~200+ families) will become HOMELESS. (many already foreclosed!!)

* This plan can be seen already w/ MLK road in need of work - land sliding towards our homes due to NO DRAINS that the City is forcing a ~\$1 mill project for new water/sewer lines in our 67 yr old community at a cost of ~\$200,000-250,000/home * These homes sit empty at cost of ~\$30,000 !! Only 6 of required 30 owners signed !!

* I see this as a "Plan 2" that comes after the bridge & IF any owners still are here they will be evicted (sooner if project starts in our community now. ^{Leannard & Saltzman wyl.} not talk !!) This community will be a ghost town & disabled & elderly like me will be homeless!!!

Attach a copy of your testimony and any supporting material to this form. Make sure your name is on all material. If you choose not to testify orally, you may testify in writing by leaving this form, along with any prepared materials, with staff or by depositing it in the comment box. Only oral testimony at the hearing and written testimony received prior to the close of the hearing will be included in the record.

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Metro

No. 6

Aug. 11, 2011

Columbia River Crossing Land Use Final Order Public Hearing

(Please print)

Name (required) Chris Girard

Affiliation (if any) Plaid Pantries Inc.

Address (required) 10025 S.W. Allen Blvd. Beaverton, OR 97005

E-mail (optional) chrisg@plaidpantries.com

☒ Send me written notification of adoption of the LUFO (requires valid mailing address).

Testimony (use back or attach additional sheets if necessary)

- to be submitted in writing -

Attach a copy of your testimony and any supporting material to this form. Make sure your name is on all material. If you choose not to testify orally, you may testify in writing by leaving this form, along with any prepared materials, with staff or by depositing it in the comment box. Only oral testimony at the hearing and written testimony received prior to the close of the hearing will be included in the record.



Plaid Pantries, Inc. • 10025 SW Allen Blvd. • Beaverton, Oregon 97005 • Telephone: 503.646.4246 • Facsimile: 503.646.3071

Metro Council
600 NE Grand Ave.
Portland, OR 97232

August 11, 2011

Re: Columbia River Crossing Land-Use Final Order (LUFO)

Good afternoon Councilors,

Your Staff and the CRC folks are trying to convince you that you have a very limited role in this project. This is absolutely not the case. You are the only elected body left that can review and influence the specifics of this massive highway project, which happens to include a bridge and light rail. This is your last chance to ensure that the public is properly served if you approve it today.

In order for this bridge to have a positive effect on the economic, social and traffic problems at the Columbia River, the region needs a solution that fits realistic financing possibilities. Instead you are being asked to approve what is in effect the "No Build" option. This project simply cannot be funded as proposed. Concerned citizens have been pointing this out for a long time. Now we have our Governor, Treasurer, and independent experts hired by the Treasurer confirming our fears.

We don't have the money, and we're not going to get the money to build what CRC has planned, so it will not be built as planned. We need a different plan to solve our problems; a plan that can't be built is not a solution to anything.

Please send this back to TriMet and CRC to come up with a phaseable, affordable, financeable, and buildable solution. You not only have the authority, but also the responsibility to do so.

Respectfully submitted,

William C. (Chris) Girard, Jr.
President & CEO
Plaid Pantries, Inc.



Metro

No. 7

Aug. 11, 2011

Columbia River Crossing Land Use Final Order Public Hearing

(Please print)

Name (required)

EVAN MANVEL

Affiliation (if any)

Address (required)

4047 NE 14th AVE PORTLAND 97212

E-mail (optional)

☒ Send me written notification of adoption of the LUFO (requires valid mailing address).

Testimony (use back or attach additional sheets if necessary)

Attach a copy of your testimony and any supporting material to this form. Make sure your name is on all material. If you choose not to testify orally, you may testify in writing by leaving this form, along with any prepared materials, with staff or by depositing it in the comment box. Only oral testimony at the hearing and written testimony received prior to the close of the hearing will be included in the record.



Metro

No. 8

Aug. 11, 2011

Columbia River Crossing Land Use Final Order Public Hearing

(Please print)

Name (required)

MICHAEL LILLY

Affiliation (if any)

ATTORNEY FOR PLAID PANTRIES, INC

Address (required)

4800 SW GRIFFITH DR. STE 325

E-mail (optional)

~~MIKE~~ MIKELILLY@MICHAELJLILLY

☒ Send me written notification of adoption of the LUFO (requires valid mailing address).

Testimony (use back or attach additional sheets if necessary)

SUBMITTED IN WRITING AND EMAIL

Attach a copy of your testimony and any supporting material to this form. Make sure your name is on all material. If you choose not to testify orally, you may testify in writing by leaving this form, along with any prepared materials, with staff or by depositing it in the comment box. Only oral testimony at the hearing and written testimony received prior to the close of the hearing will be included in the record.

