BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF EXPRESSING A SENSE OF THE COUNCIL ON THE NUMBER OF LANES PROPOSED AS PART OF THE COLUMBIA RIVER CROSSING PROJECT, TAKING INTO ACCOUNT CONGESTION PRICING, CAPACITY, AND POSSIBLE INDUCED DEMAND EFFECTS	)))))))	RESOLUTION NO. 09–4023A Introduced by: Council President David L. Bragdon

WHEREAS, the Oregon and Washington sides of the metropolitan region are linked by transportation infrastructure vital to the economic and environmental health of the whole region; and

WHEREAS, the Metro Council supports a multi-modal approach of highway, high capacity transit, freight movement, transportation demand management and bicycle and pedestrian improvements in the Columbia River Crossing corridor, as well as compact land development patterns to minimize long commutes and reduce automobile dependence; and

WHEREAS, on July 17, 2008, the Metro Council passed Resolution No. 08-3960B, For the Purpose of Endorsing the Locally Preferred Alternative For the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan With Conditions (attached as Exhibit A), endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and expressing support for a project that includes: a replacement bridge with three northbound and three southbound through lanes; tolls used both for finance and for demand management, light rail, bicycle and pedestrian improvements; and

WHEREAS, in Resolution No. 08-3960B, the Metro Council identified several issues and concerns to be resolved including, in part, the following; (a) the number of auxiliary lanes (also called add/drop lanes) to be added to the three through lanes in each direction on the replacement bridge and throughout the bridge influence area; and (b) definition of the purpose and function of the so-called "'auxiliary" lanes and analyze the induced automobile demand and greenhouse gas emissions that result from the addition of these lanes; and

WHEREAS, in Resolution No. 08-3960B, the Metro Council deferred the determination of the number of auxiliary lanes to a subsequent amendment of the 2035 RTP, based on additional analysis; and

WHEREAS, in the absence of tolling, new highway capacity can have the unintended consequence of inducing more travel demand, ultimately making congestion worse, impeding the flow of freight, and having negative economic and environmental outcomes; and

WHEREAS, the states of Oregon and Washington have both enacted strong growth management policies to ensure sustainable growth and limit urban sprawl; and

WHEREAS, limitations on physical capacity and active management of demand through pricing are the two most effective tools for preventing unintended consequences, and ensuring the safe and smooth flow of traffic; and

WHEREAS, on June 19, 2008, the Governors of Oregon and Washington established a Project Sponsors Council composed of officials from Oregon Department of Transportation (ODOT), Washington State Department of Transportation (WSDOT), Portland, Vancouver, TriMet, C-Tran, Metro Council, the Southwest Washington Regional Transportation Council and two citizen co-chairs, charged with advising the two state departments of transportation and the two transit districts on key project decisions; and

WHEREAS, the Project Sponsors' Council will be making decisions regarding the number of add/drop lanes to be included in the project and regarding pricing in the coming months; and

WHEREAS, Metro Council President David Bragdon was appointed to the Project Sponsors Council by the Governor of Oregon and now desires Metro Council guidance on upcoming decisions; now therefore

BE IT RESOLVED that the Metro Council hereby recommends the following:

1. Because the issue of physical capacity is inextricably entwined with the issue of pricing policy, any recommendation on the number of lanes to be included in the project should be made provisionally, only with the good faith understanding that the involved jurisdictions will enter into a bi-state agreement on tolling policy prior to any final decision. The policy should include congestion pricing to manage demand and ensure the safe and smooth flow of traffic for freight and commuters over the long term, mitigate against any potential consequences of undesirable induced demand, and provide a mechanism by which the bridge can be managed toward performance measures such as congestion levels, emissions, speed, reliability for freight movement and other such outcomes to be identified; and

2. Add/drop lanes (also called auxiliary lanes) are desirable only to the extent that they enhance safety and traffic operations in short segments between interchanges rather than induce long-distance single-occupancy automobile commuting. Such lanes (and/or collector-distributor lanes and/or parallel arterials) should be appropriately designed for those purposes only, in those short segments; and

3. The Metro Council believes that deliberations by the Project Sponsors Council and its own future decisions requires an analysis of how a state-of-the-art demand management system would affect a spectrum of issues including the number of lanes for the crossing and at various interchanges, total project cost and finance and how demand management could help meet Washington and Oregon's greenhouse gas reduction goals for 2020 and 2050 and the objectives for compact, lively cities contained in comprehensive plans on both sides of the Columbia River; and

4. That such an analysis must consider (a) congestion pricing through dynamic tolling, (b) tolling that differentiates between freight and other vehicles, (c) ramp metering and ramp tolling, (d) high occupancy vehicle lanes, (e) public education, and (f) other forms of demand management; and

5. The analysis should consider the application of congestion pricing and other demand management techniques not only in the Columbia River Crossing study area, but outside of it, including on I-205; and

6. The various governments in the region with a need for this analysis should cooperate in securing a comprehensive demand management analysis by an independent consulting firm, not connected to this project or with present or potential contracts with the Washington and Oregon Departments of Transportation.

ADOPTED by the Metro Council this 5th day of February 2009.

David Bragdon, Council President

Approved as to Form:

Daniel B. Cooper, Metro Attorney

Officially Approved Ufficialmente Consiglio Metropolitano Metro Council METRO COUNCIL

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BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ENDORSING THE LOCALLY PREFERRED ALTERNATIVE FOR THE COLUMBIA RIVER CROSSING PROJECT AND AMENDING THE METRO 2035 REGIONAL TRANSPORTATION PLAN WITH CONDITIONS	))))))	RESOLUTION NO. 08- 3960B Introduced by Councilor Burkholder

WHEREAS, the Oregon and Washington sides of the metropolitan region are linked by critical transportation infrastructure vital to each community along the Columbia River; and,

WHEREAS, the I-5 Interstate bridge is a key transportation link that has national and international importance for freight and auto movement; and,

WHEREAS, the I-5 Interstate bridge carries approximately 130,000 people daily by car, truck, bus, bicycle and on foot; and,

WHEREAS, the CRC Draft Environmental Impact Statement (DEIS) analysis found that the segment of I-5 in the vicinity of the Columbia River has extended peak-hour travel demand that exceeds capacity, includes bridge spans that are over 50 and 90 years old and that do not meet current traffic safety or seismic standards, and,

WHEREAS, techniques to improve peak truck freight movement times along with bridge and highway improvements would help support and improve the economy of the region and beyond; and,

WHEREAS, the greatest inhibition to the predictable flow of truck freight is single-occupancy automobile commuting, and according to the CRC analysis, in the absence of tolling, other demand management, and good public transit service the growth of such automobile commuting will contribute to the costs of truck delay; and,

WHEREAS, travel by transit between Portland and Vancouver currently must share a right-of-way with autos and trucks; and,

WHEREAS, the bicycle and pedestrian facilities for crossing the Columbia River along I-5 do not meet current standards, that demand for such facilities is expected to increase, and that experience on Portland bridges has proven that when safe bicycle facilities are provided, ridership grows dramatically; and,

WHEREAS, the CRC DEIS states that in the absence of tolls, absence of effective high-capacity transit service, and absence of safe bicycle and pedestrian facilities, automobile traffic and its resulting emissions and impact on climate change would continue to grow faster with the “no build” option than such automobile traffic and emissions would grow with the replacement bridge option that does include tolls, effective transit, and safe bicycle and pedestrian facilities; and,

WHEREAS, because of high demand and because only two road crossings of the Columbia River exist in the metropolitan region, the I-5 and I-205 corridor is very well situated for tolling, a revenue source and management tool currently not feasible for many other projects vying for public funds; and,

WHEREAS, consideration should be given to potential diversion of traffic from tolling I-5 alone to I-205 and should consider tolling I-5 and I-205 with use of the revenue for both I-5 and I-205 in the Portland-Vancouver metropolitan area; and,

WHEREAS, the states of Oregon and Washington have both established aggressive climate change strategies that include significant reductions in vehicle miles traveled and/or greenhouse gas emissions during the expected life of a CRC project; and,

WHEREAS, in Washington State the goal is to reduce vehicle miles traveled by 50 percent by 2050 and in Oregon the goal is to reduce greenhouse gas emissions by 75 percent below 1990 levels by 2050; and,

WHEREAS, the Oregon Governor's Climate Change Integration Group in its final report dated January 2008 state that "reducing vehicle miles traveled is the single most effective way to reduce greenhouse gas emissions", and,

WHEREAS, the reduction of greenhouse gas emissions is a regional goal that the Metro Council has directed that methods of decreasing such emissions be identified and pursued; and,

WHEREAS the Metro Council has concurred with the Governor's Climate Change Integration Group that reducing vehicle miles traveled is the single most effective means of reducing greenhouse gas emissions; and,

WHEREAS, high capacity transit, as well as walking and biking reduce vehicle miles travelled and reduce greenhouse gas emissions; and,

WHEREAS, the Metro region and the Federal Transit Administration have made extensive investments in high capacity transit, especially light rail transit, as the preferred high capacity transit mode in most corridors in the region, including the Interstate MAX LRT line to the Expo Center, about 1 mile from Vancouver, Washington and adjacent to Interstate 5; and,

WHEREAS, on November 14, 2002 the Metro Council approved Resolution 02-3237A, For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations, that supported a multimodal project including light rail transit (LRT) and either a new supplemental or replacement I-5 bridge; and,

WHEREAS, the I-5 Transportation and Trade Study also included recommendations to widen I-5 to three lanes between Delta Park and Lombard, address finance issues, use travel demand tools including pricing (tolls), address environmental justice through use of a community enhancement fund, coordinate land use to avoid adverse impacts to transportation investments and improve heavy rail; and,

WHEREAS, in its October 19, 2006 letter to the CRC Task Force, the Council stated that "all transportation alternatives be evaluated for their land use implications…[because] added lanes of traffic …will have an influence on settlement patterns and development"; and,

WHEREAS, the CRC Task Force's endorsement of a locally preferred alternative is one "narrowing" step in a multi-step process and is an important opportunity for the Metro Council to articulate its concerns which will be weighed at this and subsequent steps; and,

WHEREAS, in its October 19, 2006 letter to the CRC Task Force, the Council stated that Metro "will need to work closely with you as your project proceeds and as the RTP policies are developed to ensure that your proposals are consistent with our new policies."; and,

WHEREAS, the CRC Task Force, a 39 member advisory committee, has met regularly for over two years creating a project purpose and need, evaluation criteria and alternatives; and,

WHEREAS, a draft environmental impact statement has been completed that assesses the potential impacts of the project alternatives including a No Build, replacement and supplemental bridge options and bus rapid transit and light rail transit as well as bicycle and pedestrian facilities; and,

WHEREAS, a Replacement Bridge, unlike a Supplemental Bridge and/or rehabilitating and keeping the existing bridges, could improve safety by providing travel lane designs that meet safety standards including improved sight distance, greater lane widths, improved road shoulders and would eliminate bridge lifts which are indirectly a major cause of rear end accidents on and near the bridge; and,

WHEREAS, a Replacement Bridge, unlike a Supplemental Bridge, would reduce auto and truck delays that result from bridge openings; and,

WHEREAS, a Replacement Bridge, unlike a Supplemental Bridge, could improve the seismic safety of those crossing the river by auto and truck, reducing the potential for economic disruption as a result of restricted truck freight movement from seismic damage as well as reduce the potential for river navigation hazards created by seismic events; and,

WHEREAS, high capacity transit in an exclusive right-of-way would provide greatly improved transit service with much better schedule reliability and service than mixed-use traffic operation; and,

WHEREAS, LRT would produce higher total transit ridership in the corridor than BRT; and,

WHEREAS, LRT is more cost effective than Bus Rapid Transit (BRT), and is about one-half as expensive to operate per transit rider crossing the river; and,

WHEREAS, the Metro Council held a public hearing about the CRC project alternatives on June 5, 2008 and,

WHEREAS, on June 5, 2008, the Metro Council approved Resolution No. 08-3938B For the Purpose of Providing Metro Council Direction to its Delegate Concerning Key Preliminary Decisions Leading to a Future Locally Preferred Alternative Decision for the Proposed Columbia River Crossing Project and that the Metro Council concluded in this resolution its support for a Columbia River Crossing (CRC) Project with light rail, a replacement bridge with three through lanes and tolls for travel demand management and ongoing funding but also included substantial conditions; and,

WHEREAS, the CRC Task Force has recommended a locally preferred alternative that includes light rail transit and a replacement bridge; and,

WHEREAS, on December 13, 2007, the Metro Council approved Resolution No. 07-3831B, For the Purpose of Approving the Federal Component of the 2035 Regional Transportation Plan (RTP) Update, Pending Air Quality Conformity Analysis, and the adopted 2035 Regional Transportation Plan (RTP), Financially Constrained System Project list includes Metro project number 10866, "Improve I-5/Columbia River bridge (Oregon share)" with $74 million year of expenditure reserved for preliminary engineering and right-of-way acquisition, but does not include funds for project construction; and,

WHEREAS, on February 28, 2008, the Metro Council adopted Resolution No. 08-3911, For the Purpose of Approving the Air Quality Conformity Determination for the Federal Component of the 2035 Regional Transportation Plan and Reconforming the 2008-2011 Metropolitan Transportation Improvement Program, and this air quality conformity included the CRC project, highway and light rail transit; and,

WHEREAS, the CRC Project is projected to cost between $3.5 and 3.7 billion dollars; and,

WHEREAS, a revenue forecast has been completed using best available information that shows revenue sources that could fund the project; and,

WHEREAS, the Metro 2035 RTP does not currently include a description of the proposed locally preferred alternative for the CRC Project as supported by the Metro Council; and,

WHEREAS, state law provides for land use final order to address meeting the potential land use impacts of light rail and related highway improvements in the South/North corridor of which the I-5 bridge is a part; and,

WHEREAS, at its meeting on July 10, 2008, the Joint Policy Advisory Committee on Transportation recommended approval of the following; now therefore,

BE IT RESOLVED that the Metro Council:

1. Continues to support a balanced multi-modal approach of highway, high capacity transit, freight movement, transportation demand management and bicycle and pedestrian improvements in the Columbia River Crossing corridor, as well as compact land use development patterns with a mixture of uses and types of housing which minimize long commutes and reduce our citizen's automobile dependence.
2. Supports a Columbia River Crossing locally preferred alternative:
    a. a replacement bridge with three northbound and three southbound through lanes, with tolls used both for finance and for demand management, as the preferred river crossing option,

    b. light rail as the preferred high capacity transit option, extending light rail from the Expo Center in Portland, Oregon across Hayden Island adjacent to I-5 to Vancouver, Washington,

    c. a light rail terminus in Vancouver, Washington.
3. Finds that the following concerns and considerations will need to be addressed as described in Exhibit A, attached. Metro will invite public review and discussion on the issues raised in Exhibit A.
4. Amends the Metro 2035 Regional Transportation Plan, Appendix 1.1, Financially Constrained System, Project Number 10866 to read: "Improve I-5/Columbia River bridge in cooperation with

ODOT and WSDOT with light rail transit, reconstructed interchanges and a replacement bridge with three through lanes in each direction and tolls designed to manage travel demand as well as provide an ongoing funding source for project construction, operations and maintenance." Further, amends the Project amount to read: "A range of between $3.5 and $3.7 billion."

5. Amends the Metro Appendix 1.2, "2035 RTP Other Projects Not Included in the Financially Constrained System", deleting Project number 10893, "Improve I-5/Columbia River bridge (Oregon Share)" and deleting Project number 10902, "CRC – Expo to Vancouver, north on Main to Lincoln", as these projects are now included in the Financially Constrained System.
6. Amends the Metro 2035 RTP, Chapter 5, Financial Plan, by adding Section 5.3.4, CRC Funding Assumptions, attached as Exhibit B.
7. Amends the Metro 2035 RTP, Chapter 7, Implementation, amending Section 7.7.5, Type I- Major Corridor Refinements, Interstate-5 North (I-84 to Clark County) as described in Exhibit C, attached.
8. Defers the determination of the number of auxiliary lanes to a subsequent amendment of the 2035 RTP, based on additional analysis.
9. Acknowledges that a land use final order for addressing land use consistency for the Oregon side of the Project is being prepared and will be submitted to the Council for approval in Fall 2008.

ADOPTED by the Metro Council this 17th day of July, 2008.

David Bragdon, Council President

Approved as to Form:

Daniel B. Cooper, Metro Attorney

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RESOLUTION O8-3960B
Exhibit A

Metro Council Concerns and Considerations
Columbia River Crossing "Locally Preferred Alternative"

The Metro Council recognizes that endorsement of a "Locally Preferred Alternative" is one important narrowing step that enables the project management team to proceed with further analysis of a reduced range of alternatives. The Council is cognizant that many important issues are generally still unresolved at the time of endorsement of an LPA, but that clear articulation of concerns is required to make sure that such unresolved issues are appropriately resolved during the next phase of design, engineering, and financial planning, with proper participation by the local community and its elected representatives. If those sorts of outstanding issues are not satisfactorily resolved during that post-LPA selection phase, then the project risks failing to win the approval of necessary governing bodies at subsequent steps of the process.

While the Metro Council endorses the LPA, Replacement Bridge with Light Rail and Tolls, as described in Resolution 08-3960A, the Metro Council simultaneously finds that the following issues will need to be satisfactorily addressed in the upcoming refinement of design, engineering and financial planning:

FORMATION OF A LOCAL OVERSIGHT COMMITTEE TO SUCCEED THE TASK FORCE

The Metro Council concluded on June 5, 2008 through Resolution 08-3938B that further oversight of the project is needed once the Task Force's work is concluded. The Council suggested that the Governors of Oregon and Washington convene such a local oversight group. On June 19, 2008, the Governors issued a joint letter that concluded there is a need to reconvene the CRC Project Sponsor's Council as the oversight committee to succeed the Task Force, including representatives from Washington State Department of Transportation, the Oregon Department of Transportation, cities of Portland and Vancouver, Metro, the Southwest Washington RTC, TriMet and CTRAN. The Governors charged the committee with advising the two departments of transportation and two transit agencies on a consensus basis to the greatest extent possible regarding the major issues requiring further oversight and resolution.

PROJECT ISSUES REQUIRING LOCAL OVERSIGHT DURING PLANNING, DESIGN, ENGINEERING, FINANCE AND CONSTRUCTION

The Governors have charged the Project Sponsors Council with project oversight on the following issues, milestones and decision points:

1) Completion of the Environmental Impact Statement (EIS),
2) Project design, including, but not limited to: examining ways to provide an efficient solution that meets safety, transportation and environmental goals,
3) Timelines associated with project development,
4) Development and use of sustainable construction methods,
5) Ensuring the project is consistent with Oregon and Washington's statutory reduction goals for green house gas emissions, and
6) A finance plan that balances revenue generation and demand management, including the project capital and operating costs, the sources of revenue, impact to the funds required for other potential expenditures in the region.

The Metro Council has identified additional areas of concern that need to be addressed by the Project Sponsors Council as the project moves forward:

A. TOLLING
Implementation of tolls on the existing I-5 Bridge should be undertaken as soon as legally and practically permissible. Consideration should be given to potential diversion of traffic to I-205 and potential tolling I-5 and I-205 with those revenues potentially used for projects on these two facilities in the Portland-Vancouver metropolitan area.

B. NUMBER OF AUXILIARY LANES
Determine the number of auxiliary lanes in addition to the three through lanes in each direction on the replacement bridge across the Columbia River and throughout the bridge influence area.

C. IMPACT MITIGATION AND COMMUNITY ENHANCEMENT
Identify proposed mitigation for any potential adverse human health impacts related to the project and existing human health impacts in the project area, including community enhancement projects that address environmental justice.

D. DEMAND MANAGEMENT
Develop of state-of-the-art demand management techniques in addition to tolls that would influence travel behavior and reduce greenhouse gas emissions.

E. FINANCING PLAN
A detailed financing plan showing costs and sources of revenue must be proposed and presented to the partner agencies and to the public. The proposed financing plan should indicate how the federal, state and local (if any) sources of revenue proposed to be dedicated to this project would impact, or could be compared to, the funds required for other potential expenditures in the region.

F. CAPACITY CONSIDERATIONS, INDUCED DEMAND AND GREENHOUSE GASES
Further analysis is required of the greenhouse gas and induced automobile demand forecasts for this project. The results of the analysis must be prominently displayed in the Final Environmental Impact Statement. The analysis should include comparisons related to the purpose and function of the so-called "'auxiliary" lanes. A reduction in vehicle miles traveled should be pursued to support stated greenhouse gas reduction targets as expressed by legislation in Oregon and Washington and by the Governors.

G. PRESERVATION OF FREIGHT ACCESS
The design and finance phase of the CRC project will need to describe specifically what physical and fiscal (tolling) methods will be employed to ensure that trucks are granted a priority which is commensurate with their contributions to the project and their important role in the economy relative to single-occupancy automobile commuting. Ensure that freight capacity at interchanges is not diminished by industrial land use conversion.

H. LIGHT RAIL
As indicated in the Item 2 "resolved" in the body of the resolution, the Metro Council's endorsement of the LPA categorically stipulates that light rail must be included in any phasing package that may move forward for construction.

I. DESIGN OF BICYCLE AND PEDESTRIAN FACILITIES

More detailed design of bicycle and pedestrian facilities is required to inform the decisions of the local oversight panel described above. The project should design "world class" bicycle and pedestrian facilities on the replacement bridge, bridge approaches and throughout the bridge influence area that meet or exceed standards and are adequate to meet the demand generated by tolls or other demand management techniques.

J. URBAN DEVELOPMENT IMPACTS AT RE-DESIGNED INTERCHANGES

More design of the interchanges related to the CRC is required to fully evaluate their community impact. The design of interchanges within the bridge influence area must take into account their impact on urban development potential. The Metro Council is also concerned that the Marine Drive access points preserve and improve the functionality of the Expo Center.

K. BRIDGE DESIGN

The bridge type and aesthetics of the final design should be an important consideration in the phase of study that follows approval of the LPA and precedes consideration of the final decision.

Chapter 5, Financial Plan of the Metro 2035 RTP, Federal Component is amended by adding the following new section:

5.3.4 Columbia River Crossing Funding Assumptions

The Columbia River Crossing (CRC) Project is a collaboration of Oregon Department of Transportation, Washington State Department of Transportation, Metro, the Southwest Washington Regional Transportation Council, TriMet and CTRAN as well as the cities of Portland and Vancouver.

The CRC Project is a national transportation priority as it has been designated a "Corridor of the Future" by the Federal Highway Administration (FHWA). The Project will seek FHWA funding from this program category and other appropriate sources. Accordingly, the FHWA has indicated that it is a high priority to address the safety and congestion issues related to the segment of Interstate 5 between Columbia Boulevard north to State Route 500 in Vancouver, Washington.

The Federal Transit Administration (FTA) awards transit capital construction grants on a competitive basis. The CRC project will be submitting an application to the FTA for entry into Preliminary Engineering and eventually for a full funding grant agreement. The Metro region has been highly successful in securing FTA funds and it is considered reasonable, based on early cost-effectiveness rating analyses, that the high capacity transit component of the CRC Project will secure the $750 million in federal transit funding shown in the table below.

In addition, the Governors of Oregon and Washington have stated their commitment to work with their respective state legislatures to provide state funds to add to federal funding.

Also, tolling is another unique source of funding for the project. It would be a substantial transportation demand management tool as well as providing a significant revenue source. The DEIS states that tolls may supply 36 – 49% of the capital revenues for the highway elements of the project.

Finally, the state of Washington has accumulated credits from tolls imposed on other projects in the state that can be used as local match for federal funds. The state has indicated support for using a portion of these credits for the transit component of this project.

These funding sources for the total project may be summarized as follows (all figures in millions of dollars):

Columbia River Crossing – Total Project Costs
(both Oregon and Washington sides)

Costs		Low	High
Highway		$2,773	$2,920
Transit		750	750
	Total	$3,523	$3,670

Revenues	Low	High
Toll Bond Proceeds	$1,070-$1,350	$1,070 - 1,350
Federal Discretionary Highway	400- 600	400 - 600
State Funds	823-1,303	970 - 1,450
New Starts	750	750
Toll Credits	188	188
Total	$3,523	$3,670

Chapter 7, Implementation of the Metro 2035 Regional Transportation Plan, (Federal Component), Implementation (page 7-34) is amended as follows:

Interstate-5 North (I-84 to Clark County)

This heavily traveled route is the main connection between Portland and Vancouver. The Metro Council has approved a Locally Preferred Alternative for the Columbia River Crossing (CRC) project that creates a multi-modal solution for the Interstate 5 corridor between Oregon to Washington to address the movement of people and freight across the Columbia River. A replacement bridge with three through lanes in each direction, reconstructed interchanges, tolls priced to manage travel demand as well as provide financing of the project construction, operation and maintenance, light rail transit to Vancouver, and bicycle and pedestrian investments have been identified for this corridor. As project details are evaluated and implemented in this corridor, the following shall be brought back to JPACT and the Metro Council for a subsequent RTP amendment for this Project:

- the number and design of auxiliary lanes on the I-5 Columbia River bridge and approaches to the bridge, including analysis of highway capacity and induced demand.

More generally in the I-5 corridor, the region should:

- consider the potential adverse human health impacts related to the project and existing human health impacts in the project area, including community enhancement projects to address environmental justice.

- consider managed lanes

- maintain an acceptable level of access to the central city from Portland neighborhoods and Clark County

- maintain off-peak freight mobility, especially to numerous marine, rail and truck terminals in the area

- consider new arterial connections for freight access between Highway 30, port terminals in Portland and port facilities in Vancouver, Wa.

- maintain an acceptable level of access to freight intermodal facilities and to the Northeast Portland Highway

- construct interchange improvements at Columbia Boulevard to provide freight access to Northeast Portland Highway

- address freight rail network needs

- develop actions to reduce through-traffic on MLK and Interstate to allow main street redevelopment

- provide recommendations to the Bi-State Coordination Committee prior to JPACT and Metro Council consideration of projects that have bi-state significance.

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 08-3960B, FOR THE PURPOSE OF ENDORSING THE LOCALLY PREFERRED ALTERNATIVE FOR THE COLUMBIA RIVER CROSSING PROJECT AND AMENDING THE METRO 2035 REGIONAL TRANSPORTATION PLAN WITH CONDITIONS

Date: June 26, 2008

Prepared by: Richard Brandman
Ross Roberts
Mark Turpel

BACKGROUND

Overview

The Columbia River Crossing (CRC) is a proposed multimodal bridge, transit, highway, bicycle and pedestrian improvement project sponsored by the Oregon and Washington transportation departments in coordination with Metro, TriMet and the City of Portland as well as the Regional Transportation Council of Southwest Washington, CTRAN and the City of Vancouver, Washington. (More detailed project information may be found at: http://www.columbiarivercrossing.org/)

The CRC project is designed to improve mobility and address safety problems along a five-mile corridor between State Route 500 in Vancouver, Washington, to approximately Columbia Boulevard in Portland, Oregon, including the Interstate Bridge across the Columbia River.

The project would be funded by a combination of Federal Transit Administration (FTA) New Starts funding for the transit component, Federal Highway Administration (FHWA) funding for highway, freight, bicycle and pedestrian improvements, with local match being provided by the states of Oregon and Washington through toll credits and other funding. Tolls are also proposed for a new I-5 bridge to pay for a portion of the capital project and manage transportation demand.

Guiding the project is a 39 member CRC Task Force, of which Councilor Burkholder serves as the Metro representative. On June 5, 2008, the Metro Council approved policy guidance for Councilor Burkholder as its CRC Task Force member in the formulation of the draft locally preferred alternative (LPA) (after consideration of public testimony and review of options for a LPA). On June 24, the CRC Task Force approved recommendations for a LPA for the project sponsor agencies (including Metro) consideration.

Accordingly, the attached Resolution No. 08-3960B will provide for Metro Council consideration of:

1) Adoption of a CRC LPA.
2) Amendment of the federal component of the Metro 2035 Regional Transportation Plan (RTP).
3) Statement of additional Metro Council concerns and considerations regarding the Project.

Project History

The CRC Project history began in 1999, with the Bi-State Transportation Committee recommendation that the Portland/Vancouver region initiate a public process to develop a plan for the I-5 Corridor based on four principles:

- Doing nothing in the I-5 Corridor is unacceptable;
- There must be a multi-modal solution in the I-5 Corridor - there is no silver bullet;

- Transportation funds are limited. Paying for improvements in the I-5 Corridor will require new funds; and,
- The region must consider measures that promote transportation-efficient development.

Accordingly, the twenty-six member I-5 Transportation and Trade Partnership was constituted by Governors Locke and Kitzhaber, including a Metro Council representative.

In June 2002, the Partnership completed a *Strategic Plan* and on November 14, 2002, the Metro Council, through Resolution No. 02-3237A, For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations, endorsed the *Strategic Plan* recommendations including:

- Three through lanes in each direction on I-5, one of which was to be studied as an High Occupancy Vehicle (HOV) lane, as feasible;
- Phased light rail loop in Clark County in the vicinity of the I-5, SR500/4th Plan and I-205 corridors;
- An additional or replacement bridge for the I-5 crossing of the Columbia River, with up to two additional lanes for merging plus two light rail tracks;
- Interchange improvements and additional auxiliary and/or arterial lanes where needed between SR 500 in Vancouver and Columbia Boulevard in Portland, including a full interchange at Columbia Boulevard;
- Capacity improvements for freight rail;
- Bi-state coordination of land use and management of the transportation system to reduce demand on the freeway and protect corridor improvement;
- Involving communities along the corridor to ensure final project outcomes are equitable and committing to establish a fund for community enhancement;
- Developing additional transportation demand and system strategies to encourage more efficient use of the transportation system.

Several of the recommendations from the Strategic Plan have been completed. For example, construction of the I-5 Delta Park Project has begun.

The I-5 bridge element began in February 2005 with the formation of a 39 member Columbia River Crossing (CRC) Task Force. This Task Force, which includes a Metro Council representative, developed a vision statement, purpose and need statement and screening criteria.

The adopted project purpose is to: 1) improve travel safety and traffic operation on the I-5 crossing of the Columbia River; 2) improve the connectivity, reliability, travel times and operations of public transit in the corridor, 3) improve highway freight mobility and interstate commerce, and 4) improve the river crossing's structural integrity.

More specifically, the following issues concerning the existing conditions were cited as need:

- Safety - the bridge crossing area and approach sections have crash rates more than two times higher than statewide averages for comparable urban highways. Contributing factors are interchanges too closely spaced, weave and merge sections too short contributing to sideswiping accidents, vertical grade changes that restrict sight distance and very narrow shoulders that prevent avoidance maneuvers or safe temporary storage of disabled vehicles.
- Seismic - neither I-5 bridges meet seismic standards, leaving the I-5 corridor vulnerable in the event of a large earthquake;
- Bridge Alignment - the alignment of the I-5 bridges with the downstream railroad bridge contributes to hazardous barge movements;

- Cost - rehabilitation of the existing bridges, bringing them to current standards would be more costly, both in money and some environmental impacts, such as water habitat conditions, than a replacement bridge;
- Traffic Impact - an arterial bridge would bring unacceptable traffic congestion to downtown Vancouver, Washington.

The CRC Project analyzed 37 distinct bridge, transit, highway and transportation demand management modes/designs, which the CRC Task Force narrowed to twelve. These twelve options then received even more analysis.

In November 2007, CRC staff, after further consideration of technical analyses and using the approved screening criteria and project purpose and need, recommended three alternatives be advanced to a draft environmental impact statement (DEIS). These included:

- Alternative 1) No Action;
- Alternative 2) A Replacement Bridge and Bus Rapid Transit with Complementary Express Bus Service; and
- Alternative 3) A Replacement Bridge and Light Rail Transit with Complementary Express Bus Service.

Open houses were held to take public comment about whether these three alternatives should be advanced to analysis in the DEIS. The Metro Council, other project sponsors and some members of the public expressed interest in a less expensive, smaller project alternative. Accordingly, two supplemental bridge alternatives (one with bus rapid transit, the other with light rail transit) were proposed to be added to the alternatives studied in the DEIS.

The Metro Council concurred with these five alternatives in adopting Resolution No. 07-3782B, "For the Purpose of Establishing Metro Council Recommendations Concerning the Range of Alternatives to Be Advanced to a Draft Environmental Impact Statement For the Columbia River Crossing Project," on February 22, 2007.

On December 13, 2007, the Metro Council adopted the federal component of the 2035RTP. The RTP included funds for preliminary engineering and right-of-way purchase in the financially constrained system project list for a new bridge across the Columbia River. This item was reconfirmed with the adoption of the air quality conformity determination in February 2008 that assumed a new bridge with light rail transit to Vancouver.

In a meeting of the CRC Task Force in January 2008, an informal poll was taken that initiated discussion of the LPA. Strong support was found for:

- A replacement bridge with tolls;
- Light rail transit extended to Vancouver, Washington;
- Bicycle and pedestrian path improvements.

(Councilor Burkholder, the Metro Council representative, deferred comment in this survey citing the need to confer with the full Metro Council).

On May 2, 2008, a DEIS addressing the five CRC alternatives was released for a 60-day public comment period. During that time, the CRC project received 1,120 comments on the DEIS. The CRC also held two open houses attended by 425 people and held four question and answer sessions.

Later in May 2008, review and discussion of the CRC alternatives and the potential benefits and adverse impacts as disclosed in the CRC Draft Environmental Impact Statement were discussed by the Metro Council. After consideration of the CRC documents, Metro Council work session discussions and public testimony received at a Metro Council public hearing June 5, the Metro Council approved policy guidance by adopting Resolution No. 08-3938B, "For the Purpose of Providing Metro Council Direction to its Delegate Concerning Key Preliminary Decisions Leading to a Future Locally Preferred Alternative Decision for the Proposed Columbia River Crossing Project," on June 5, 2008.

Resolution 08-3938B included the following major points:

- A multimodal approach that includes:
  - light rail transit extended to Vancouver;
  - A replacement bridge with three through lanes in each direction and the number of auxiliary lanes to be determined;
  - Tolls to manage travel demand as well as provide an ongoing funding source for bridge construction, operations and maintenance;
  - Improved bicycle and pedestrian facilities;
  - Compact land use development patterns with a mixture of housing types to minimize long commutes and reduce automobile dependence.
- Recognition that the above elements and others identified in an exhibit to the resolution will need to be satisfactorily addressed as part of the LPA or at later decision points, prior to a final decision.
- Need to address potential and existing health impacts and using a community enhancement fund to address environmental justice.
- Independent analysis of greenhouse gas emissions and whether the project alternatives would help achieve or frustrate greenhouse gas emission reduction goals for 2020 and 2050.
- Charging tolls as soon as legally and practicably possible and use of state-of-the-art demand management tool to influence travel behavior and reduce greenhouse gas emissions and reduce vehicle miles traveled.
- Recognition of the need for the Metro Council to consider an LPA adoption and an RTP amendment and that the two decisions could be made concurrently.

On June 24, 2008, the CRC Task Force, by a vote of 37-2, recommended the following:

- A replacement bridge with three through lanes northbound and southbound.
- Light rail as the preferred high capacity transit mode with an alignment and terminus based on FTA funding, technical considerations and Vancouver City Council and CTRAN votes in early July 2008.
- Formation of a formal oversight committee.
- Continuation of existing advisory committees dealing with freight, pedestrians and bicycles, urban design, community and environmental justice and creation of a new sustainability working group.
- A list of project and regional elements that have not been made final at this time, but which the CRC Project recognizes the need for consideration. (see Attachment 1 to this staff report)

In addition to the Metro Council public hearing on the project on June 5, 2008 and the CRC Task Force hearing on June 24, 2008, there were numerous public meetings, open houses, and mailings regarding the project. Additionally, the LPA and the need for an RTP amendment were discussed at the Transportation Policy Advisory Committee's (TPAC) May 30, 2008 meeting and both the RTP amendment and the LPA resolution were recommended at its June 27, 2008 meeting. The proposed RTP amendments and LPA were also discussed at the Joint Policy Advisory Committee on Transportation's (JPACT) June 12, 2008 meeting and approved at its July 10, 2008 meeting.

This proposed Resolution No. 08-3960B, For the Purpose of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions, is generally consistent with the June 24 CRC Task Force recommendations. In addition, proposed Resolution No 08-3960B addresses the following:

1) A list of project concerns to be addressed and resolved (attached as Exhibit A to Resolution No. 08-3960B).
2) Amendment of the 2035 RTP to:
    - revise the Financially Constrained Project List (appendix 1.1);
    - revise the "Other RTP Projects not included in the Financially Constrained list" (appendix 1.2);
    - amend Chapter 5, Financial Plan of the RTP, to include a section on the funding of the CRC project (and included as Exhibit B to Resolution No. 08-3960B);
    - amend Chapter 7, Implementation of the RTP, to revise the description of the I-5 North corridor (and included as Exhibit C to Resolution No. 08-3960B).

(A separate RTP amendment that would revise the state component of the RTP and include land use findings is not proposed at this time and would be addressed once more information and analysis is available concerning auxiliary lanes and other issues identified in Resolution No 08-3960B.)

In addition to these immediate decisions, the following actions will take place in Fall 2008 and beyond include:

- Number of auxiliary travel lanes
- Bridge design details (such as bridge type, whether Stacked Highway/Transit design would work, be cost-effective and whether this aspect of the bridge should be pursued)
- Transportation Demand Management (TDM) specifics
- Interchange design specifics
- Bicycle and pedestrian design details
- More specificity on finance plan

The CRC Task Force's June 24 recommendations to consider a Locally Preferred Alternative (LPA) will also be brought to the cities of Portland and Vancouver, TriMet and CTRAN, and Metro and the Regional Transportation Council of Southwest Washington for adoption and corresponding transportation plan amendments. These actions will allow ODOT and WSDOT to submit to the FTA an application to enter preliminary engineering to prepare a final environmental impact statement (FEIS).

[1] By July 8, the City of Vancouver and CTRAN are scheduled to conclude the alignment and terminus of the LRT line in Vancouver, Washington. In order to facilitate the bi-state transportation aspects of this draft resolution, these southwest Washington project partner decisions will be provided to the Joint Policy Advisory Committee (JPACT), which meets on July 10 to consider this resolution and to the Metro Council that meets on July 17 also to consider this resolution. Accordingly, draft Metro Resolution No. 08-3960B may be proposed for revision in July as a result.

ANALYSIS/INFORMATION

1. **Known Opposition** The CRC is a very large and complex transportation project. There are strong feelings – pro and con – associated with the project. Opposition to the project includes concerns raised regarding the need for the project, greenhouse gas emissions that could be generated by the project, costs, tolls and light rail extension to Vancouver, Washington.

2. **Legal Antecedents**

Federal

- National Environmental Policy Act
- Clean Air Act
- SAFETEA-LU
- FTA New Starts Process

State

- Statewide Planning Goals
- State Transportation Planning Rule
- Oregon Transportation Plan
- Oregon Highway Plan
- Oregon Public Transportation Plan
- Oregon Bicycle and Pedestrian Plan

Metro

- Resolution No. 02-3237A, "For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations," adopted on November 14, 2002.
- Resolution No. 07-3782B, "For the Purpose of Establishing Metro Council Recommendations Concerning the Range of Alternatives to Be Advanced to a Draft Environmental Impact Statement For the Columbia River Crossing Project," adopted on February 22, 2007.
- Ordinance No. 07-3831B, "For the Purpose of Approving the Federal Component of the 2035 Regional Transportation Plan (RTP) Update, Pending Air Quality Conformity Analysis," adopted on December 13, 2007.
- Resolution No. 08-3911, "For the Purpose of Approving the Air Quality Conformity Determination for the Federal Component of the 2035 Regional Transportation Plan and Reconforming the 2008-2011 Metropolitan Transportation Improvement Program," adopted on February 28, 2008.
- Resolution No. 08-3938B, "For the Purpose of Providing Metro Council Direction to its Delegate Concerning Key Preliminary Decisions Leading to a Future Locally Preferred Alternative Decision for the Proposed Columbia River Crossing Project," adopted on June 5, 2008.

3. **Anticipated Effects** The approval of this resolution would allow the submission of a New Starts application for light rail transit to Vancouver Washington as well as include proceeding with the next steps towards a replacement bridge with tolls and light rail transit. It would not resolve the number of auxiliary lanes or other issues and considerations listed in the resolution but which will need to be addressed in the future once additional information and analysis is completed.

4. **Budget Impacts** If there is a role for Metro to play in the completion of the CRC Final Environmental Impact Statement (this could be additional updated travel forecasting, for example), the CRC project would reimburse Metro for any costs incurred for such work.

RECOMMENDED ACTION

Adopt Resolution No. 08-3960B, For the Purpose of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions.

Columbia River CROSSING

A RESOLUTION OF THE COLUMBIA RIVER CROSSING TASK FORCE TO PROVIDE DIRECTION TO THE COLUMBIA RIVER CROSSING PROJECT ON KEY DECISIONS FOR A LOCALLY PREFERED ALTERNATIVE

WHEREAS, the I-5 Interstate Bridge is one of only two Columbia River crossings between Vancouver, Washington and Portland, Oregon and approximately 150,000 people rely on crossing the I-5 Bridge daily by car, transit, bicycle and on foot; and

WHEREAS, the existing structures are aging and in need of seismic upgrade, and the closely-spaced interchanges are in need of safety improvements; and

WHEREAS, the movement of land and water-based freight is hindered by the current crossing, and

WHEREAS, high capacity transit does not currently connect Vancouver and Portland, and the bicycle and pedestrian paths do not meet current standards; and

WHEREAS, the I-5 Transportation and Trade Partnership Final Strategic Plan recommended congestion and mobility improvements within the I-5 Bridge Influence Area in 2002; and

WHEREAS, the Columbia River Crossing Task Force was established in February 2005, to advise the Oregon Department of Transportation and the Washington State Department of Transportation on project-related issues and concerns; and

WHEREAS, the Columbia River Crossing Task Force advised development of the project's Vision and Values Statement, alternatives development, and narrowing of the alternatives to five that would be studied in a Draft Environmental Impact Statement; and

WHEREAS, the Columbia River Crossing project is committed to implementing the principles of sustainability into project planning, design and construction in order to improve the natural and social environment and the regional economy whenever possible; and to minimize effects related to climate change; and

WHEREAS, the Oregon State Department of Transportation, Washington State Department of Transportation, Metro Council, Southwest Washington Regional Transportation Council, TriMet, C-TRAN, City of Portland and City of Vancouver have worked collaboratively on the development of the Draft Environmental Impact Statement; and

WHEREAS, the Columbia River Crossing project published a Draft Environmental Impact Statement on May 2, 2008, disclosing the potential environmental and community impacts and potential mitigation of the five alternatives; and

WHEREAS, the Columbia River Crossing project is seeking public comments on the Draft Environmental Impact Statement from the Columbia River Crossing Task Force as well as the public through outreach events, working sessions and hearings with sponsor agencies, and through two open houses and two public hearings during the comment period; and

WHEREAS, the Columbia River Crossing Task Force has opted to confirm Key Decisions that will lead to selection of a Locally Preferred Alternative.

NOW, THEREFORE, BE IT RESOLVED THAT THE COLUMBIA RIVER CROSSING TASK FORCE MAKES THESE RECOMMENDATIONS TO THE COLUMBIA RIVER CROSSING PROJECT:

1. In regards to the river crossing selection, the CRC Task Force supports the construction of a replacement bridge with three through lanes northbound and southbound as the preferred option.
2. In regards to the high capacity transit selection, the CRC Task Force supports light rail as the preferred mode.
3. In regards to the alignment and terminus of the high capacity transit line, and based on the information provided to date, the CRC Task Force
    - Recognizes that the selection of the alignment and terminus options should be determined through a combination of:
        i. Federal New Starts funding eligibility**,**
        ii. Public and local stakeholder involvement,
        iii. CRC project evaluation and technical determination of the terminus that allows for the greatest flexibility for future high capacity transit extensions and connections in Clark County, and
        iv. Outcome of the Vancouver City Council and C-TRAN votes on July 7 and July 8, respectively.
4. Creation of a formal oversight committee that strives for consensus and provides for a public process of review, deliberation and decision-making for outstanding major project issues and decisions.
5. The Freight Working Group, the Pedestrian and Bicycle Advisory Committee, the Urban Design Advisory Group, the Community and Environmental Justice Group, and the newly formed Sustainability Working Group, shall continue their advisory roles for refinement of the LPA. These advisory groups shall report findings and recommendations to the local oversight committee.

6. The CRC Task Force understands that several project elements have not been finalized at the time of this resolution. These elements will need to be satisfactorily resolved through a process that includes public involvement, recommendations from governing bodies of the sponsor agencies, and recommendations by a local advisory committee. The CRC Task Force supports the consideration of the attached list of Supplemental Positions for Future Project and Regional Consideration.

Columbia River Crossing Project
Supplemental Positions for Future Project and Regional Consideration

For Project Consideration:
The Columbia River Crossing Task Force presents these supplemental positions for consideration during the post-Locally Preferred Alternative (LPA) phase of the project development process. The Columbia River Crossing Task Force supports the following in association with the CRC project:

- The continued development of a mitigation plan, including avoidance of adverse impacts
- The continued development of a sustainability plan, including the formation of a sustainability working group
- Further study and analysis to determine the appropriate number of auxiliary lanes, necessary for safety and functionality in the project area, and consistent with minimizing impacts. The project should recognize that auxiliary lanes are for interchange operations, not for enhanced mainline throughput, and design the bridge width accordingly.
- The continued commitment to provide enhancements within potentially impacted communities
- As articulated in the final strategic plan of the I-5 Trade and Transportation Partnership, establish a community enhancement fund for use in the impacted areas of the project; such a fund would be in addition to any impact mitigation costs identified through the Draft EIS and would be modeled on the successfully implemented community enhancement fund of the I-5 Delta Park Project and subsequent Oregon Solutions North Portland Diesel Emissions Reduction Project.
- Continued work to design interchanges in the project area that meet the safety and engineering standards and requirements of the Federal Highway Administration, the departments of transportation for Oregon and Washington and the cities of Portland and Vancouver, in a way that is consistent with minimizing impacts.
- Continued work to ensure that interchanges are freight sensitive and provide enhanced mobility, in a way that is consistent with minimizing impacts.
- Imposing tolls on the existing I-5 bridge as soon as legally and practically permissible to reduce congestion by managing travel demand as well as to provide an ongoing funding source for the project
- A public vote where applicable, regarding the funds required to implement the light rail line
- The development of an aesthetically pleasing, sustainable and cost-efficient river crossing that provides a gateway to Vancouver, Portland and the Northwest

- Designing the project – river crossing, transit, and pedestrian and bicycle facilities – to be a model of sustainable design and construction that serves both the built and natural environment
- The development of light rail stations that meet the highest standards for operations and design. These stations would be designed to be safe and accessible to pedestrians, bicyclists, and people with disabilities.
- Continued development of a "world class" bicycle, pedestrian facility, as well as the consideration for provisions for low-powered vehicles such as scooters, mopeds and neighborhood electric vehicles, as part of the construction of a replacement river crossing
- Ensure that the preferred alternative solves the significant safety, congestion and mobility problems in the project area while meeting regional and statewide goals to reinforce density in the urban core and compact development that is both pedestrian friendly and enhances mobility throughout the project area and the region
- Development of an innovative transportation demand management (TDM) program to encourage more efficient use of limited transportation capacity
- Independent validation of the greenhouse gas and climate change analysis conducted in the Draft Environmental Impact Statement to determine the project's effects on air quality, carbon emissions and vehicle miles traveled per capita
- The inclusion of strategies aimed at reducing greenhouse gases and reducing vehicle miles traveled per capita. The Oregon Global Warming Commission or the Washington Climate Action Team should advise the CRC project on project related aspects that will help achieve both states greenhouse gas reduction goals set for 2020 and 2050.
- The development of a more detailed draft finance plan after the LPA is selected to define the funding and financing sources for this project from federal, state and local resources, while ensuring financial equity locally, within the region, and between the states of Oregon and Washington
- Independent review of the project's feasibility and risks, including the project's relationship to funding other transportation projects in the region
- Continued study of project health impacts such as those identified in the report submitted to the Task Force by the Multnomah County Health Department

For Regional Consideration:

There are system-wide transportation concerns that can only be resolved on a regional level and not by the Columbia River Crossing project. The Columbia River Crossing Task Force supports:

- Revisiting the remaining recommendations outlined in the *Strategic Final Plan* of the I-5 Transportation and Trade Partnership Study, dated September 2002
- Evaluating other bottlenecks within the system (e.g., I-405 / I-5 loop, Rose Quarter, etc.)
- Developing a regional plan for traffic demand management in the bi-state Portland-Vancouver region that promotes a reduction in vehicle miles traveled per capita

- Evaluating the effectiveness of a regional high occupancy vehicle (HOV) system
- Developing a regional plan for freight that considers the work of the I-5 Transportation and Trade Partnership and the CRC project's work with the CRC Freight Working Group
- Developing a web-based transit trip planning resource to plan transit trips in the Portland-Vancouver region

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 09-4023A, FOR THE PURPOSE OF EXPRESSING A SENSE OF THE COUNCIL ON THE NUMBER OF LANES PROPOSED AS PART OF THE COLUMBIA RIVER CROSSING PROJECT, TAKING INTO ACCOUNT CONGESTION PRICING, CAPACITY, AND POSSIBLE INDUCED DEMAND EFFECTS

Date: January 27, 2009 Prepared by: Ross Roberts 797-1752

BACKGROUND

The Columbia River Crossing project locally preferred alternative (LPA) was approved by the Council in July 2008. As part of that action, the Council selected light rail as the preferred transit option with a terminus in Vancouver, tolling on I-5 with three through-lanes and the number of additional auxiliary (add/drop) lanes within the bridge influence area to be the subject of a future RTP amendment.

Pursuant to the LPA adoption, the Governors of Oregon and Washington established a Project Sponsors Council (PSC) that consists of representatives from Portland, Vancouver, Metro, RTC, TriMet, C-Tran, ODOT and WSDOT. The co-chairs of the previous 39-member Task Force, Hal Dengerink and Henry Hewitt, co-chair the committee. Council President Bragdon is Metro's representative on the PSC. The PSC has met three times and has been briefed on a variety of topics including the number of lanes, and independent expert reviews of greenhouse gas effects and travel demand forecasting methods and assumptions.

Since July, the project team has been developing information regarding the number of add/drop lanes to be added to the three through-lanes in each direction.

Options for the number of lanes being considered include three through lanes with one, two or three add/drop lanes within the bridge influence area (BIA). These add/drop lanes connect interchanges within the BIA and facilitate merges and weaves from six closely-spaced interchanges including Victory Boulevard/Delta Park, Marine Drive and Hayden Island in Oregon and SR-14, Mill Plain, and SR-500 in Washington. The attached materials summarize the lane configurations and the benefits and impacts of these options on safety, operations, capacity, vehicle miles travelled, and other key indicators.

On January 26, 2009, the Metro Council held a joint work session with the Portland City Council. CRC representatives provided a briefing and the balance of the meeting was devoted to questions about and discussion concerning the issue of the number of lanes and the potential benefits and potential consequences associated with eight, ten and twelve lane designs.

ANALYSIS/INFORMATION

1. **Known Opposition** The CRC Project is a very large and complex multi-modal transportation project. There are strong feelings – pro and con associated with the project. Opposition to the highway design lane options include concern with the potential transportation and land use impacts of the project. These impacts involve the potential for encouraging more land extensive growth in

southwest Washington and accommodating commuters such that connecting facilities such as I-5 south of the project, I-84 and other throughways in the region become more congested.

2. **Legal Antecedents**

- Resolution No. 02-3237A, *For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations***;**

- Resolution No. 07-3782B: *For the Purpose of Establishing Metro Council Recommendations Concerning the Range of Alternatives to Be Advanced to a Draft Environmental Impact Statement For the Columbia River Crossing Project*;

- Ordinance No. 07-3831B *For the Purpose of Approving the Federal Component of the 2035 Regional Transportation Plan (RTP) Update, Pending Air Quality Conformity Analysis*;

- Resolution No. 08-3911, *For the Purpose of Approving the Air Quality Conformity Determination for the Federal Component of the 2035 Regional Transportation Plan and Reconforming the 2008-2011 Metropolitan Transportation Improvement Program*;

- Resolution No. 08-3960B, *For the Purpose of Endorsing the Locally Preferred Alternative For the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan With Conditions*.

The 2035 Regional Transportation Plan (federal component) as adopted by the Metro Council on December 13, 2007 includes a new bridge across the Columbia River. This item was reconfirmed with the adoption of the air quality conformity determination in February 2008.

3. **Anticipated Effects** Approval of this resolution would provide guidance to President Bragdon. The Project Sponsors Council's decision would allow the project to provide design decisions for preliminary engineering.

4. **Budget Impacts** There would not be any direct impact on the Metro budget as a result of taking action on this resolution.

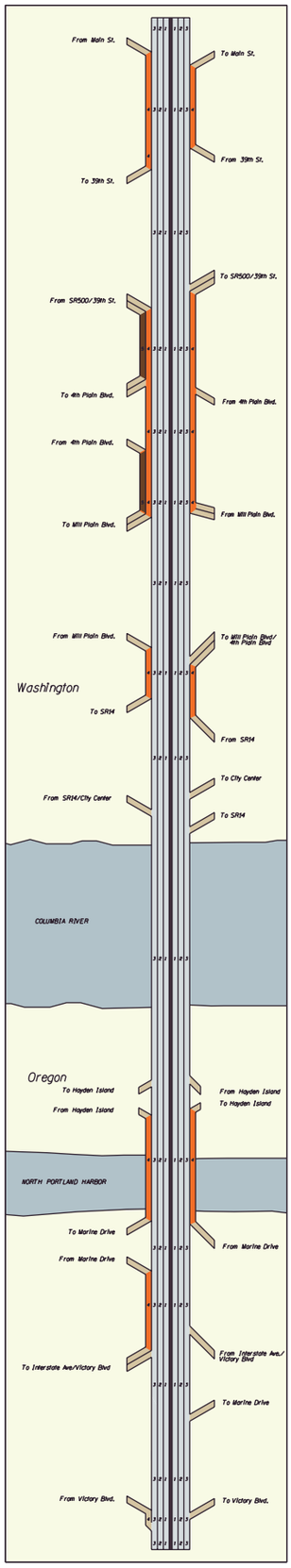
RECOMMENDED ACTION

Approve Resolution No. 09-4023, *For The Purpose of Expressing a Sense of the Council on the Number of Lanes Proposed as Part of the Columbia River Crossing Project, Taking into Account Congestion Pricing, Capacity, and Possible Induced Demand Effects*.

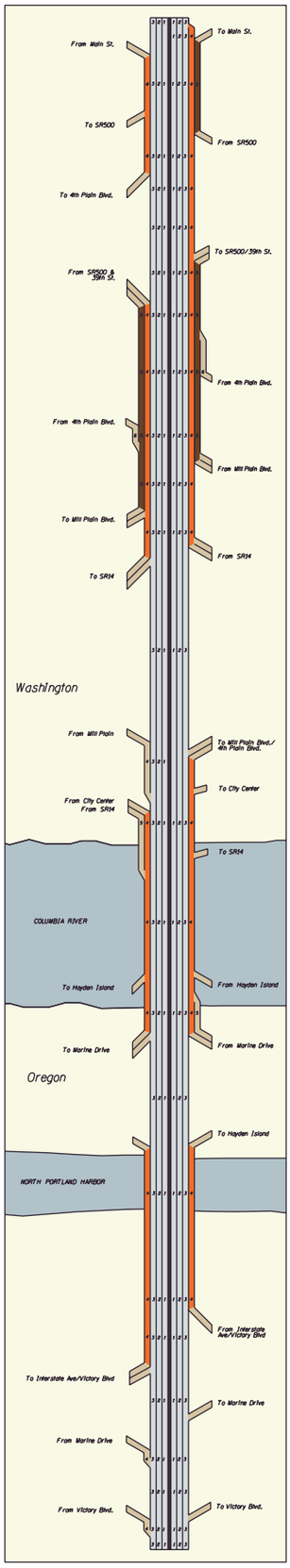
Columbia River CROSSING

Add/Drop Lane Designs

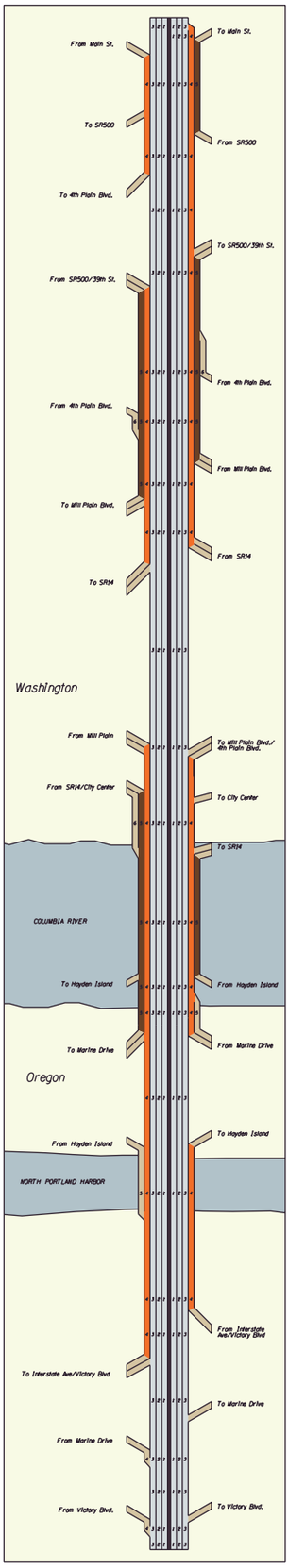
No Build



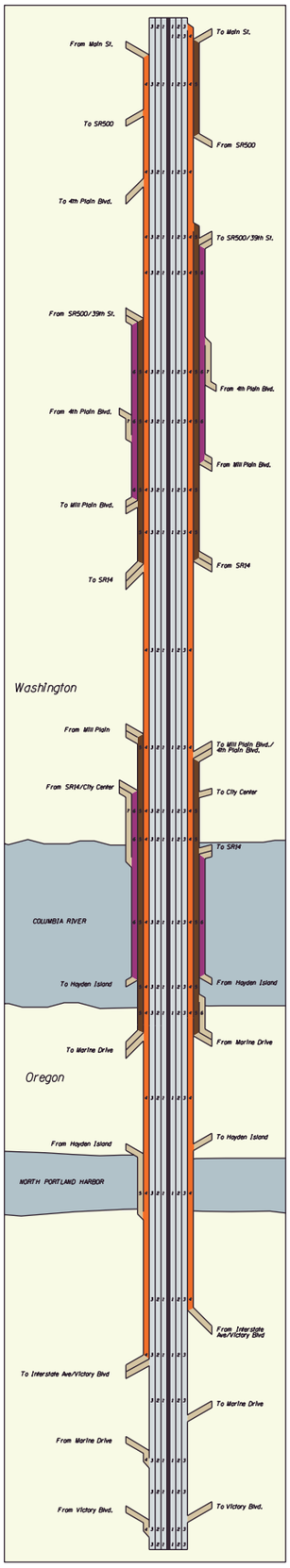
8 Lane



10 Lane



12 Lane



Key

- Lane 4
- Lane 5
- Lane 6

Columbia River CROSSING

Traffic effects of 8, 10 and 12 lane options

	8 Lanes	10 Lanes	12 Lanes
I-5 Impacts	**Northbound I-5:** 1. Hayden Island off-ramp to Marine Drive on-ramp 2. Hayden Island on-ramp merge area 3. SR 14 off-ramp diverge area 4. Mill Plain/4th Plain off-ramp to SR 14 on-ramp **Southbound I-5:** 5. 4th Plain off-ramp to SR 500 on-ramp 6. SR 14 off-ramp to Mill Plain on-ramp 7. Mill Plain on-ramp merge area 8. North of Hayden Island off-ramp 9. Marine Drive off-ramp to Hayden Island on-ramp	**Northbound I-5:** 1. Hayden Island off-ramp to Marine Drive on-ramp 2. Mill Plain/4th Plain off-ramp to SR 14 on-ramp **Southbound I-5:** 3. 4th Plain off-ramp to SR 500 on-ramp 4. SR 14 off-ramp to Mill Plain on-ramp 5. North of Hayden Island off-ramp	None
Local Street Impacts	**Due to northbound I-5 impacts:** 1. Marine Drive 2. Hayden Island 3. SR 14 4. Mill Plain **Due to southbound I-5 impacts:** 1. SR 500 and Main Street 2. 4th Plain 3. Mill Plain 4. SR 14 and City Center 5. Hayden Island	**Due to northbound I-5 impacts:** 1. Marine Drive 2. SR 14 **Due to southbound I-5 impacts:** 1. SR 500 and Main Street 2. 4th Plain 3. Mill Plain 4. SR 14 and City Center	None
I-5 Bridge Congestion	7 to 9 hours	5 to 7 hours	3.5 to 5.5 hours
Annual Collisions	300	240	200
I-5 Traffic	165,000 vehicles	174,500 vehicles	178,000 vehicles
I-205 Traffic	219,000 vehicles	214,500 vehicles	213,000 vehicles
Total River Crossing Traffic	384,000 vehicles	389,000 vehicles	391,000 vehicles
Diversion to I-205 from No Build	9,000 vehicles	4,500 vehicles	3,000 vehicles
Regional Vehicle Miles Travelled (VMT)	56.770 million regional VMT 0.21% increase over No Build	56.750 million regional VMT 0.18% increase over No Build	56.746 million regional VMT 0.17% increase over No Build
I-5 Transit Riders	18,900 (16,800 on light rail)	18,900 (16,800 on light rail)	18,900 (16,800 on light rail)
HOV Lane Potential?	No	No	With conversion of traffic lane

Note: All figures are for the year 2030.

Dec. 1, 2008

Columbia River Crossing

Travel Demand Model Review Panel Report

November 25, 2008

November 25, 2008

The enclosed report presents the findings of the Columbia River Crossing Travel Demand Review Panel, which met October 13 and 14, 2008 to review the project analysis and methodology as requested by project sponsors and the Oregon and Washington Departments of Transportation.

We were asked to respond to seven specific questions about the model and project analysis completed in the Draft Environmental Impact Statement. Our report provides findings and recommendations for each specific question as well as some recommendations outside of the scope of the project. For the reasons we explain in our report, we strongly believe the travel demand model and project analysis are valid and comprehensive.

The Review Panel would like to express its appreciation to Metro, RTC and CRC staff for providing the information that allowed us to evaluate the seven questions we were asked to consider. We enjoyed our discussions and staff's willingness to openly debate the technical aspects of the travel demand model and its application to the CRC Project.

We appreciate the opportunity to provide you with our thoughts on the travel demand model and its application to the CRC Project.

Maren Outwater, Chair
Bruce Griesenbeck
Arash Mirzaei
Guy Rousseau

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Introduction

The Travel Demand Model Review Panel (Panel) was tasked with reviewing and evaluating the assumptions implicit in the travel demand model for the CRC project. This review was requested by partner agencies in July 2008, as part of the selection of a Locally Preferred Alternative for the project. Resolutions passed by partner agencies made the following recommendations related to review of the CRC travel modeling assumptions:

- Further analysis is required of the greenhouse gas and induced automobile demand forecasts for this project. The results of the analysis must be prominently displayed in the Final Environmental Impact Statement. The analysis should include comparisons related to the purpose and function of the so-called "auxiliary" lanes. A reduction in vehicle miles traveled should be pursued to support stated greenhouse gas reduction targets as expressed by legislation in Oregon and Washington and by the Governors. (Metro Council, Resolution 08-3960B, July 17, 2008).

- The CRC project shall contract for an independent analysis of the greenhouse gas and induced automobile travel demand forecasts for the project. (City of Portland Council, Resolution 36618, Exhibit A, July 9, 2008).

- The CRC project shall contribute to a reduction of vehicle miles traveled (VMT) per capita in the bi-state metropolitan area. (City of Portland Council, Resolution 36618, Exhibit A, July 9, 2008).

- Independent validation of the greenhouse gas and climate change analysis conducted in the Draft Environmental Impact Statement to determine the project's effects on air quality, carbon emissions and vehicle miles traveled per capita (CRC Task Force, Resolution Recommendations, June 24, 2008).

The Panel met on October 13 and 14, 2008 to provide an independent review of the key travel demand modeling inputs and results related to regional modeling and the CRC project. Review of the greenhouse gas analysis requested in the resolution recommendations will be conducted as part of a separate process. This will occur after the travel demand model review process is complete.

Summary of Panel's Findings Regarding the Travel Demand Model

This report presents the conclusions and recommendations of the Travel Demand Model Review Panel prepared in response to seven specific questions. The panel's findings and general observations are summarized below. This section includes a synopsis of the responses to each question along with an overall observation of the application of the Travel Demand Model to the CRC Project and the resulting outputs. A more complete discussion of each question, topic area and the panel's discussion and conclusions is

provided in later sections of this report. Additional recommendations, outside the scope of the project, are included at the end of report.

Specifically, the Panel addressed the following questions related to the Locally Preferred Alternative resolutions:

- Are fuel price and vehicle operating cost assumptions used in the model reasonable?
- Are the tolling methods used in the model reasonable?
- Are the traffic projections for I-5 and I-205 from the model reasonable?
- Are the vehicle miles travelled results reasonable?
- Are the bridge auxiliary lanes modeled correctly?
- Was the approach used to estimate induced growth reasonable?
- Were the induced growth findings reasonable?

The Travel Demand Review Panel concluded that the Travel Demand Model used by the region is an advanced trip-based tool and that it represents a valid tool for a project of this type:

- The destination choice features of the trip distribution model used for all trip purposes is a positive and allows for fuller consideration of accessibility and policy variables in the analysis.
- The peak factors applied to skims is a better way to represent weighted averages than standard practice, which assumes peak conditions for work trips and off-peak conditions for non-work trips.
- The use of VISSIM offers a more rigorous evaluation of congestion than is possible with a regional planning model.
- The use of Metroscope as one method to evaluate induced growth is an advanced practice for a project evaluation. Normally this type of analysis is used for systemwide / regional transportation planning efforts and not specific project evaluations.

The panel also provided long-term recommendations for the Portland Metro regional travel demand and land use forecasting models, but these long-term recommendations were beyond the scope of the CRC project and were not considered to impact the outcome of the project findings. The long-term recommendations were intended to inform the next generation of models for the Portland Metro region.

Question 1 - Are fuel price and vehicle operating cost assumptions used in the model reasonable?

The Panel concluded that the vehicle operating cost assumptions, of which fuel costs are a component, used in the model for the primary travel demand forecasts were reasonable. The Panel confirmed that vehicle operating costs (which consists of gasoline and oil, tire, and general maintenance costs on a per mile basis) is the appropriate measure to use as it reflects the long-term relationship between fuel price and vehicle fleet fuel efficiency. In the Panel's opinion there was an adequate stratification of fuel cost, other costs and buildup of auto operating costs in the modeling process.

Question 2 - Are the tolling methods used in the model reasonable?

The Panel concluded that the overall approach to the tolling analysis employed by the CRC Project is within standard practice. The resulting volumes on the I-5 Bridge with tolls compared to No-Build volumes demonstrate that the tolling methods are reasonable.

Question 3 - Are the traffic projections for I-5 and I-205 from the model reasonable?

The Panel concluded that model results that indicated that the Build Alternative (LPA) volume difference relative to the No-Build Alternative (6,000 fewer vehicles per day / 3 percent reduction on I-5 and 3,000 additional vehicles per day / 1 percent increase on I-205) are reasonable, due to the fact that:

- There is a higher level of transit service and a resulting higher transit share in the Build alternative which reduces auto volumes on I-5;
- There are tolls on I-5 in the Build alternative versus no tolls in the No-Build alternative which also reduces auto volumes on I-5 and increases volumes on parallel facilities, like I-205;
- There is no added highway capacity north of or south of the project limits; and
- There are changes to trip distribution resulting in a decrease of discretionary trips crossing the river because of the toll.

Question 4 - Are the vehicle miles traveled (VMT) results reasonable?

The Panel concluded that the results showing a decrease in auto VMT on I-5 and a net regional increase (small) overall is reasonable because:

- There is a higher level of transit service and a resulting higher transit share in the Build alternative, which results in lower auto VMT on I-5; and
- There are tolls on I-5 in the Build alternative versus no tolls in No-Build alternative which results in diversion and higher regional VMT.

Question 5 - Are the bridge auxiliary lanes modeled correctly?

The Panel concluded that while the coding of a four-mile continuous auxiliary lane may be unusual in some urban areas, there are local examples of long auxiliary lanes that currently operate and are modeled similarly in the Metro region. Since this length of an auxiliary lane is consistent with regional coding (modeling) practices, this is a reasonable assumption for this project.

Question 6 - Was the approach used to estimate induced growth reasonable?

The Panel concluded that the use of Metroscope and the travel demand model results supported the national research findings. They felt that the use of multiple methods (i.e., case studies, Metroscope, national research) to evaluate induced growth was helpful. The evaluation of a worst case scenario in Metroscope (it assumed a larger build project then the LPA and no tolling) was useful and appropriate

Question 7 - Were the induced growth findings reasonable?

The Panel agreed that the conclusion of the CRC project that the highway capacity improvement would have a low impact to induce growth was reasonable for this corridor because the project is located in a mature urban area/built corridor.

Panel Members

Four experts, each with substantial experience in travel demand modeling in large metropolitan areas, served on the Panel. Each expert is currently in charge of travel demand modeling for a metropolitan planning organization.

Maren Outwater, Chair

Maren Outwater is the Director of Data Systems and Analysis at the Puget Sound Regional Council (PSRC). She specializes in the planning, evaluation, and modeling of land use, transportation and air quality systems. She has 23 years of experience in developing passenger forecast models for transit and highway systems, forecast models of goods movements, and land use forecasts for regional and state governments. She also has 18 years of progressive experience in managing complex multi-modal development efforts. At PSRC, she is leading the current efforts to integrate land use, travel, and air quality modeling to improve the agency's ability to model climate change and address pricing studies. Prior to working at PSRC, Outwater was a Principal at Cambridge Systematics. She has a Masters of Urban Planning in Transportation Planning and a Bachelors of Science in Civil Engineering from the University of Michigan.

Bruce Griesenbeck

Currently Bruce Griesenbeck is the Principal Transportation Analyst for the Sacramento Council of Governments (SACOG). He serves as the team leader for the forecasting, model operations, and model development teams. Primary areas of work for model development have been managing the development of an activity-based tour regional travel demand model, and supervision of the land use and travel network data inputs of this model. He managed the development of a "shortcut" version of the four- step travel demand model for use in modeling citizen-defined transportation alternative in a series of 13 public workshops for the 2007 Metropolitan Plan. Prior to SACOG, Griensenbeck was the project manager for various transportation and analysis and planning projects including light rail extension feasibility studies. Griesenbeck holds a Bachelors of Arts in Sociology and Psychology from Swarthmore College and a Masters of Science. in Civil Engineering and Master of City Planning, both from the University of California at Berkeley.

Arash Mirzaei

Arash Mirzaei is the Travel Model Development Program Manager for the North-Central Texas Council of Governments (NCTCOG) in the Dallas/Fort Worth area, where he has worked for more than ten years. Arash Mirzaei is responsible for travel model development, data collection and analysis activities, and transportation application projects that involve traffic and revenue analysis, preparation of environmental documents, air quality and conformity applications, roadway corridor studies, transit alternative analysis, combined land use and transportation applications, environmental justice analysis and activity-based modeling examinations. Mirzaei has a Bachelors of Science and Masters of Science in Civil Engineering from Sharif University of

Technology in Tehran, Iran, and a Masters of Science in Computer Science and Engineering from the University of Texas at Arlington.

Guy Rousseau

Guy Rousseau has over 20 years of experience working with and managing modeling and traffic engineering teams. He currently works as the Modeling Manager for the Atlanta Regional Commission (ARC). In this position, he oversees modeling of the long range transportation plan updates. This process involves network coding, trip generation, trip distribution, modal split, and traffic assignment and emissions analysis for a variety of network year analyses, as well as base year calibrations and validations involving the population synthesizer. Rousseau also manages the traffic modeling efforts feeding into air quality modeling and related emissions analysis, as well as some post-processing methodology and traffic micro-simulations. Rousseau has a Bachelors of Science. in Civil Engineering from the University of Montreal, a Masters of Science in Civil Engineering from Laval University in Quebec, and has finished all coursework at Tulane/ University of New Orleans towards a doctoral degree in civil engineering and transportation planning, with a dissertation remaining.

Peer Review Process

The Travel Demand Model Review Panel met on two consecutive days (October 13 and 14, 2008) to review and consider the seven specific questions. Background material in the form of a Travel Demand Model Review notebook was provided to each Panel member in advance of the meeting. Information included in the notebook provided background on the CRC project and the LPA as well as technical documentation and context related to the model and its assumptions.

During the Panel sessions, technical presentations from Metro, RTC and CRC staff were provided as background to each question and the Panel asked questions of staff during and following each presentation. Following the presentations, the four Panel members adjourned to a separate room to consider the information presented and to address the seven questions. Two staff members representing the CRC project were in the room with the Panel members to record the discussion and findings. They did not participate in the technical review or the formation of recommendations. The findings presented below represent the conclusions reached exclusively and by consensus by the members of the Travel Demand Model Review Panel.

At the end of the second day the review Panel members verbally presented preliminary findings and recommendations to an audience of agency staff and interested parties. The findings presented in this report represent the final conclusions of the Travel Demand Model Review Panel related to the seven specific questions asked of them.

Panel Response to Questions

The following presents the Panel's discussion on each specific question. Panel discussion on each question was preceded by a presentation by staff on the specific topic. The panel then discussed the question and asked questions of staff when necessary. The Panel's findings and / or recommendations are presented at the end of each question.

Question 1:

Are fuel price and vehicle operating cost assumptions used in the model reasonable?

Staff Presentations

Staff provided a PowerPoint presentation ("Metro Modeling Efforts – Fuel and Auto Operating Costs") that discussed the fuel and auto operating cost assumptions included in the Metro model and the research that supported the assumptions. Staff noted that the recent spike in fuel prices has lead some parties to question the fuel price assumptions, particularly in relation to the auto operating cost assumptions contained in the model.

Staff discussed that in the Metro model, fuel costs are considered as part of auto operating cost, which consists of gasoline and oil, tires, and general vehicle maintenance

costs on a per mile basis. Auto operating cost is used instead of fuel prices because it reflects the long-term relationship between fuel price and automobile fleet fuel efficiency (through technological changes, consumer preferences, and government regulations). Metro assumes the historical trend of relatively stable auto operating costs will continue into the future, as it has in the past.

Staff noted that the current fuel cost assumptions relied on national trends and averages prepared by AAA. Future fuel price assumptions relied upon the "worst-case", or highest, year 2030 forecasts provided by the Energy Information Administration (EIA), the statistical agency of the U.S. Department of Energy. Auto operating costs, which include fuel costs, are a factor in the mode choice model.

Panel Discussion

A panel member noted that his experience with the travel demand model in Sacramento indicated that the traditional four-step modeling process was not very sensitive to changes in fuel prices. It was noted that the transit model is very sensitive to fuel price. The Panel asked what impact a change in fuel pricing would have on VMT and transit use. Staff indicated that Metro tested a range ($0.05 to $0.13 per mile) and the impact on both categories was minimal.

The Panel asked if the destination choice model was based on income and, if so, what were the results? Staff indicated that this model did include income factors and the result was that the longer trip lengths were typically associated with specialty/higher income jobs. Lower income jobs tended to be associated with shorter trip lengths. Staff noted that the land use model used travel time to forecast behavior, not auto operating costs.

The Panel asked staff if you change the vehicle operating costs, what changes result in the model? Staff response was that mode share changes, transit ridership increased, but destination choices do not change.

The Panel did note that overall economic conditions are more of a factor, particularly for discretionary trips. The Panel also noted that statewide or regional (i.e., West Coast) fuel prices would probably be a better source when fuel price assumptions for the Metro area. These tend to be a little higher then the national average prices.

Panel's Findings and/or Recommendations

The Panel concluded that the vehicle operating cost assumptions, of which fuel costs are a component, used in the model for the primary travel demand forecasts were reasonable. The Panel confirmed that vehicle operating costs (which consists of gasoline and oil, tire, and general maintenance costs on a per mile basis) is the appropriate measure to use as it reflects the long-term relationship between fuel price and vehicle fleet fuel efficiency. In the Panel's opinion there was an adequate stratification of fuel cost, other costs and buildup of auto operating costs in the modeling process.

The Panel requested staff to look at alternative reasonable VMT / price elasticity relationships. The results of staff's analysis were that regional VMT could vary by minus six percent to plus six percent if fuel prices were at the lower or higher range of forecasts for 2030 as provided by the independent Energy Information Administration.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 2:

Are the tolling methods used in the model reasonable?

Staff Presentation

Staff provided a PowerPoint presentation ("Metro Modeling Efforts – Tolling Methodology") that discussed how tolling costs were implemented in Metro's model. Staff noted that there has been no single best-practice method identified for implementing tolls within travel demand models. Staff's research indicates that each region and project is unique and, therefore, the approaches to tolling tend to differ widely across the nation. Staff described the unique character of the CRC corridor and the lack of alternative routes. Staff noted that the model assumed peak and non-peak tolling costs and did not assume a toll on I-205. Tolling is reflected in the model as a time penalty assigned to categories of travel (auto peak/non-peak, medium trucks peak/non-peak and heavy trucks peak/non-peak).

Staff described how the tolling methodology and assumptions and how they affected destination choice, mode choice and final assignments in the model. Staff concluded with a discussion of the impacts of tolling on these three categories:

- Destination Choice: 7 percent fewer Washington-Oregon crossings and 11 percent fewer Oregon-Washington crossings;
- Mode choice: Increase in mode split from 9 percent to 11 percent; and
- Final Assignment: During the AM 4-hour southbound period with No Toll there was a 53 percent/47 percent split between traffic on I-5 versus I-205 (62,000 total trips) and with an I-5 Toll there was a 43 percent/57 percent split between I-5; and
- I-205 (59,000 total trips).

Panel Discussion

A panel member asked at what point do tolling costs come into play in the model? Staff indicated at all steps, except trip generation. Staff noted that in the model assignment

there was no differentiation between income groups, but for revenue forecasting income differentiation will be a part of the revenue assessments.

The Panel asked - what is the effective Value of Time (VOT)? The Metro model uses a value of time of $13 per hour in 2005 dollars. For a $2 toll, this translates into 9.23 minutes of additional time impedance. The destination choice model uses 25% of the toll cost and the mode choice model uses 75% of the toll cost. The panel noted that research shows that VOT does vary by income group and also other factors such as purpose of trip. A panel member noted that tolling costs do not effect distribution at all in the Atlanta regional model. It was also noted that in Dallas-Fort Worth, tolling doesn't affect their model.

The Panel asked – how many "feedbacks" (iterations) are there in the modeling process and when are tolling costs included? Staff indicated that there were six to seven "feedback iterations" for the base scenario and basically the same for each alternative. Normally two to three iterations are acceptable when running the regional model, but additional iterations were tested because this is such a saturated corridor. Staff noted that they did not see much difference in the model results between the alternatives and that transit ridership was the main difference. Staff noted that tolling costs were implemented in the "final iteration" of each alternative.

The Panel was informed that there would be tolls on I-5 at river crossing with this project and that not tolling was not an option. Bikes and pedestrians would not be subject to the toll. It was noted that there are currently tolled facilities in the State of Washington – Tacoma Narrows and a pilot HOT project.

The Panel discussion then focused on some of the technical details of tolling and the modeling process including: weighting factors, stopping criteria, speeds, micro-simulation and model assumptions related to capacity and auxiliary lanes. Staff addressed each issue in their comments.

Panel's Findings and/or Recommendations

The Panel concluded that the overall approach to the tolling analysis employed by the CRC Project is within standard practice (given the current range of limitations for modeling tolls). The treatment of tolls in destination choice (i.e., partial cost included) is an appropriate methodology. The resulting volumes on the I-5 Bridge with tolls compared to No-Build volumes demonstrate that the tolling methods are reasonable. The Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 3:

Are the traffic projections for I-5 and I-205 from the model reasonable?

Staff Presentation

Staff provided a PowerPoint presentation ("CRC Project Alternatives and Performance Results") that provided a more detailed description of the corridor, Bridge Influence Area (BIA), travel characteristics within the corridor including travel patterns, crash data, transit ridership, and peaking characteristics. Staff then reviewed the results of the extensive analysis for the No-build and Bridge Replacement Alternatives. Staff described the components of the LPA including the replacement bridge, the auxiliary lanes, and light rail alignment. Finally, Staff provided an overview of existing travel conditions and congestion levels and the VISSIM model.

Panel Discussion

The Panel asked – how did the Metro model compare to the license plate data collection conducted by CRC? Staff responded that the results matched up fairly closely, but the regional model did have some minor inconsistencies associated with dealing with the super-saturated nature of the corridor. The Panel then asked – how did the overall model results compare to the data? Staff indicated that the results for the corridors mainline matched well and that some adjustments needed to occur on the ramps to I-5, but the project was able to accomplish this. The resulting travel times and speeds on the bridge were good. In terms of model "post-processing" staff indicated that they used the NCHRP 255 methodology, using the difference method. Four screen lines were used in this 23-mile long VISSIM model area.

The Panel asked - with congested traffic traveling at 30 mph, what's your corresponding level of service (LOS) and what is the region's standard? Staff responded that the resulting LOS was E/F, but noted that traffic demands are too high to build a feasible project that could meet peak period LOS standards. The Project is trying to improve mobility and safety conditions in the corridor and reduce the duration of congestion, among other things.

The Panel asked about the use of Park-and-Ride lots and how Metro models this type of access. Staff indicated that park-and-ride is one of the modes in the model. They don't model kiss and ride directly, but from survey work staff knows that it constitutes about 15 percent. Staff also noted that the park-and-ride lots in Clark County are at capacity and identified their locations.

The Panel asked if HOV lanes across the I-5 Bridge had been considered. Staff indicated that yes they were considered during earlier screening, but because the project is only

five miles long, staff found no benefit without some larger HOV lane system. If there is future policy direction for a broader HOV lane implementation, that might be looked at. Also, with so many trips getting on and off I-5 in a short five-mile area, it becomes difficult to accommodate them with an HOV lane.

The Panel asked - what's your definition of no-build? Staff indicated that they assumed all the financially constrained projects in the RTP and MTP. Staff noted that there was just one project (SR-502 Interchange) upstream from the project in the I-5 corridor.

Panel's Findings and/or Recommendations

The Panel concluded that model results that indicated that the Build Alternative (LPA) volume difference relative to the No-Build Alternative (6,000 fewer vehicles per day / 3 percent reduction on I-5 and 3,000 additional vehicles per day / 1 percent increase on I-205) are reasonable, due to the fact that:

- There is a higher level of transit service and a resulting higher transit share in the Build alternative;
- There are tolls on I-5 in the Build alternative versus no tolls in the No-Build alternative;
- There is no added highway capacity north of or south of the project limits; and
- There are changes to trip distribution resulting in a decrease of discretionary trips crossing the river because of the toll.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 4:

Are the vehicle miles traveled (VMT) results reasonable?

Staff Presentation

Staff's PowerPoint presentation ("CRC Project Alternatives and Performance Results") introducing Question 3 also included information on Vehicle Miles Traveled (VMT) related to Question 4. Staff reviewed the VMT results with the No-Build and Build Alternatives. These results indicate lower VMT in both the I-5 Bridge Influence Area and the I-5 Corridor with the Replacement Bridge compared to the No-Build Alternative.

Panel Discussion

There was little discussion on the part of the Panel on this question because it was closely related to Question 3. Please see the discussion details above.

Panel's Findings and/or Recommendations

The Panel concluded that the results showing a decrease in VMT on I-5 and a net regional increase (small) overall is reasonable because:

- There is a higher level of transit service and a resulting higher transit share in the Build alternative; and
- There are tolls on I-5 in the Build alternative versus no tolls in No-Build alternative.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 5:

Are the bridge auxiliary lanes modeled correctly?

Staff Presentation

Staff's PowerPoint presentation ("CRC Project Alternatives and Performance Results") introducing Question 3 also included information on Auxiliary Lanes related to Question 5. Staff reviewed the purposes of and the need for auxiliary lanes in this project. Staff described how they were designed into the No-Build and Replacement Bridge Alternatives and discussed the lane capacities that were assigned to these lanes. Staff also presented various examples of existing auxiliary lanes in the Metro Region.

Panel Discussion

The Panel asked for clarification on the length of the auxiliary lanes and capacities assigned to each lane. A panel member noted that in the Sacramento region, they are having discussions about the meaning of auxiliary lanes, which sometimes mean different things to different people. Some concern was expressed about the length (four miles) of the auxiliary lanes, but it was understood that the region has examples of existing auxiliary lanes of this length. Also, the Panel was assured the coding practice was consistent throughout the regional model network.

The Panel asked - did you look at different combinations of auxiliary lanes fewer than three? Staff indicated that there is testing going on right now along those lines. Three lanes were chosen to accomplish lane balance and safety improvements.

The Panel asked if staff made use of collector/distributor roads in the project area? Staff noted that they have a limited set of collector/distributor roads within the project area, but the auxiliary lanes that are shown are part of the I-5 mainline.

The Panel asked if the land use assumptions were the same for all alternatives. Staff indicated that the land use assumptions were the same.

Panel Findings and/or Recommendations

The Panel concluded that while the coding of a four- mile continuous auxiliary lane may be unusual in some urban areas, they were presented with local examples of long auxiliary lanes that currently operate in the Metro region. Since this length of an auxiliary lane is consistent with regional coding practices, this is a reasonable assumption for this project.

The Panel also noted that the project's assignment of reduced lane capacity to the auxiliary lanes is reasonable.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 6:

Was the approach used to estimate induced growth reasonable?

Staff Presentation

Staff provided a PowerPoint presentation ("Induced Growth") that described the topic within the context of NEPA and the CRC Project. Staff began by defining what induced effects were and how they were evaluated in the Draft Environmental Impact Statement. Staff noted that the CRC staff conducted national research on induced effects, including reviewing case studies. Staff then discussed the conclusions of the national case studies. Staff discussed the variety of factors the national research identified as particularly relevant to induced growth, including new access to previously unserved areas, significant improvement to highway travel times, reductions in auto-operating costs, and local regulations that don't manage growth.

Staff noted two key findings particularly relevant to the CRC project and the conclusion that first, the project is unlikely to induce substantial auto travel demand or incur consequential auto-oriented land use changes and second, the project is likely to promote increased densities around new high capacity transit stations.

- Adding highway capacity in a well-planned urban area with a full range of infrastructure and services is unlikely to have substantial indirect effect on land use patterns.
- Improving high capacity transit in a location with supportive land use regulations and markets is likely to promote higher density and TOD, and improve transit mode share.

Staff provided a discussion on the land use regulatory context in Oregon and Washington that will influence the project. Staff then talked about the travel demand model results that related to factors potentially associated with induced growth. A discussion on Metroscope and its application to the project followed. Staff noted that the Metroscope analysis conducted for the project was a "worst-case" scenario – it assumed more new highway lane miles than all of the DEIS alternatives and did not assume a toll on the bridge. The key finding of Metroscope was that there was a potential for a small job growth shift (one percent) from other areas of the region into the I-5 Corridor area as a result of the CRC improvements, and a potential minor increase (less than three percent) in housing prices/demand in Clark County, Vancouver, and north Portland around the I-5 corridor.

Panel Discussion

The Panel asked - how many regional centers are included in Metro's 2040 Regional Growth Concept and how was the Urban Growth Boundary addressed in the model? Staff indicated 10 to 12 centers (combination of regional and town centers). Staff further noted that the UGB identified where the region's buildable land was and, therefore, where future growth would occur. Staff noted that the UGB is reviewed and updated every five years so the Metro region can maintain a 20-year supply of buildable land.

The Panel wanted to know if Metroscope was used for project-level evaluations. Staff indicated that Metroscope was not typically used for project-level evaluation, that it is normally used for the RTP and system-wide analyses.

The technical aspects of Metroscope and the travel demand model were explored by the Panel. They discussed the census tract level analysis Metroscope operates on the relationship of Metropscope results to VISSIM. The Panel asked for additional information on VMT and person trips (this information was provided to the Panel).

Panel discussion then focused on the likelihood for City of Vancouver support for high-capacity transit. How likely is it that the LRT portion within downtown Vancouver would be highly used and see a lot of transit-oriented development? How much support for the intra-Vancouver portion of LRT is there? Staff thought there was increased support for LRT in Vancouver. Staff indicated that given the length of the line, it's likely they'll see more of a reverse commute on LRT from North Portland than from farther north in Clark County. It will function more as a commuter route and for shorter distance intra-

downtown trips. Staff felt there was a strong potential for increased TOD development in Vancouver and noted recent higher density projects that have been built in Vancouver.

The follow-through on the stated intent by Vancouver and Clark County to focus development in the station areas will be critical to the overall success of the LRT portion of the project and the panel findings on induced growth.

Panel discussion then focused on the minor reallocation of jobs into the I-5 Corridor. The Panel wanted to know where the jobs relocated from, which areas of the region contributed to the shift of jobs to the corridor and whether, as a consequence of the shift, was the resulting shift more or less VMT-efficient. Staff indicated that the reallocation didn't come from one specific area, that it was widespread, throughout the region. Staff did note again that the potential shift was minor.

Panel's Findings and/or Recommendations

The Panel concluded that the Metroscope and the travel demand model results appeared to support the national research findings. They felt that the use of multiple methods (case studies, Metroscope, national research) to evaluate induced growth was very helpful. The evaluation of a worst case scenario in Metroscope (it assumed no toll, more new highway lane miles and more auto trips than the LPA) is useful and appropriate. The use of the year 2020 for Metroscope analysis was reasonable at the time it was conducted. The Panel felt that the overall evaluation of induced growth impacts was thorough and robust.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 7:

Were the induced growth findings reasonable?

Panel Discussion

The Panel discussion that occurred on this specific question occurred during the discussion on Question 6.

Panel's Findings and/or Recommendations

The Panel did conclude that the CRC project finding would have a low impact to induce growth is reasonable for this corridor because the project is located in a mature urban area. Insofar as the Metroscope analysis indicates that the project contributes to a better jobs housing balance in Clark County, the Panel believes that this is a positive outcome of the project.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Additional Panel Findings and/or Recommendations

The Panel also identified a series of long-term regional model improvements. These were not considered as significant to project outcomes at this time and are presented for information only for consideration by Portland Metro in their future enhancements of the regional land use and travel demand forecasting models:

- The Panel noted that the 1994 household survey is 14 years old and suggested that the region consider conducting a new survey soon. Typically, household surveys are conducted every ten years for regional planning purposes.
- The region should consider using the North American Industrial Classification System (NAICS) rather than the Standard Industrial Classification (SIC) codes for employment. NAICS is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. NAICS was developed under the auspices of the Office of Management and Budget (OMB), and adopted in 1997 to replace the Standard Industrial Classification (SIC) system.
- Multinomial mode choice factors in the model limits consideration compared to the use of a fully nested mode choice. Nested logit models can provide a more accurate representation of tradeoffs between modes that are similar (like rail and bus) compared to modes that are more different (like auto and transit).
- Destination choice should consider a Central Business District dummy variable instead of deleting the full cost from destination choice. This was a tradeoff identified by Portland Metro staff during the calibration of the model. The inclusion of full costs in destination choice will provide a more accurate picture of the impacts of tolls, parking costs, operating costs, and fares on traveler's decisions to make a trip across the river or not. This change will require a recalibration of the destination choice models.
- The use of fixed-time factors are a limitation for the evaluation of variable pricing. Variable pricing is designed to shift travelers from congested periods to less congested periods and these shifts are not currently represented by the fixed time factors.
- Updating the future travel demand modeling efforts to redirect the feedback loop from trip distribution to trip generation and to show effects of accessibility on trip generation should be considered. This will involve revising the trip generation model to incorporate accessibility as an input and will provide changes in trip-making as a result of changes in accessibility.

- The incorporation of auto operating and other costs to the trip generation, destination, time of day, and assignment components of the travel demand model should be considered.
- The region should consider testing the use of the activity-based model for evaluation of tolls for future analysis. There is a growing body of research that shows that activity-based models can evaluate the effects of tolls more accurately than trip-based models. This is primarily because of the disaggregate nature of activity-based models, which can identify individual responses to tolls and the value of time.
- In future modeling efforts, the region should consider the inclusion of the full cost of tolls in destination choice. As well, introducing tolls after the last equilibration model loop should be fully tested and compared to full feedback with tolls.
- The Panel felt that the Value of Time (VOT) should be segmented in the model assignment by income and purpose, and an updated VOT should be explored in light of more recent revealed choice surveys and planned CRC stated preference surveys for revenue projections.
- The region should consider "splitting-out" the transit riders without a toll from all other trips with a toll during trip distribution so that transit trips do not divert due to a toll. There is a potential for an under-estimation of transit unless this is done. (However, the Panel concluded that the potential for underestimation of transit riders would not have a significant effect on highway volumes. Staff provided additional analysis that showed that cross river transit trips would increase by about 900 daily person trips (if park-and-ride lot capacity in Vancouver was expanded substantially beyond what has been agreed to as part of the LPA), which represents roughly three percent of total daily cross river transit trips, or less than one percent of cross river auto trips.)
- The region should consider coding auxiliary lanes with lower free flow speeds. For multiple auxiliary lane segments, staff should review the Highway Capacity Manual for less-than-1/2 lane capacity coding for additional auxiliary lanes.
- Future travel demand modeling could include sensitivity testing with Metroscope to evaluate the impacts of highway capacity on regional VMT and trips. This would provide an assessment of how sensitive Metroscope is to changes in highway capacity compared to other research in this area.

Conclusion

This report presented the findings and recommendations of the Travel Demand Model Review Panel to the seven specific questions presented to them on October 13 and 14, 2008. Following the intensive two-day review session, panel members provided specific conclusions and recommendations that indicated overall agreement with the outcomes of the technical modeling process followed in the CRC Draft Environmental Impact Statement process. Specific recommendations intended to improve future travel demand modeling efforts were also provided by panel members.

Columbia River CROSSING

January 6, 2009

TO: CRC Project Sponsors Council

FROM: CRC Staff

SUBJECT: **Impacts of the CRC Project on Land Uses in Oregon and Washington**

Summary Conclusions of the CRC Project on Land Uses in Oregon and Washington

Studies of "induced travel demand" have found that under certain conditions improvements in highway capacity lowers the cost (time and money) of travel, resulting in additional traffic and vehicle miles of travel. These studies also found that improved highway access may lead to greater levels of urban development on the fringes of the metropolitan area, influencing urban sprawl.

The conditions that create significant induced demand, including urban sprawl, are not present for the CRC project. Consequently, significant induced demand is not anticipated for any of the lane configuration options being considered by the PSC.

Specifically, this analysis found:

- The CRC Project, including all of its lane configuration options, would not provide additional through capacity on I-5 outside the bridge influence area or any new access to fringe development areas. The improved accessibility benefits of the project would be derived from the travel time savings in the bridge influence area.

- Drivers consider the total cost of a trip, both the value of travel time and the cost of the trip, when determining if, when, how, and where to travel. Trip-making is particularly sensitive to a toll because it is a direct, out-of-pocket expense.

- Tolling the I-5 Bridge would offset the limited induced demand that would otherwise be generated by the modest increase in highway capacity provided by the add/drop lane options within the bridge influence area:

    - Because of tolls, the modeling shows all bridge configuration options exhibit lower volumes of cross-river trips (3,000 -10,000 daily trips depending on the option) compared to the No Build.
    - The number of add/drop lanes on the I-5 Bridge have only a minor impact on the volume of river crossing trips. The 12-lane option exhibits only 2,000 more daily trips than the 10-lane option; the 10-lane option 4,500 more than the 8-lane option.

    - The higher the number of add/drop lanes on the I-5 Bridge, the less diversion of trips to I-205, and the lower the VMT. The 12-lane option diverts 3,000 daily trips to I-205; the 10-lane diverts 4,500; and the 8-lane 7,500. As a result, the 12-lane option

exhibits 4,000 less daily vehicle miles of travel than the 10-lane option, and 24,000 less than the 8-lane option.

- The form of urban development in the I-5 Bridge impact area will be largely dictated by adopted land use plans and policies; the traffic impacts of the I-5 Bridge options are not sufficiently large to have a major affect.

- Land use plans are in place on both sides of the river that ensure that the urban development effects of the CRC Project would occur within urban growth areas, would not create urban sprawl, would support urban densities, and would be consistent with adopted 20-year plans that provide for efficient and sustainable use of land and resources.

Impacts of the CRC Project on Land Uses in Oregon and Washington

Background

Issues and concerns have been raised about the relationship between land use and the number of lanes associated with the CRC project and the potential to increase sprawl on the fringe of the urban area. In order to understand this relationship, it is important to understand the context for the discussion in terms of how the proposed add/drop lanes would affect the capacity and function of the through lanes. This relationship is key to determining whether the improved accessibility provided by the CRC project would be sufficient to increase demand for land at the periphery of the region or induce more travel compared to the No-Build condition.

There are many factors that influence the demand for more land at the edge of adopted urban growth boundaries in the metropolitan area. They include the supply of land available to be urbanized inside currently adopted urban growth boundaries; the policies regulating growth inside these boundaries; the cost and the market for a given set of land uses as well as transportation mobility and accessibility; and other infrastructure costs. No one factor in isolation can cause urban growth to occur.

As an integral link in the Interstate highway system, the CRC project area is vital to the movement of freight and people up and down the west coast, as well as within the Portland/Vancouver region. The CRC project is analyzing the appropriate number of lanes to safely and efficiently move the very high number of auto and truck trips that are entering and exiting I-5 in a very short congested area, as well as accommodating the high overall number of trips on the Interstate itself.

There are seven high volume interchanges within the project area. The area warrants a standard two-mile spacing to accommodate the heavy traffic volumes; however, these seven interchanges have an average spacing of less than the minimum standard of one mile. The merging and weaving created by these closely spaced interchanges creates unsafe and congested conditions. This section of I-5 has the highest accident rate of any Interstate highway in the entire state of Oregon. In 2030 it is projected to be congested for as much as 15 hours a day if no improvements are made.

The add/drop lanes being considered are new lanes that would connect the closely spaced interchanges with the heaviest on/off volumes. They would provide better access to areas that have reduced development capacity, such as the Marine Drive corridor and Hayden Island; as well to improve safety and manage the operation of the freeway. Their primary purpose is not to add new capacity.

Overview of Analysis

The CRC project team evaluated whether and how this project could change travel behavior and consequentially influence land use patterns. The evaluation was presented in the May 2008 Draft Environmental Impact Statement (EIS) and subsequently reviewed by an independent panel of experts.

As noted in the Draft EIS, the project's analysis concluded that the CRC project is unlikely to induce growth around the region's urban periphery ("sprawl"). However, CRC is likely to promote transit-oriented development around new light rail stations on Hayden Island and in downtown Vancouver, and to promote additional density of jobs and housing near the I-5 corridor. An evaluation summary can be found in the Draft EIS (Section 3.19.4, pages 3-427, 3-428) and additional details are presented in the Land Use Technical report. Both documents are available online: www.ColumbiaRiverCrossing.org.

In October, 2008, the project convened a panel of national experts to review the travel demand model methodology and conclusions, including a land use evaluation. The panel unanimously concluded that CRC's methods and the conclusions were valid and reasonable. Specifically, the panel noted that CRC would "have a low impact to induce growth…because the project is located in a mature urban area," and that it would "contribute to a better jobs housing balance in Clark County…a positive outcome of the project" (page 16).

Land Use Evaluation

The CRC project's evaluation of the potential to induce land use changes included four analytical methods, which are summarized in the Draft EIS and described below.

1. A survey of national research and case studies on how transportation infrastructure can indirectly impact land use,
2. An analysis of growth management techniques in Washington and Oregon land use planning,
3. The results of travel demand modeling and operational analysis for the CRC project alternatives, and
4. Integrated land use/transportation modeling that estimates how the CRC project might or might not influence the location of future growth in housing and employment.

1. Survey of research and case studies

National research and case studies revealed a variety of important factors that influence whether and how transportation investments change travel and land use patterns. In general, some transit projects tended to promote higher density development, particularly around new transit stations, while some highway projects increased automobile use when adding through capacity and could have the potential to induce low-density, auto-oriented development further from urban centers. At the same time, other transit projects and highway projects did not have these effects. The most relevant findings from the national research were the answers to the following two questions:

- What factors were associated with highway projects that tended to increase auto use and low density development, and
- What factors were associated with high capacity transit projects that tended to increase transit-oriented and higher density development?

The answers identified in the national research are summarized on the left side of the following two tables. The right side of each table identifies the extent to which each of those factors is or is not included in the CRC project and project area.

TABLE 1: Factors associated with highway projects that influence induce auto travel and sprawl	**Does the CRC project exhibit these factors?**
Does the project provide new access to areas previously un-served or greatly underserved by highways?	**No.** CRC is entirely within an urbanized area, and I-5 has been an Interstate corridor since 1958. Project adds no new interchanges.
Does the project provide new highway access to land on the urban edge?	**No.** CRC improvements are located 7 miles inside Vancouver Urban Growth Area boundary to the north, and over 13 miles inside Metro Urban Growth Boundary to the south.
Does the project substantially improve highway travel times?	**Yes but induced demand impacts from travel time savings are offset by the higher cost of tolls.** Drivers consider both the value of travel time and the cost of the trip, when determining if, when, how, and where to travel. Compared to the No Build, the 12-lane bridge configuration has a 23-minute travel time savings for a round trip between 179th and I-84 during peak periods. Applying a travel time penalty to offset the cost of the toll negates almost 3/4ths of the trip-making effect of this travel time savings. The net effect of these countervailing factors is equivalent to a 6% decrease in travel time; which does not have a material impact on induced demand or access to fringe areas.
Does the project reduce auto travel costs?	**No**. CRC adds a toll on the highway that increases auto travel costs relative to No Build alternative.
Are local and regional land use regulations ineffective at managing growth?	**No**. Effective growth management controls backed by state law exist in the I-5 corridor on both sides of the river that require; • the vast majority of future growth to occur within urban growth areas that reduce sprawl and that are sized to meet population and employment forecasts; • comprehensive plans that implement efficient and sustainable urban development within urban growth areas; • minimum densities in urban areas; and, • protections for rural, agricultural, and environmentally sensitive areas.
Are there real estate markets supporting low density development?	**Yes, but these areas are extremely minor and distant from the Project's influence area.** The minimum average densities required to be achieved in Vancouver growth management areas is notably higher than that required in Metro's "Inner Neighborhood" designation. In certain locations densities as high as those targeted for Town Centers, Station Areas, and Main Streets are anticipated. The minimum densities required in the urban growth areas of Washougal, Battle Ground, Camas, and Ridgefield are similar to the densities required in Metro's "Outer Neighborhoods." The two urban growth areas that allow low densities are Yacolt (20 miles from Vancouver) and La Center (15 miles from Vancouver). These growth areas are distant and quite small, representing only 0.9% of the County's population in 2004, and 1.7% of the County's projected population in 2024; no material urban sprawl is anticipated in these areas from the CRC Project.

TABLE 2: Factors associated with high capacity transit projects that tend to promote higher density and/or transit oriented development	**Does the CRC project exhibit these factors?**
Would the project increase transit ridership?	**Yes**. Transit mode split is projected to be about 17 percent with the project, compared to 7 percent with the No Build alternative.[1]
Does the project provide new access to developable/redevelopable land previously unserved or underserved by transit?	**Yes**. The project area is not currently served by high capacity transit and there is substantial latent demand for cross-river transit service
Are there real estate markets supporting such development?	**Yes**. The majority of the recent and planned developments in downtown Vancouver are high density and/or mixed use.

1 PM Peak period transit mode split for I-5 crossings

Is there positive public perception of transit?	**Yes**. Over 70 percent of residents polled support extending light rail across the river to Vancouver.[2]
Do local and regional land use regulations effectively manage growth?	**Yes**. Comprehensive plans and implementing regulations, including zoning, exist on both sides of the river that (a) require minimum densities in urban areas, (b) encourage compact nodal and mixed-use development, and (c) encourage transit-oriented development.

As evident from the tables, and supported by the independent expert review panel, the CRC project is far more likely to encourage compact, higher density development in established urban areas than promote auto-oriented, lower density development on the urban fringe.

This project would decrease travel times, improve travel reliability and reduce congestion. However, tolling the river crossing offsets much of the potential for inducing auto travel. It serves to reduce total auto trips and increase transit mode share. The light rail extension into Vancouver further increases transit ridership and promotes transit-oriented development around the new stations on Hayden Island and downtown Vancouver. Ultimately, the transit and highway improvements are more likely to help realize long-term, regional land use visions by supporting concentrated growth in established urban centers.

2. Analysis of Washington and Oregon growth management

The national research and case studies emphasized the importance of local land use regulations for influencing the type and magnitude of effect from transportation improvements. Metro has a long history of effective growth management, and the City of Portland has a sophisticated zoning code with provisions for focusing growth where desired and encouraging compact mixed-use development around transit facilities. The land use regulations in the City of Vancouver and Clark County also have robust growth management policies and regulations. The Vancouver Comprehensive Plan targets growth in designated urban centers and corridors connecting these centers in a growth management approach comparable to Metro's 2040 Growth Concept. Vancouver also has a Transit Overlay District allowing for "higher densities and more transit-friendly urban design" than afforded by base zoning. This overlay zone is similar to Portland's Light Rail Transit Station Zone that is an overlay zone allowing for "increased densities for the mutual re-enforcement of public investments and private development". Also, in preparation for the construction of the CRC project, the City of Vancouver has recently made changes to the downtown plan (the Vancouver City Center Vision) and is implementing regulations that encourage complimentary development along the light rail alignment.

In 1990, the Washington Growth Management Act (GMA) established requirements for counties to plan for and manage growth. The GMA requires local governments to identify and protect critical and natural resource lands, designate urban growth areas, and prepare comprehensive plans to be implemented through capital investments and development regulations.

A comparison of urban growth area expansions by Metro and Clark County since 2000, shows Metro and Clark County added approximately 21,000 and 16,400 acres respectively. Clark County and the City of Vancouver have planned residential densities of approximately 16 and 20 persons per acre. This compares favorably to Metro's "inner neighborhood" and "outer neighborhood" areas that target 14 and 13 persons per acre, respectively. Metro has other significant goals applied throughout its jurisdiction, tied to designations such as Regional, Town Centers and Main Streets with much higher density targets. The City of Vancouver does have policy and regulations encouraging higher densities in planned sub-areas, downtown, and along transit corridors that are comparable to the densities anticipated in Metro's Town Centers and Main Streets.

[2] Riley Report / Portland-Vancouver Area Survey. Riley Research Associates. June 18, 2008. A scientific telephone poll of 504 randomly selected households in Multnomah, Washington, and Clackamas Counties in Oregon, and Clark County in Washington.

3. Travel demand modeling and traffic operations analysis

Travel time and resulting accessibility can influence the demand for land at both the urban fringe and in established urban areas. Travel demand modeling and traffic micro-simulation could provide valuable information about how the CRC project might change travel behavior and, in turn influence land use patterns. Significant improvements in travel time from areas along the urban periphery to key destinations such as downtown Portland could increase pressure for suburban residential development in northern Clark County. At the same time, increases in transit ridership could promote higher density development around transit stations the central Vancouver area. The modeling results presented in the Draft EIS indicate this project has a far greater effect on transit ridership than I-5 travel times. Though CRC would substantially reduce congestion within the project area compared to the No Build alternative, travel times are not as dramatically changed because this project improves a relatively small portion of the region's highway system, and because the toll on the I-5 crossing would add a perceived penalty to auto travel[3]. In fact, because of the toll and the introduction of a reliable and efficient transit alternative, modeling shows that the project would actually lower the number of vehicles using the I-5 crossing each day by about 3 percent[4]. In contrast, transit ridership would increase over 250 percent during the p.m. peak hour.[5]

4. Transportation-land use modeling (Metroscope)

The fourth method for evaluating this project's potential for inducing land use changes entailed evaluating a Metroscope model analysis that included transportation improvements in the corridor similar to the CRC locally preferred alternative (LPA). The analysis included a replacement bridge with four through lanes and light rail to Clark College. Metroscope is an integrated land use and transportation model designed by Metro to predict how changes in several factors, including transportation infrastructure, could change the future distribution of employment and housing throughout the region. In 2001, as part of the I-5 Partnership Study, Metro used its Metroscope model to estimate land use changes if I-5 were to increase to four through-lanes between Going Street in Portland and 134th Street in Vancouver, and light rail were extended to Clark College. This scenario had the same transit improvements as the LPA, but added capacity to a significantly longer portion of I-5, and did not include a toll on the bridge. These differences resulted in greater travel time savings and increased vehicle use compared to the project's LPA.

Under this scenario, Metroscope showed only minimal changes in employment location and housing demand compared to the No Build alternative. Metroscope estimated a one percent regional redistribution of jobs to the I-5 corridor with 4,000 more in North and Northeast Portland and 1,000 more in Clark County. The model estimated very modest changes in residential values (a proxy for residential demand), with the highest increase in some Clark County and North Portland areas experiencing up to three percent greater values by 2020, equating to about 0.12 percent growth per year. This analysis also concluded the land-use policies in the Metro boundary and in Clark County were far more likely to influence growth patterns than the CRC project.

Conclusion

Rigorous analysis and independent review suggest that CRC is more likely to encourage compact, higher density development in established urban areas, than promote auto-oriented, lower density development

3 Modeling the toll entailed incurring a 9 minute time penalty to simulate drivers' response to paying this fee. Travel time savings on I-5 between I-84 and 179th Street during the PM peak (3pm to 7pm) period shrink from 18 minutes without accounting for the toll to 9 minutes with the toll.

4 184,000 cars would travel over the I-5 bridges under the No Build alternative versus 178,000 with a replacement crossing, a toll on I-5, and light rail.

5 With a replacement crossing, a toll on the I-5 bridges, and light rail, 7,250 people would ride transit during the PM peak period compared to 2,050 people for the No Build alternative.

on the urban fringe. These findings were in the Draft EIS analysis, and they have been confirmed by the independent panel of experts that reviewed this analysis in October 2008.

As the research indicates, there are many land use and economic policy factors beyond the scope of the CRC project that would have a much larger impact on the urban growth pattern of the bi-state region than the CRC project alone.

Columbia River CROSSING

Issues Raised by Metro in LPA Resolution 08-3960B

Date	#	Issue	Response	Progress/Status
7/17/08	98	Interchanges - design must take into account impact on urban development potential	CRC has worked in close coordination with the City of Portland in developing the Hayden Island Development Plan. CRC is working with Metro and MERC on the design of the Marine Drive interchange. ODOT is preparing an Interchange Area Master Plan for the Hayden Island/Marine Drive Interchanges.	In Progress
7/17/08	99	Auxiliary Lanes - to be determined in separate process and amendment to Regional Transportation Plan	A recommendation will be made by the Project Sponsors Council (PSC) on the number of auxiliary lanes. CRC has provided extensive information to the PSC members and agencies to aid in making a recommendation.	Decision expected February 6, 2009
7/17/08	100	Ped/Bike - prepare a more detailed plan of "world class" facilities	CRC formed a multi-agency Pedestrian/Bicycle Advisory Committee (PBAC). The committee has made recommendations for pedestrian/bicycle improvements. The PSC will review PBAC recommendations for concurrence.	In Progress
7/17/08	101	Bridge Design - aesthetics is an important consideration	CRC brought in a new bridge design team and bridge architect to the project and is working through the Urban Design Advisory Committee for recommendations. Information will be presented to PSC for concurrence.	In Progress
7/17/08	102	Environmental Justice - propose mitigation for any potential adverse health impacts (existing and future/induced), including community enhancement projects	CRC has a Community Environmental Justice Committee (CEJG) tasked with assuring project needs are addressed. Extensive project related community enhancements are included in the project. Potential project related health impacts have been discussed in the Draft EIS and mitigation will be proposed where warranted.	In Progress
7/17/08	103	Freight - describe specific physical and fiscal methods to give trucks priority over SOVs	CRC established a Freight Working Group tasked with providing recommendations to the project relating to freight movement. TDM strategies will encourage fewer trips by SOV and will benefit freight mobility. Tolling rate structures that may impact freight movements will be included in refinement of the Financial Plan that will ultimately be reviewed by the Project Sponsors Council.	Design recommendations have been incorporated into the project. Freight Working Group meets regularly for updates.
7/17/08	104	Freight/Interchanges - ensure capacity at interchanges is not diminished by industrial land conversion	Major redesign of Marine Drive Interchange to enhance freight movement to and from the Port of Portland is an example of improvements recommended by the Freight Working Group.	In Progress
7/17/08	105	Financial Plan - prepare and present to partners details with costs and revenues	A draft financial plan was included in the DEIS. Refinement of the Financial Plan will be developed through close coordination with the Project Sponsors Council.	In Progress
7/17/08	106	Greenhouse Gas - require an independent analysis & display results in the Final EIS, including impact of auxiliary lanes	CRC convened a national expert panel to provide an independent analysis of greenhouse gases. Work has been completed and a report of the findings has been provided to Project Sponsors Council, Metro Council and posted on the CRC web site.	Completed
7/17/08	107	Interchanges - preserve and improve functionality of Marine Drive and Expo Center	CRC initiated a review of design options for Marine Drive Interchange. A Transportation Stakeholder Group comprised of properties and agencies impacted by proposed alignments has been used to evauate options and recommend a proposed solution. Recommendations are forthcoming and will be presented to the Portland Council for their consideration and recommendation to CRC.	In Progress

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF EXPRESSING A SENSE OF THE COUNCIL ON THE NUMBER OF LANES PROPOSED AS PART OF THE COLUMBIA RIVER CROSSING PROJECT, TAKING INTO ACCOUNT CONGESTION PRICING, CAPACITY, AND POSSIBLE INDUCED DEMAND EFFECTS	)))))))	RESOLUTION NO. 09–4023 Introduced by: Council President David L. Bragdon

WHEREAS, the Oregon and Washington sides of the metropolitan region are linked by transportation infrastructure vital to the economic and environmental health of the whole region; and

WHEREAS, the Metro Council supports a multi-modal approach of highway, high capacity transit, freight movement, transportation demand management and bicycle and pedestrian improvements in the Columbia River Crossing corridor, as well as compact land development patterns to minimize long commutes and reduce automobile dependence; and

WHEREAS, on July 17, 2008, the Metro Council passed Resolution No. 08-3960B, For the Purpose of Endorsing the Locally Preferred Alternative For the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan With Conditions (attached as Exhibit A), endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and expressing support for a project that includes: a replacement bridge with three northbound and three southbound through lanes; tolls used both for finance and for demand management, light rail, bicycle and pedestrian improvements; and

WHEREAS, in Resolution No. 08-3960B, the Metro Council identified several issues and concerns to be resolved including, in part, the following; (a) the number of auxiliary lanes (also called add/drop lanes) to be added to the three through lanes in each direction on the replacement bridge and throughout the bridge influence area; and (b) definition of the purpose and function of the so-called "'auxiliary" lanes and analyze the induced automobile demand and greenhouse gas emissions that result from the addition of these lanes; and

WHEREAS, in Resolution No. 08-3960B, the Metro Council deferred the determination of the number of auxiliary lanes to a subsequent amendment of the 2035 RTP, based on additional analysis; and

WHEREAS, in the absence of tolling, new highway capacity can have the unintended consequence of inducing more travel demand, ultimately making congestion worse, impeding the flow of freight, and having negative economic and environmental outcomes; and

WHEREAS, the states of Oregon and Washington have both enacted strong growth management policies to ensure sustainable growth and limit urban sprawl; and

WHEREAS, limitations on physical capacity and active management of demand through pricing are the two most effective tools for preventing unintended consequences, and ensuring the safe and smooth flow of traffic; and

WHEREAS, on June 19, 2008, the Governors of Oregon and Washington established a Project Sponsors Council composed of officials from Oregon Department of Transportation (ODOT), Washington State Department of Transportation (WSDOT), Portland, Vancouver, TriMet, C-Tran, Metro Council, the Southwest Washington Regional Transportation Council and two citizen co-chairs, charged with advising the two state departments of transportation and the two transit districts on key project decisions; and

WHEREAS, the Project Sponsors' Council will be making decisions regarding the number of add/drop lanes to be included in the project and regarding pricing in the coming months; and

WHEREAS, Metro Council President David Bragdon was appointed to the Project Sponsors Council by the Governor of Oregon and now desires Metro Council guidance on upcoming decisions; now therefore

BE IT RESOLVED that the Metro Council hereby recommends the following:

1. Because the issue of physical capacity is inextricably entwined with the issue of pricing policy, any recommendation on the number of lanes to be included in the project should be made provisionally, only with the good faith understanding that the involved jurisdictions will enter into a bi-state agreement on tolling policy prior to any final decision. The policy should include congestion pricing to manage demand and ensure the safe and smooth flow of traffic for freight and commuters over the long term, mitigate against any potential consequences of undesirable induced demand, and provide a mechanism by which the bridge can be managed toward performance measures such as congestion levels, emissions, speed, reliability for freight movement and other such outcomes to be identified; and

2. Add/drop lanes (also called auxiliary lanes) are desirable only to the extent that they enhance safety and traffic operations in short segments between interchanges rather than induce long-distance single-occupancy automobile commuting. Such lanes (and/or collector-distributor lanes and/or parallel arterials) should be appropriately designed for those purposes only, in those short segments.

ADOPTED by the Metro Council this _____ day of _____ 2009.

_____
David Bragdon, Council President

Approved as to Form:

_____
Daniel B. Cooper, Metro Attorney

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ENDORSING THE LOCALLY PREFERRED ALTERNATIVE FOR THE COLUMBIA RIVER CROSSING PROJECT AND AMENDING THE METRO 2035 REGIONAL TRANSPORTATION PLAN WITH CONDITIONS	))))))	RESOLUTION NO. 08- 3960B Introduced by Councilor Burkholder

WHEREAS, the Oregon and Washington sides of the metropolitan region are linked by critical transportation infrastructure vital to each community along the Columbia River; and,

WHEREAS, the I-5 Interstate bridge is a key transportation link that has national and international importance for freight and auto movement; and,

WHEREAS, the I-5 Interstate bridge carries approximately 130,000 people daily by car, truck, bus, bicycle and on foot; and,

WHEREAS, the CRC Draft Environmental Impact Statement (DEIS) analysis found that the segment of I-5 in the vicinity of the Columbia River has extended peak-hour travel demand that exceeds capacity, includes bridge spans that are over 50 and 90 years old and that do not meet current traffic safety or seismic standards, and,

WHEREAS, techniques to improve peak truck freight movement times along with bridge and highway improvements would help support and improve the economy of the region and beyond; and,

WHEREAS, the greatest inhibition to the predictable flow of truck freight is single-occupancy automobile commuting, and according to the CRC analysis, in the absence of tolling, other demand management, and good public transit service the growth of such automobile commuting will contribute to the costs of truck delay; and,

WHEREAS, travel by transit between Portland and Vancouver currently must share a right-of-way with autos and trucks; and,

WHEREAS, the bicycle and pedestrian facilities for crossing the Columbia River along I-5 do not meet current standards, that demand for such facilities is expected to increase, and that experience on Portland bridges has proven that when safe bicycle facilities are provided, ridership grows dramatically; and,

WHEREAS, the CRC DEIS states that in the absence of tolls, absence of effective high-capacity transit service, and absence of safe bicycle and pedestrian facilities, automobile traffic and its resulting emissions and impact on climate change would continue to grow faster with the “no build” option than such automobile traffic and emissions would grow with the replacement bridge option that does include tolls, effective transit, and safe bicycle and pedestrian facilities; and,

WHEREAS, because of high demand and because only two road crossings of the Columbia River exist in the metropolitan region, the I-5 and I-205 corridor is very well situated for tolling, a revenue source and management tool currently not feasible for many other projects vying for public funds; and,

WHEREAS, consideration should be given to potential diversion of traffic from tolling I-5 alone to I-205 and should consider tolling I-5 and I-205 with use of the revenue for both I-5 and I-205 in the Portland-Vancouver metropolitan area; and,

WHEREAS, the states of Oregon and Washington have both established aggressive climate change strategies that include significant reductions in vehicle miles traveled and/or greenhouse gas emissions during the expected life of a CRC project; and,

WHEREAS, in Washington State the goal is to reduce vehicle miles traveled by 50 percent by 2050 and in Oregon the goal is to reduce greenhouse gas emissions by 75 percent below 1990 levels by 2050; and,

WHEREAS, the Oregon Governor's Climate Change Integration Group in its final report dated January 2008 state that "reducing vehicle miles traveled is the single most effective way to reduce greenhouse gas emissions", and,

WHEREAS, the reduction of greenhouse gas emissions is a regional goal that the Metro Council has directed that methods of decreasing such emissions be identified and pursued; and,

WHEREAS the Metro Council has concurred with the Governor's Climate Change Integration Group that reducing vehicle miles traveled is the single most effective means of reducing greenhouse gas emissions; and,

WHEREAS, high capacity transit, as well as walking and biking reduce vehicle miles travelled and reduce greenhouse gas emissions; and,

WHEREAS, the Metro region and the Federal Transit Administration have made extensive investments in high capacity transit, especially light rail transit, as the preferred high capacity transit mode in most corridors in the region, including the Interstate MAX LRT line to the Expo Center, about 1 mile from Vancouver, Washington and adjacent to Interstate 5; and,

WHEREAS, on November 14, 2002 the Metro Council approved Resolution 02-3237A, For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations, that supported a multimodal project including light rail transit (LRT) and either a new supplemental or replacement I-5 bridge; and,

WHEREAS, the I-5 Transportation and Trade Study also included recommendations to widen I-5 to three lanes between Delta Park and Lombard, address finance issues, use travel demand tools including pricing (tolls), address environmental justice through use of a community enhancement fund, coordinate land use to avoid adverse impacts to transportation investments and improve heavy rail; and,

WHEREAS, in its October 19, 2006 letter to the CRC Task Force, the Council stated that "all transportation alternatives be evaluated for their land use implications…[because] added lanes of traffic …will have an influence on settlement patterns and development"; and,

WHEREAS, the CRC Task Force's endorsement of a locally preferred alternative is one "narrowing" step in a multi-step process and is an important opportunity for the Metro Council to articulate its concerns which will be weighed at this and subsequent steps; and,

WHEREAS, in its October 19, 2006 letter to the CRC Task Force, the Council stated that Metro "will need to work closely with you as your project proceeds and as the RTP policies are developed to ensure that your proposals are consistent with our new policies."; and,

WHEREAS, the CRC Task Force, a 39 member advisory committee, has met regularly for over two years creating a project purpose and need, evaluation criteria and alternatives; and,

WHEREAS, a draft environmental impact statement has been completed that assesses the potential impacts of the project alternatives including a No Build, replacement and supplemental bridge options and bus rapid transit and light rail transit as well as bicycle and pedestrian facilities; and,

WHEREAS, a Replacement Bridge, unlike a Supplemental Bridge and/or rehabilitating and keeping the existing bridges, could improve safety by providing travel lane designs that meet safety standards including improved sight distance, greater lane widths, improved road shoulders and would eliminate bridge lifts which are indirectly a major cause of rear end accidents on and near the bridge; and,

WHEREAS, a Replacement Bridge, unlike a Supplemental Bridge, would reduce auto and truck delays that result from bridge openings; and,

WHEREAS, a Replacement Bridge, unlike a Supplemental Bridge, could improve the seismic safety of those crossing the river by auto and truck, reducing the potential for economic disruption as a result of restricted truck freight movement from seismic damage as well as reduce the potential for river navigation hazards created by seismic events; and,

WHEREAS, high capacity transit in an exclusive right-of-way would provide greatly improved transit service with much better schedule reliability and service than mixed-use traffic operation; and,

WHEREAS, LRT would produce higher total transit ridership in the corridor than BRT; and,

WHEREAS, LRT is more cost effective than Bus Rapid Transit (BRT), and is about one-half as expensive to operate per transit rider crossing the river; and,

WHEREAS, the Metro Council held a public hearing about the CRC project alternatives on June 5, 2008 and,

WHEREAS, on June 5, 2008, the Metro Council approved Resolution No. 08-3938B For the Purpose of Providing Metro Council Direction to its Delegate Concerning Key Preliminary Decisions Leading to a Future Locally Preferred Alternative Decision for the Proposed Columbia River Crossing Project and that the Metro Council concluded in this resolution its support for a Columbia River Crossing (CRC) Project with light rail, a replacement bridge with three through lanes and tolls for travel demand management and ongoing funding but also included substantial conditions; and,

WHEREAS, the CRC Task Force has recommended a locally preferred alternative that includes light rail transit and a replacement bridge; and,

WHEREAS, on December 13, 2007, the Metro Council approved Resolution No. 07-3831B, For the Purpose of Approving the Federal Component of the 2035 Regional Transportation Plan (RTP) Update, Pending Air Quality Conformity Analysis, and the adopted 2035 Regional Transportation Plan (RTP), Financially Constrained System Project list includes Metro project number 10866, "Improve I-5/Columbia River bridge (Oregon share)" with $74 million year of expenditure reserved for preliminary engineering and right-of-way acquisition, but does not include funds for project construction; and,

WHEREAS, on February 28, 2008, the Metro Council adopted Resolution No. 08-3911, For the Purpose of Approving the Air Quality Conformity Determination for the Federal Component of the 2035 Regional Transportation Plan and Reconforming the 2008-2011 Metropolitan Transportation Improvement Program, and this air quality conformity included the CRC project, highway and light rail transit; and,

WHEREAS, the CRC Project is projected to cost between $3.5 and 3.7 billion dollars; and,

WHEREAS, a revenue forecast has been completed using best available information that shows revenue sources that could fund the project; and,

WHEREAS, the Metro 2035 RTP does not currently include a description of the proposed locally preferred alternative for the CRC Project as supported by the Metro Council; and,

WHEREAS, state law provides for land use final order to address meeting the potential land use impacts of light rail and related highway improvements in the South/North corridor of which the I-5 bridge is a part; and,

WHEREAS, at its meeting on July 10, 2008, the Joint Policy Advisory Committee on Transportation recommended approval of the following; now therefore,

BE IT RESOLVED that the Metro Council:

1. Continues to support a balanced multi-modal approach of highway, high capacity transit, freight movement, transportation demand management and bicycle and pedestrian improvements in the Columbia River Crossing corridor, as well as compact land use development patterns with a mixture of uses and types of housing which minimize long commutes and reduce our citizen's automobile dependence.
2. Supports a Columbia River Crossing locally preferred alternative:
    a. a replacement bridge with three northbound and three southbound through lanes, with tolls used both for finance and for demand management, as the preferred river crossing option,

    b. light rail as the preferred high capacity transit option, extending light rail from the Expo Center in Portland, Oregon across Hayden Island adjacent to I-5 to Vancouver, Washington,

    c. a light rail terminus in Vancouver, Washington.
3. Finds that the following concerns and considerations will need to be addressed as described in Exhibit A, attached. Metro will invite public review and discussion on the issues raised in Exhibit A.
4. Amends the Metro 2035 Regional Transportation Plan, Appendix 1.1, Financially Constrained System, Project Number 10866 to read: "Improve I-5/Columbia River bridge in cooperation with

ODOT and WSDOT with light rail transit, reconstructed interchanges and a replacement bridge with three through lanes in each direction and tolls designed to manage travel demand as well as provide an ongoing funding source for project construction, operations and maintenance." Further, amends the Project amount to read: "A range of between $3.5 and $3.7 billion."

5. Amends the Metro Appendix 1.2, "2035 RTP Other Projects Not Included in the Financially Constrained System", deleting Project number 10893, "Improve I-5/Columbia River bridge (Oregon Share)" and deleting Project number 10902, "CRC – Expo to Vancouver, north on Main to Lincoln", as these projects are now included in the Financially Constrained System.
6. Amends the Metro 2035 RTP, Chapter 5, Financial Plan, by adding Section 5.3.4, CRC Funding Assumptions, attached as Exhibit B.
7. Amends the Metro 2035 RTP, Chapter 7, Implementation, amending Section 7.7.5, Type I- Major Corridor Refinements, Interstate-5 North (I-84 to Clark County) as described in Exhibit C, attached.
8. Defers the determination of the number of auxiliary lanes to a subsequent amendment of the 2035 RTP, based on additional analysis.
9. Acknowledges that a land use final order for addressing land use consistency for the Oregon side of the Project is being prepared and will be submitted to the Council for approval in Fall 2008.

ADOPTED by the Metro Council this 17th day of July, 2008.

David Bragdon, Council President

Approved as to Form:

Daniel B. Cooper, Metro Attorney

Officially Approved Approvato Ufficialmente
Consiglio Metropolitano
METRO COUNCIL
Metro Council

RESOLUTION O8-3960B
Exhibit A

Metro Council Concerns and Considerations
Columbia River Crossing "Locally Preferred Alternative"

The Metro Council recognizes that endorsement of a "Locally Preferred Alternative" is one important narrowing step that enables the project management team to proceed with further analysis of a reduced range of alternatives. The Council is cognizant that many important issues are generally still unresolved at the time of endorsement of an LPA, but that clear articulation of concerns is required to make sure that such unresolved issues are appropriately resolved during the next phase of design, engineering, and financial planning, with proper participation by the local community and its elected representatives. If those sorts of outstanding issues are not satisfactorily resolved during that post-LPA selection phase, then the project risks failing to win the approval of necessary governing bodies at subsequent steps of the process.

While the Metro Council endorses the LPA, Replacement Bridge with Light Rail and Tolls, as described in Resolution 08-3960A, the Metro Council simultaneously finds that the following issues will need to be satisfactorily addressed in the upcoming refinement of design, engineering and financial planning:

FORMATION OF A LOCAL OVERSIGHT COMMITTEE TO SUCCEED THE TASK FORCE

The Metro Council concluded on June 5, 2008 through Resolution 08-3938B that further oversight of the project is needed once the Task Force's work is concluded. The Council suggested that the Governors of Oregon and Washington convene such a local oversight group. On June 19, 2008, the Governors issued a joint letter that concluded there is a need to reconvene the CRC Project Sponsor's Council as the oversight committee to succeed the Task Force, including representatives from Washington State Department of Transportation, the Oregon Department of Transportation, cities of Portland and Vancouver, Metro, the Southwest Washington RTC, TriMet and CTRAN. The Governors charged the committee with advising the two departments of transportation and two transit agencies on a consensus basis to the greatest extent possible regarding the major issues requiring further oversight and resolution.

PROJECT ISSUES REQUIRING LOCAL OVERSIGHT DURING PLANNING, DESIGN, ENGINEERING, FINANCE AND CONSTRUCTION

The Governors have charged the Project Sponsors Council with project oversight on the following issues, milestones and decision points:

1) Completion of the Environmental Impact Statement (EIS),
2) Project design, including, but not limited to: examining ways to provide an efficient solution that meets safety, transportation and environmental goals,
3) Timelines associated with project development,
4) Development and use of sustainable construction methods,
5) Ensuring the project is consistent with Oregon and Washington's statutory reduction goals for green house gas emissions, and
6) A finance plan that balances revenue generation and demand management, including the project capital and operating costs, the sources of revenue, impact to the funds required for other potential expenditures in the region.

The Metro Council has identified additional areas of concern that need to be addressed by the Project Sponsors Council as the project moves forward:

A. TOLLING
Implementation of tolls on the existing I-5 Bridge should be undertaken as soon as legally and practically permissible. Consideration should be given to potential diversion of traffic to I-205 and potential tolling I-5 and I-205 with those revenues potentially used for projects on these two facilities in the Portland-Vancouver metropolitan area.

B. NUMBER OF AUXILIARY LANES
Determine the number of auxiliary lanes in addition to the three through lanes in each direction on the replacement bridge across the Columbia River and throughout the bridge influence area.

C. IMPACT MITIGATION AND COMMUNITY ENHANCEMENT
Identify proposed mitigation for any potential adverse human health impacts related to the project and existing human health impacts in the project area, including community enhancement projects that address environmental justice.

D. DEMAND MANAGEMENT
Develop of state-of-the-art demand management techniques in addition to tolls that would influence travel behavior and reduce greenhouse gas emissions.

E. FINANCING PLAN
A detailed financing plan showing costs and sources of revenue must be proposed and presented to the partner agencies and to the public. The proposed financing plan should indicate how the federal, state and local (if any) sources of revenue proposed to be dedicated to this project would impact, or could be compared to, the funds required for other potential expenditures in the region.

F. CAPACITY CONSIDERATIONS, INDUCED DEMAND AND GREENHOUSE GASES
Further analysis is required of the greenhouse gas and induced automobile demand forecasts for this project. The results of the analysis must be prominently displayed in the Final Environmental Impact Statement. The analysis should include comparisons related to the purpose and function of the so-called "'auxiliary" lanes. A reduction in vehicle miles traveled should be pursued to support stated greenhouse gas reduction targets as expressed by legislation in Oregon and Washington and by the Governors.

G. PRESERVATION OF FREIGHT ACCESS
The design and finance phase of the CRC project will need to describe specifically what physical and fiscal (tolling) methods will be employed to ensure that trucks are granted a priority which is commensurate with their contributions to the project and their important role in the economy relative to single-occupancy automobile commuting. Ensure that freight capacity at interchanges is not diminished by industrial land use conversion.

H. LIGHT RAIL
As indicated in the Item 2 "resolved" in the body of the resolution, the Metro Council's endorsement of the LPA categorically stipulates that light rail must be included in any phasing package that may move forward for construction.

I. DESIGN OF BICYCLE AND PEDESTRIAN FACILITIES

More detailed design of bicycle and pedestrian facilities is required to inform the decisions of the local oversight panel described above. The project should design "world class" bicycle and pedestrian facilities on the replacement bridge, bridge approaches and throughout the bridge influence area that meet or exceed standards and are adequate to meet the demand generated by tolls or other demand management techniques.

J. URBAN DEVELOPMENT IMPACTS AT RE-DESIGNED INTERCHANGES

More design of the interchanges related to the CRC is required to fully evaluate their community impact. The design of interchanges within the bridge influence area must take into account their impact on urban development potential. The Metro Council is also concerned that the Marine Drive access points preserve and improve the functionality of the Expo Center.

K. BRIDGE DESIGN

The bridge type and aesthetics of the final design should be an important consideration in the phase of study that follows approval of the LPA and precedes consideration of the final decision.

Chapter 5, Financial Plan of the Metro 2035 RTP, Federal Component is amended by adding the following new section:

5.3.4 Columbia River Crossing Funding Assumptions

The Columbia River Crossing (CRC) Project is a collaboration of Oregon Department of Transportation, Washington State Department of Transportation, Metro, the Southwest Washington Regional Transportation Council, TriMet and CTRAN as well as the cities of Portland and Vancouver.

The CRC Project is a national transportation priority as it has been designated a "Corridor of the Future" by the Federal Highway Administration (FHWA). The Project will seek FHWA funding from this program category and other appropriate sources. Accordingly, the FHWA has indicated that it is a high priority to address the safety and congestion issues related to the segment of Interstate 5 between Columbia Boulevard north to State Route 500 in Vancouver, Washington.

The Federal Transit Administration (FTA) awards transit capital construction grants on a competitive basis. The CRC project will be submitting an application to the FTA for entry into Preliminary Engineering and eventually for a full funding grant agreement. The Metro region has been highly successful in securing FTA funds and it is considered reasonable, based on early cost-effectiveness rating analyses, that the high capacity transit component of the CRC Project will secure the $750 million in federal transit funding shown in the table below.

In addition, the Governors of Oregon and Washington have stated their commitment to work with their respective state legislatures to provide state funds to add to federal funding.

Also, tolling is another unique source of funding for the project. It would be a substantial transportation demand management tool as well as providing a significant revenue source. The DEIS states that tolls may supply 36 – 49% of the capital revenues for the highway elements of the project.

Finally, the state of Washington has accumulated credits from tolls imposed on other projects in the state that can be used as local match for federal funds. The state has indicated support for using a portion of these credits for the transit component of this project.

These funding sources for the total project may be summarized as follows (all figures in millions of dollars):

Columbia River Crossing – Total Project Costs
(both Oregon and Washington sides)

Costs		Low	High
Highway		$2,773	$2,920
Transit		750	750
	Total	$3,523	$3,670

Revenues	Low	High
Toll Bond Proceeds	$1,070-$1,350	$1,070 - 1,350
Federal Discretionary Highway	400- 600	400 - 600
State Funds	823-1,303	970 - 1,450
New Starts	750	750
Toll Credits	188	188
Total	$3,523	$3,670

Chapter 7, Implementation of the Metro 2035 Regional Transportation Plan, (Federal Component), Implementation (page 7-34) is amended as follows:

Interstate-5 North (I-84 to Clark County)

This heavily traveled route is the main connection between Portland and Vancouver. The Metro Council has approved a Locally Preferred Alternative for the Columbia River Crossing (CRC) project that creates a multi-modal solution for the Interstate 5 corridor between Oregon to Washington to address the movement of people and freight across the Columbia River. A replacement bridge with three through lanes in each direction, reconstructed interchanges, tolls priced to manage travel demand as well as provide financing of the project construction, operation and maintenance, light rail transit to Vancouver, and bicycle and pedestrian investments have been identified for this corridor. As project details are evaluated and implemented in this corridor, the following shall be brought back to JPACT and the Metro Council for a subsequent RTP amendment for this Project:

- the number and design of auxiliary lanes on the I-5 Columbia River bridge and approaches to the bridge, including analysis of highway capacity and induced demand.

More generally in the I-5 corridor, the region should:

- consider the potential adverse human health impacts related to the project and existing human health impacts in the project area, including community enhancement projects to address environmental justice.

- consider managed lanes

- maintain an acceptable level of access to the central city from Portland neighborhoods and Clark County

- maintain off-peak freight mobility, especially to numerous marine, rail and truck terminals in the area

- consider new arterial connections for freight access between Highway 30, port terminals in Portland and port facilities in Vancouver, Wa.

- maintain an acceptable level of access to freight intermodal facilities and to the Northeast Portland Highway

- construct interchange improvements at Columbia Boulevard to provide freight access to Northeast Portland Highway

- address freight rail network needs

- develop actions to reduce through-traffic on MLK and Interstate to allow main street redevelopment

- provide recommendations to the Bi-State Coordination Committee prior to JPACT and Metro Council consideration of projects that have bi-state significance.

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 08-3960B, FOR THE PURPOSE OF ENDORSING THE LOCALLY PREFERRED ALTERNATIVE FOR THE COLUMBIA RIVER CROSSING PROJECT AND AMENDING THE METRO 2035 REGIONAL TRANSPORTATION PLAN WITH CONDITIONS

Date: June 26, 2008

Prepared by: Richard Brandman
Ross Roberts
Mark Turpel

BACKGROUND

Overview

The Columbia River Crossing (CRC) is a proposed multimodal bridge, transit, highway, bicycle and pedestrian improvement project sponsored by the Oregon and Washington transportation departments in coordination with Metro, TriMet and the City of Portland as well as the Regional Transportation Council of Southwest Washington, CTRAN and the City of Vancouver, Washington. (More detailed project information may be found at: http://www.columbiarivercrossing.org/)

The CRC project is designed to improve mobility and address safety problems along a five-mile corridor between State Route 500 in Vancouver, Washington, to approximately Columbia Boulevard in Portland, Oregon, including the Interstate Bridge across the Columbia River.

The project would be funded by a combination of Federal Transit Administration (FTA) New Starts funding for the transit component, Federal Highway Administration (FHWA) funding for highway, freight, bicycle and pedestrian improvements, with local match being provided by the states of Oregon and Washington through toll credits and other funding. Tolls are also proposed for a new I-5 bridge to pay for a portion of the capital project and manage transportation demand.

Guiding the project is a 39 member CRC Task Force, of which Councilor Burkholder serves as the Metro representative. On June 5, 2008, the Metro Council approved policy guidance for Councilor Burkholder as its CRC Task Force member in the formulation of the draft locally preferred alternative (LPA) (after consideration of public testimony and review of options for a LPA). On June 24, the CRC Task Force approved recommendations for a LPA for the project sponsor agencies (including Metro) consideration.

Accordingly, the attached Resolution No. 08-3960B will provide for Metro Council consideration of:

1) Adoption of a CRC LPA.
2) Amendment of the federal component of the Metro 2035 Regional Transportation Plan (RTP).
3) Statement of additional Metro Council concerns and considerations regarding the Project.

Project History

The CRC Project history began in 1999, with the Bi-State Transportation Committee recommendation that the Portland/Vancouver region initiate a public process to develop a plan for the I-5 Corridor based on four principles:

- Doing nothing in the I-5 Corridor is unacceptable;
- There must be a multi-modal solution in the I-5 Corridor - there is no silver bullet;

- Transportation funds are limited. Paying for improvements in the I-5 Corridor will require new funds; and,
- The region must consider measures that promote transportation-efficient development.

Accordingly, the twenty-six member I-5 Transportation and Trade Partnership was constituted by Governors Locke and Kitzhaber, including a Metro Council representative.

In June 2002, the Partnership completed a *Strategic Plan* and on November 14, 2002, the Metro Council, through Resolution No. 02-3237A, For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations, endorsed the *Strategic Plan* recommendations including:

- Three through lanes in each direction on I-5, one of which was to be studied as an High Occupancy Vehicle (HOV) lane, as feasible;
- Phased light rail loop in Clark County in the vicinity of the I-5, SR500/4th Plan and I-205 corridors;
- An additional or replacement bridge for the I-5 crossing of the Columbia River, with up to two additional lanes for merging plus two light rail tracks;
- Interchange improvements and additional auxiliary and/or arterial lanes where needed between SR 500 in Vancouver and Columbia Boulevard in Portland, including a full interchange at Columbia Boulevard;
- Capacity improvements for freight rail;
- Bi-state coordination of land use and management of the transportation system to reduce demand on the freeway and protect corridor improvement;
- Involving communities along the corridor to ensure final project outcomes are equitable and committing to establish a fund for community enhancement;
- Developing additional transportation demand and system strategies to encourage more efficient use of the transportation system.

Several of the recommendations from the Strategic Plan have been completed. For example, construction of the I-5 Delta Park Project has begun.

The I-5 bridge element began in February 2005 with the formation of a 39 member Columbia River Crossing (CRC) Task Force. This Task Force, which includes a Metro Council representative, developed a vision statement, purpose and need statement and screening criteria.

The adopted project purpose is to: 1) improve travel safety and traffic operation on the I-5 crossing of the Columbia River; 2) improve the connectivity, reliability, travel times and operations of public transit in the corridor, 3) improve highway freight mobility and interstate commerce, and 4) improve the river crossing's structural integrity.

More specifically, the following issues concerning the existing conditions were cited as need:

- Safety - the bridge crossing area and approach sections have crash rates more than two times higher than statewide averages for comparable urban highways. Contributing factors are interchanges too closely spaced, weave and merge sections too short contributing to sideswiping accidents, vertical grade changes that restrict sight distance and very narrow shoulders that prevent avoidance maneuvers or safe temporary storage of disabled vehicles.
- Seismic - neither I-5 bridges meet seismic standards, leaving the I-5 corridor vulnerable in the event of a large earthquake;
- Bridge Alignment - the alignment of the I-5 bridges with the downstream railroad bridge contributes to hazardous barge movements;

- Cost - rehabilitation of the existing bridges, bringing them to current standards would be more costly, both in money and some environmental impacts, such as water habitat conditions, than a replacement bridge;
- Traffic Impact - an arterial bridge would bring unacceptable traffic congestion to downtown Vancouver, Washington.

The CRC Project analyzed 37 distinct bridge, transit, highway and transportation demand management modes/designs, which the CRC Task Force narrowed to twelve. These twelve options then received even more analysis.

In November 2007, CRC staff, after further consideration of technical analyses and using the approved screening criteria and project purpose and need, recommended three alternatives be advanced to a draft environmental impact statement (DEIS). These included:

- Alternative 1) No Action;
- Alternative 2) A Replacement Bridge and Bus Rapid Transit with Complementary Express Bus Service; and
- Alternative 3) A Replacement Bridge and Light Rail Transit with Complementary Express Bus Service.

Open houses were held to take public comment about whether these three alternatives should be advanced to analysis in the DEIS. The Metro Council, other project sponsors and some members of the public expressed interest in a less expensive, smaller project alternative. Accordingly, two supplemental bridge alternatives (one with bus rapid transit, the other with light rail transit) were proposed to be added to the alternatives studied in the DEIS.

The Metro Council concurred with these five alternatives in adopting Resolution No. 07-3782B, "For the Purpose of Establishing Metro Council Recommendations Concerning the Range of Alternatives to Be Advanced to a Draft Environmental Impact Statement For the Columbia River Crossing Project," on February 22, 2007.

On December 13, 2007, the Metro Council adopted the federal component of the 2035RTP. The RTP included funds for preliminary engineering and right-of-way purchase in the financially constrained system project list for a new bridge across the Columbia River. This item was reconfirmed with the adoption of the air quality conformity determination in February 2008 that assumed a new bridge with light rail transit to Vancouver.

In a meeting of the CRC Task Force in January 2008, an informal poll was taken that initiated discussion of the LPA. Strong support was found for:

- A replacement bridge with tolls;
- Light rail transit extended to Vancouver, Washington;
- Bicycle and pedestrian path improvements.

(Councilor Burkholder, the Metro Council representative, deferred comment in this survey citing the need to confer with the full Metro Council).

On May 2, 2008, a DEIS addressing the five CRC alternatives was released for a 60-day public comment period. During that time, the CRC project received 1,120 comments on the DEIS. The CRC also held two open houses attended by 425 people and held four question and answer sessions.

Later in May 2008, review and discussion of the CRC alternatives and the potential benefits and adverse impacts as disclosed in the CRC Draft Environmental Impact Statement were discussed by the Metro Council. After consideration of the CRC documents, Metro Council work session discussions and public testimony received at a Metro Council public hearing June 5, the Metro Council approved policy guidance by adopting Resolution No. 08-3938B, "For the Purpose of Providing Metro Council Direction to its Delegate Concerning Key Preliminary Decisions Leading to a Future Locally Preferred Alternative Decision for the Proposed Columbia River Crossing Project," on June 5, 2008.

Resolution 08-3938B included the following major points:

- A multimodal approach that includes:
  - light rail transit extended to Vancouver;
  - A replacement bridge with three through lanes in each direction and the number of auxiliary lanes to be determined;
  - Tolls to manage travel demand as well as provide an ongoing funding source for bridge construction, operations and maintenance;
  - Improved bicycle and pedestrian facilities;
  - Compact land use development patterns with a mixture of housing types to minimize long commutes and reduce automobile dependence.
- Recognition that the above elements and others identified in an exhibit to the resolution will need to be satisfactorily addressed as part of the LPA or at later decision points, prior to a final decision.
- Need to address potential and existing health impacts and using a community enhancement fund to address environmental justice.
- Independent analysis of greenhouse gas emissions and whether the project alternatives would help achieve or frustrate greenhouse gas emission reduction goals for 2020 and 2050.
- Charging tolls as soon as legally and practicably possible and use of state-of-the-art demand management tool to influence travel behavior and reduce greenhouse gas emissions and reduce vehicle miles traveled.
- Recognition of the need for the Metro Council to consider an LPA adoption and an RTP amendment and that the two decisions could be made concurrently.

On June 24, 2008, the CRC Task Force, by a vote of 37-2, recommended the following:

- A replacement bridge with three through lanes northbound and southbound.
- Light rail as the preferred high capacity transit mode with an alignment and terminus based on FTA funding, technical considerations and Vancouver City Council and CTRAN votes in early July 2008.
- Formation of a formal oversight committee.
- Continuation of existing advisory committees dealing with freight, pedestrians and bicycles, urban design, community and environmental justice and creation of a new sustainability working group.
- A list of project and regional elements that have not been made final at this time, but which the CRC Project recognizes the need for consideration. (see Attachment 1 to this staff report)

In addition to the Metro Council public hearing on the project on June 5, 2008 and the CRC Task Force hearing on June 24, 2008, there were numerous public meetings, open houses, and mailings regarding the project. Additionally, the LPA and the need for an RTP amendment were discussed at the Transportation Policy Advisory Committee's (TPAC) May 30, 2008 meeting and both the RTP amendment and the LPA resolution were recommended at its June 27, 2008 meeting. The proposed RTP amendments and LPA were also discussed at the Joint Policy Advisory Committee on Transportation's (JPACT) June 12, 2008 meeting and approved at its July 10, 2008 meeting.

This proposed Resolution No. 08-3960B, For the Purpose of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions, is generally consistent with the June 24 CRC Task Force recommendations. In addition, proposed Resolution No 08-3960B addresses the following:

1) A list of project concerns to be addressed and resolved (attached as Exhibit A to Resolution No. 08-3960B).
2) Amendment of the 2035 RTP to:
    - revise the Financially Constrained Project List (appendix 1.1);
    - revise the "Other RTP Projects not included in the Financially Constrained list" (appendix 1.2);
    - amend Chapter 5, Financial Plan of the RTP, to include a section on the funding of the CRC project (and included as Exhibit B to Resolution No. 08-3960B);
    - amend Chapter 7, Implementation of the RTP, to revise the description of the I-5 North corridor (and included as Exhibit C to Resolution No. 08-3960B).

(A separate RTP amendment that would revise the state component of the RTP and include land use findings is not proposed at this time and would be addressed once more information and analysis is available concerning auxiliary lanes and other issues identified in Resolution No 08-3960B.)

In addition to these immediate decisions, the following actions will take place in Fall 2008 and beyond include:

- Number of auxiliary travel lanes
- Bridge design details (such as bridge type, whether Stacked Highway/Transit design would work, be cost-effective and whether this aspect of the bridge should be pursued)
- Transportation Demand Management (TDM) specifics
- Interchange design specifics
- Bicycle and pedestrian design details
- More specificity on finance plan

The CRC Task Force's June 24 recommendations to consider a Locally Preferred Alternative (LPA) will also be brought to the cities of Portland and Vancouver, TriMet and CTRAN, and Metro and the Regional Transportation Council of Southwest Washington for adoption and corresponding transportation plan amendments. These actions will allow ODOT and WSDOT to submit to the FTA an application to enter preliminary engineering to prepare a final environmental impact statement (FEIS).

[1] By July 8, the City of Vancouver and CTRAN are scheduled to conclude the alignment and terminus of the LRT line in Vancouver, Washington. In order to facilitate the bi-state transportation aspects of this draft resolution, these southwest Washington project partner decisions will be provided to the Joint Policy Advisory Committee (JPACT), which meets on July 10 to consider this resolution and to the Metro Council that meets on July 17 also to consider this resolution. Accordingly, draft Metro Resolution No. 08-3960B may be proposed for revision in July as a result.

ANALYSIS/INFORMATION

1. **Known Opposition** The CRC is a very large and complex transportation project. There are strong feelings – pro and con – associated with the project. Opposition to the project includes concerns raised regarding the need for the project, greenhouse gas emissions that could be generated by the project, costs, tolls and light rail extension to Vancouver, Washington.

2. **Legal Antecedents**

Federal

- National Environmental Policy Act
- Clean Air Act
- SAFETEA-LU
- FTA New Starts Process

State

- Statewide Planning Goals
- State Transportation Planning Rule
- Oregon Transportation Plan
- Oregon Highway Plan
- Oregon Public Transportation Plan
- Oregon Bicycle and Pedestrian Plan

Metro

- Resolution No. 02-3237A, "For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations," adopted on November 14, 2002.
- Resolution No. 07-3782B, "For the Purpose of Establishing Metro Council Recommendations Concerning the Range of Alternatives to Be Advanced to a Draft Environmental Impact Statement For the Columbia River Crossing Project," adopted on February 22, 2007.
- Ordinance No. 07-3831B, "For the Purpose of Approving the Federal Component of the 2035 Regional Transportation Plan (RTP) Update, Pending Air Quality Conformity Analysis," adopted on December 13, 2007.
- Resolution No. 08-3911, "For the Purpose of Approving the Air Quality Conformity Determination for the Federal Component of the 2035 Regional Transportation Plan and Reconforming the 2008-2011 Metropolitan Transportation Improvement Program," adopted on February 28, 2008.
- Resolution No. 08-3938B, "For the Purpose of Providing Metro Council Direction to its Delegate Concerning Key Preliminary Decisions Leading to a Future Locally Preferred Alternative Decision for the Proposed Columbia River Crossing Project," adopted on June 5, 2008.

3. **Anticipated Effects** The approval of this resolution would allow the submission of a New Starts application for light rail transit to Vancouver Washington as well as include proceeding with the next steps towards a replacement bridge with tolls and light rail transit. It would not resolve the number of auxiliary lanes or other issues and considerations listed in the resolution but which will need to be addressed in the future once additional information and analysis is completed.

4. **Budget Impacts** If there is a role for Metro to play in the completion of the CRC Final Environmental Impact Statement (this could be additional updated travel forecasting, for example), the CRC project would reimburse Metro for any costs incurred for such work.

RECOMMENDED ACTION

Adopt Resolution No. 08-3960B, For the Purpose of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions.

Columbia River CROSSING

A RESOLUTION OF THE COLUMBIA RIVER CROSSING TASK FORCE TO PROVIDE DIRECTION TO THE COLUMBIA RIVER CROSSING PROJECT ON KEY DECISIONS FOR A LOCALLY PREFERED ALTERNATIVE

WHEREAS, the I-5 Interstate Bridge is one of only two Columbia River crossings between Vancouver, Washington and Portland, Oregon and approximately 150,000 people rely on crossing the I-5 Bridge daily by car, transit, bicycle and on foot; and

WHEREAS, the existing structures are aging and in need of seismic upgrade, and the closely-spaced interchanges are in need of safety improvements; and

WHEREAS, the movement of land and water-based freight is hindered by the current crossing, and

WHEREAS, high capacity transit does not currently connect Vancouver and Portland, and the bicycle and pedestrian paths do not meet current standards; and

WHEREAS, the I-5 Transportation and Trade Partnership Final Strategic Plan recommended congestion and mobility improvements within the I-5 Bridge Influence Area in 2002; and

WHEREAS, the Columbia River Crossing Task Force was established in February 2005, to advise the Oregon Department of Transportation and the Washington State Department of Transportation on project-related issues and concerns; and

WHEREAS, the Columbia River Crossing Task Force advised development of the project's Vision and Values Statement, alternatives development, and narrowing of the alternatives to five that would be studied in a Draft Environmental Impact Statement; and

WHEREAS, the Columbia River Crossing project is committed to implementing the principles of sustainability into project planning, design and construction in order to improve the natural and social environment and the regional economy whenever possible; and to minimize effects related to climate change; and

WHEREAS, the Oregon State Department of Transportation, Washington State Department of Transportation, Metro Council, Southwest Washington Regional Transportation Council, TriMet, C-TRAN, City of Portland and City of Vancouver have worked collaboratively on the development of the Draft Environmental Impact Statement; and

WHEREAS, the Columbia River Crossing project published a Draft Environmental Impact Statement on May 2, 2008, disclosing the potential environmental and community impacts and potential mitigation of the five alternatives; and

WHEREAS, the Columbia River Crossing project is seeking public comments on the Draft Environmental Impact Statement from the Columbia River Crossing Task Force as well as the public through outreach events, working sessions and hearings with sponsor agencies, and through two open houses and two public hearings during the comment period; and

WHEREAS, the Columbia River Crossing Task Force has opted to confirm Key Decisions that will lead to selection of a Locally Preferred Alternative.

NOW, THEREFORE, BE IT RESOLVED THAT THE COLUMBIA RIVER CROSSING TASK FORCE MAKES THESE RECOMMENDATIONS TO THE COLUMBIA RIVER CROSSING PROJECT:

1. In regards to the river crossing selection, the CRC Task Force supports the construction of a replacement bridge with three through lanes northbound and southbound as the preferred option.
2. In regards to the high capacity transit selection, the CRC Task Force supports light rail as the preferred mode.
3. ~~3.~~ In regards to the alignment and terminus of the high capacity transit line, and based on the information provided to date, the CRC Task Force
    - Recognizes that the selection of the alignment and terminus options should be determined through a combination of:
        i. Federal New Starts funding eligibility**,**
        ii. Public and local stakeholder involvement,
        iii. CRC project evaluation and technical determination of the terminus that allows for the greatest flexibility for future high capacity transit extensions and connections in Clark County, and
        iv. Outcome of the Vancouver City Council and C-TRAN votes on July 7 and July 8, respectively.
4. Creation of a formal oversight committee that strives for consensus and provides for a public process of review, deliberation and decision-making for outstanding major project issues and decisions.
5. The Freight Working Group, the Pedestrian and Bicycle Advisory Committee, the Urban Design Advisory Group, the Community and Environmental Justice Group, and the newly formed Sustainability Working Group, shall continue their advisory roles for refinement of the LPA. These advisory groups shall report findings and recommendations to the local oversight committee.

6. The CRC Task Force understands that several project elements have not been finalized at the time of this resolution. These elements will need to be satisfactorily resolved through a process that includes public involvement, recommendations from governing bodies of the sponsor agencies, and recommendations by a local advisory committee. The CRC Task Force supports the consideration of the attached list of Supplemental Positions for Future Project and Regional Consideration.

Columbia River Crossing Project
Supplemental Positions for Future Project and Regional Consideration

For Project Consideration:
The Columbia River Crossing Task Force presents these supplemental positions for consideration during the post-Locally Preferred Alternative (LPA) phase of the project development process. The Columbia River Crossing Task Force supports the following in association with the CRC project:

- The continued development of a mitigation plan, including avoidance of adverse impacts
- The continued development of a sustainability plan, including the formation of a sustainability working group
- Further study and analysis to determine the appropriate number of auxiliary lanes, necessary for safety and functionality in the project area, and consistent with minimizing impacts. The project should recognize that auxiliary lanes are for interchange operations, not for enhanced mainline throughput, and design the bridge width accordingly.
- The continued commitment to provide enhancements within potentially impacted communities
- As articulated in the final strategic plan of the I-5 Trade and Transportation Partnership, establish a community enhancement fund for use in the impacted areas of the project; such a fund would be in addition to any impact mitigation costs identified through the Draft EIS and would be modeled on the successfully implemented community enhancement fund of the I-5 Delta Park Project and subsequent Oregon Solutions North Portland Diesel Emissions Reduction Project.
- Continued work to design interchanges in the project area that meet the safety and engineering standards and requirements of the Federal Highway Administration, the departments of transportation for Oregon and Washington and the cities of Portland and Vancouver, in a way that is consistent with minimizing impacts.
- Continued work to ensure that interchanges are freight sensitive and provide enhanced mobility, in a way that is consistent with minimizing impacts.
- Imposing tolls on the existing I-5 bridge as soon as legally and practically permissible to reduce congestion by managing travel demand as well as to provide an ongoing funding source for the project
- A public vote where applicable, regarding the funds required to implement the light rail line
- The development of an aesthetically pleasing, sustainable and cost-efficient river crossing that provides a gateway to Vancouver, Portland and the Northwest

- Designing the project – river crossing, transit, and pedestrian and bicycle facilities – to be a model of sustainable design and construction that serves both the built and natural environment
- The development of light rail stations that meet the highest standards for operations and design. These stations would be designed to be safe and accessible to pedestrians, bicyclists, and people with disabilities.
- Continued development of a "world class" bicycle, pedestrian facility, as well as the consideration for provisions for low-powered vehicles such as scooters, mopeds and neighborhood electric vehicles, as part of the construction of a replacement river crossing
- Ensure that the preferred alternative solves the significant safety, congestion and mobility problems in the project area while meeting regional and statewide goals to reinforce density in the urban core and compact development that is both pedestrian friendly and enhances mobility throughout the project area and the region
- Development of an innovative transportation demand management (TDM) program to encourage more efficient use of limited transportation capacity
- Independent validation of the greenhouse gas and climate change analysis conducted in the Draft Environmental Impact Statement to determine the project's effects on air quality, carbon emissions and vehicle miles traveled per capita
- The inclusion of strategies aimed at reducing greenhouse gases and reducing vehicle miles traveled per capita. The Oregon Global Warming Commission or the Washington Climate Action Team should advise the CRC project on project related aspects that will help achieve both states greenhouse gas reduction goals set for 2020 and 2050.
- The development of a more detailed draft finance plan after the LPA is selected to define the funding and financing sources for this project from federal, state and local resources, while ensuring financial equity locally, within the region, and between the states of Oregon and Washington
- Independent review of the project's feasibility and risks, including the project's relationship to funding other transportation projects in the region
- Continued study of project health impacts such as those identified in the report submitted to the Task Force by the Multnomah County Health Department

For Regional Consideration:

There are system-wide transportation concerns that can only be resolved on a regional level and not by the Columbia River Crossing project. The Columbia River Crossing Task Force supports:

- Revisiting the remaining recommendations outlined in the *Strategic Final Plan* of the I-5 Transportation and Trade Partnership Study, dated September 2002
- Evaluating other bottlenecks within the system (e.g., I-405 / I-5 loop, Rose Quarter, etc.)
- Developing a regional plan for traffic demand management in the bi-state Portland-Vancouver region that promotes a reduction in vehicle miles traveled per capita

- Evaluating the effectiveness of a regional high occupancy vehicle (HOV) system
- Developing a regional plan for freight that considers the work of the I-5 Transportation and Trade Partnership and the CRC project's work with the CRC Freight Working Group
- Developing a web-based transit trip planning resource to plan transit trips in the Portland-Vancouver region

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 09-4023, FOR THE PURPOSE OF EXPRESSING A SENSE OF THE COUNCIL ON THE NUMBER OF LANES PROPOSED AS PART OF THE COLUMBIA RIVER CROSSING PROJECT, TAKING INTO ACCOUNT CONGESTION PRICING, CAPACITY, AND POSSIBLE INDUCED DEMAND EFFECTS

Date: January 27, 2009 Prepared by: Ross Roberts 797-1752

BACKGROUND

The Columbia River Crossing project locally preferred alternative (LPA) was approved by the Council in July 2008. As part of that action, the Council selected light rail as the preferred transit option with a terminus in Vancouver, tolling on I-5 with three through-lanes and the number of additional auxiliary (add/drop) lanes within the bridge influence area to be the subject of a future RTP amendment.

Pursuant to the LPA adoption, the Governors of Oregon and Washington established a Project Sponsors Council (PSC) that consists of representatives from Portland, Vancouver, Metro, RTC, TriMet, C-Tran, ODOT and WSDOT. The co-chairs of the previous 39-member Task Force, Hal Dengerink and Henry Hewitt, co-chair the committee. Council President Bragdon is Metro's representative on the PSC. The PSC has met three times and has been briefed on a variety of topics including the number of lanes, and independent expert reviews of greenhouse gas effects and travel demand forecasting methods and assumptions.

Since July, the project team has been developing information regarding the number of add/drop lanes to be added to the three through-lanes in each direction.

Options for the number of lanes being considered include three through lanes with one, two or three add/drop lanes within the bridge influence area (BIA). These add/drop lanes connect interchanges within the BIA and facilitate merges and weaves from six closely-spaced interchanges including Victory Boulevard/Delta Park, Marine Drive and Hayden Island in Oregon and SR-14, Mill Plain, and SR-500 in Washington. The attached materials summarize the lane configurations and the benefits and impacts of these options on safety, operations, capacity, vehicle miles travelled, and other key indicators.

On January 26, 2009, the Metro Council held a joint work session with the Portland City Council. CRC representatives provided a briefing and the balance of the meeting was devoted to questions about and discussion concerning the issue of the number of lanes and the potential benefits and potential consequences associated with eight, ten and twelve lane designs.

ANALYSIS/INFORMATION

1. **Known Opposition** The CRC Project is a very large and complex multi-modal transportation project. There are strong feelings – pro and con associated with the project. Opposition to the highway design lane options include concern with the potential transportation and land use impacts of the project. These impacts involve the potential for encouraging more land extensive growth in

southwest Washington and accommodating commuters such that connecting facilities such as I-5 south of the project, I-84 and other throughways in the region become more congested.

2. **Legal Antecedents**

   - Resolution No. 02-3237A, *For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations***;**

   - Resolution No. 07-3782B: *For the Purpose of Establishing Metro Council Recommendations Concerning the Range of Alternatives to Be Advanced to a Draft Environmental Impact Statement For the Columbia River Crossing Project*;

   - Ordinance No. 07-3831B *For the Purpose of Approving the Federal Component of the 2035 Regional Transportation Plan (RTP) Update, Pending Air Quality Conformity Analysis*;

   - Resolution No. 08-3911, *For the Purpose of Approving the Air Quality Conformity Determination for the Federal Component of the 2035 Regional Transportation Plan and Reconforming the 2008-2011 Metropolitan Transportation Improvement Program*;

   - Resolution No. 08-3960B, *For the Purpose of Endorsing the Locally Preferred Alternative For the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan With Conditions*.

The 2035 Regional Transportation Plan (federal component) as adopted by the Metro Council on December 13, 2007 includes a new bridge across the Columbia River. This item was reconfirmed with the adoption of the air quality conformity determination in February 2008.

3. **Anticipated Effects** Approval of this resolution would provide guidance to President Bragdon. The Project Sponsors Council's decision would allow the project to provide design decisions for preliminary engineering.

4. **Budget Impacts** There would not be any direct impact on the Metro budget as a result of taking action on this resolution.

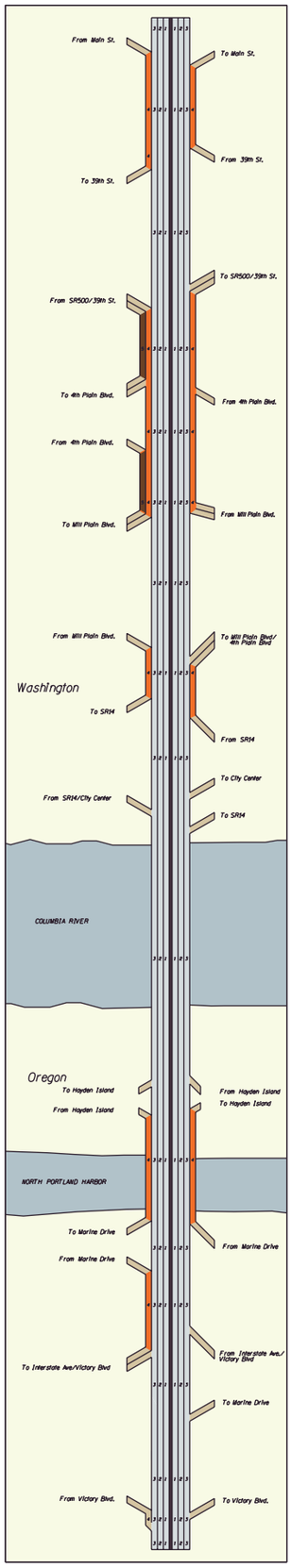
RECOMMENDED ACTION

Approve Resolution No. 09-4023, *For The Purpose of Expressing a Sense of the Council on the Number of Lanes Proposed as Part of the Columbia River Crossing Project, Taking into Account Congestion Pricing, Capacity, and Possible Induced Demand Effects*.

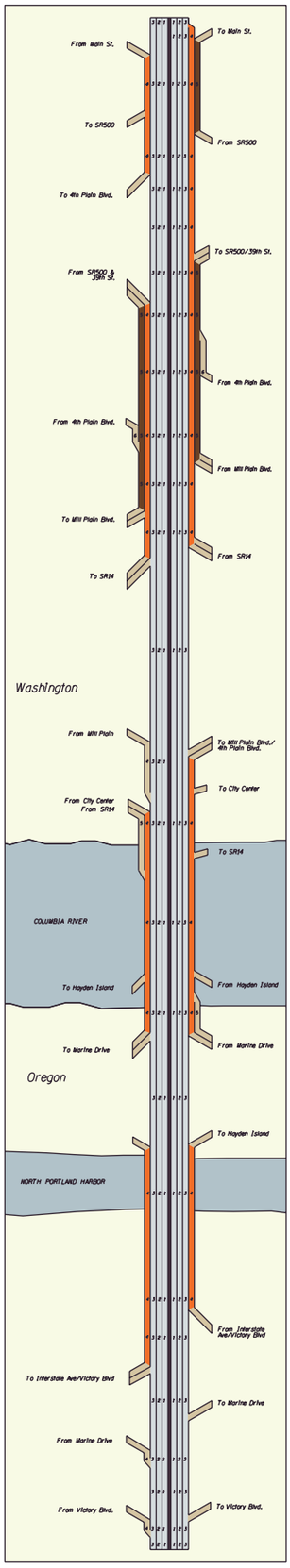
Columbia River CROSSING

Add/Drop Lane Designs

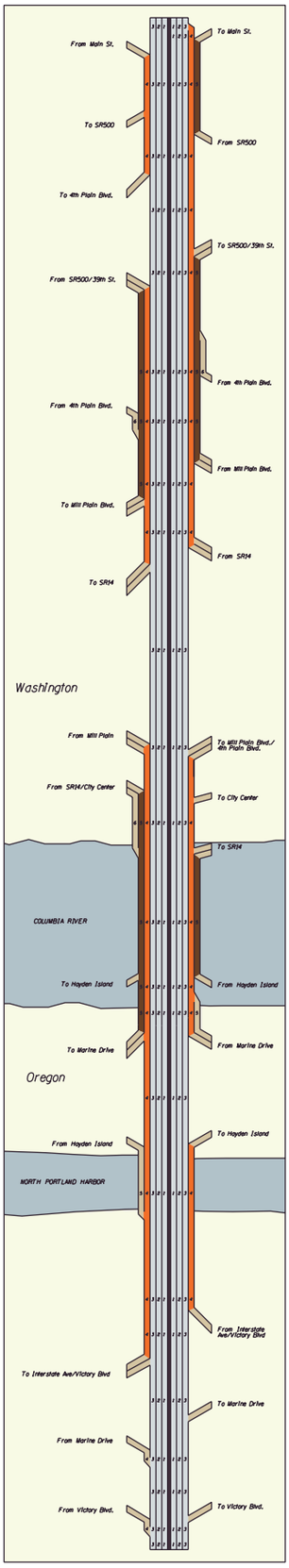
No Build



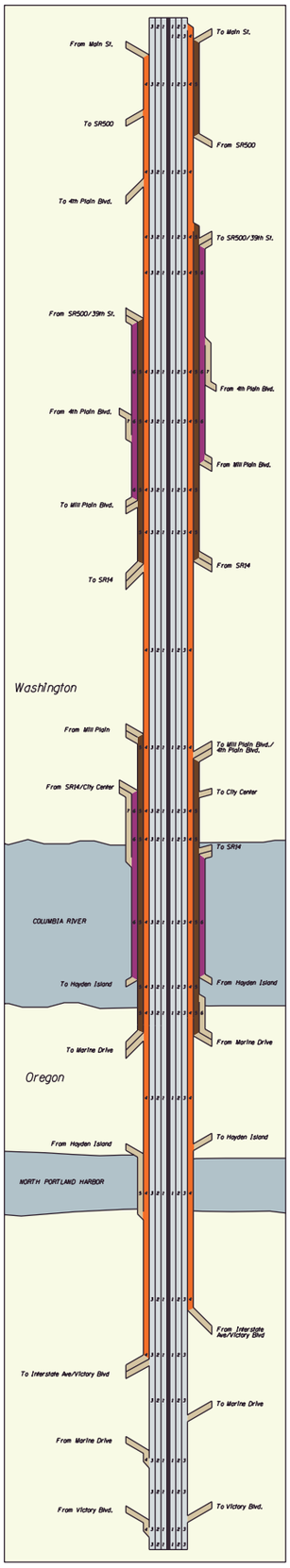
8 Lane



10 Lane



12 Lane



Key

- Lane 4
- Lane 5
- Lane 6

Columbia River CROSSING

Traffic effects of 8, 10 and 12 lane options

	8 Lanes	10 Lanes	12 Lanes
I-5 Impacts	**Northbound I-5:** 1. Hayden Island off-ramp to Marine Drive on-ramp 2. Hayden Island on-ramp merge area 3. SR 14 off-ramp diverge area 4. Mill Plain/4th Plain off-ramp to SR 14 on-ramp **Southbound I-5:** 5. 4th Plain off-ramp to SR 500 on-ramp 6. SR 14 off-ramp to Mill Plain on-ramp 7. Mill Plain on-ramp merge area 8. North of Hayden Island off-ramp 9. Marine Drive off-ramp to Hayden Island on-ramp	**Northbound I-5:** 1. Hayden Island off-ramp to Marine Drive on-ramp 2. Mill Plain/4th Plain off-ramp to SR 14 on-ramp **Southbound I-5:** 3. 4th Plain off-ramp to SR 500 on-ramp 4. SR 14 off-ramp to Mill Plain on-ramp 5. North of Hayden Island off-ramp	None
Local Street Impacts	**Due to northbound I-5 impacts:** 1. Marine Drive 2. Hayden Island 3. SR 14 4. Mill Plain **Due to southbound I-5 impacts:** 1. SR 500 and Main Street 2. 4th Plain 3. Mill Plain 4. SR 14 and City Center 5. Hayden Island	**Due to northbound I-5 impacts:** 1. Marine Drive 2. SR 14 **Due to southbound I-5 impacts:** 1. SR 500 and Main Street 2. 4th Plain 3. Mill Plain 4. SR 14 and City Center	None
I-5 Bridge Congestion	7 to 9 hours	5 to 7 hours	3.5 to 5.5 hours
Annual Collisions	300	240	200
I-5 Traffic	165,000 vehicles	174,500 vehicles	178,000 vehicles
I-205 Traffic	219,000 vehicles	214,500 vehicles	213,000 vehicles
Total River Crossing Traffic	384,000 vehicles	389,000 vehicles	391,000 vehicles
Diversion to I-205 from No Build	9,000 vehicles	4,500 vehicles	3,000 vehicles
Regional Vehicle Miles Travelled (VMT)	56.770 million regional VMT 0.21% increase over No Build	56.750 million regional VMT 0.18% increase over No Build	56.746 million regional VMT 0.17% increase over No Build
I-5 Transit Riders	18,900 (16,800 on light rail)	18,900 (16,800 on light rail)	18,900 (16,800 on light rail)
HOV Lane Potential?	No	No	With conversion of traffic lane

Note: All figures are for the year 2030.

Dec. 1, 2008

Columbia River Crossing

Travel Demand Model Review Panel Report

November 25, 2008

November 25, 2008

The enclosed report presents the findings of the Columbia River Crossing Travel Demand Review Panel, which met October 13 and 14, 2008 to review the project analysis and methodology as requested by project sponsors and the Oregon and Washington Departments of Transportation.

We were asked to respond to seven specific questions about the model and project analysis completed in the Draft Environmental Impact Statement. Our report provides findings and recommendations for each specific question as well as some recommendations outside of the scope of the project. For the reasons we explain in our report, we strongly believe the travel demand model and project analysis are valid and comprehensive.

The Review Panel would like to express its appreciation to Metro, RTC and CRC staff for providing the information that allowed us to evaluate the seven questions we were asked to consider. We enjoyed our discussions and staff's willingness to openly debate the technical aspects of the travel demand model and its application to the CRC Project.

We appreciate the opportunity to provide you with our thoughts on the travel demand model and its application to the CRC Project.

Maren Outwater, Chair
Bruce Griesenbeck
Arash Mirzaei
Guy Rousseau

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Introduction

The Travel Demand Model Review Panel (Panel) was tasked with reviewing and evaluating the assumptions implicit in the travel demand model for the CRC project. This review was requested by partner agencies in July 2008, as part of the selection of a Locally Preferred Alternative for the project. Resolutions passed by partner agencies made the following recommendations related to review of the CRC travel modeling assumptions:

- Further analysis is required of the greenhouse gas and induced automobile demand forecasts for this project. The results of the analysis must be prominently displayed in the Final Environmental Impact Statement. The analysis should include comparisons related to the purpose and function of the so-called "auxiliary" lanes. A reduction in vehicle miles traveled should be pursued to support stated greenhouse gas reduction targets as expressed by legislation in Oregon and Washington and by the Governors. (Metro Council, Resolution 08-3960B, July 17, 2008).

- The CRC project shall contract for an independent analysis of the greenhouse gas and induced automobile travel demand forecasts for the project. (City of Portland Council, Resolution 36618, Exhibit A, July 9, 2008).

- The CRC project shall contribute to a reduction of vehicle miles traveled (VMT) per capita in the bi-state metropolitan area. (City of Portland Council, Resolution 36618, Exhibit A, July 9, 2008).

- Independent validation of the greenhouse gas and climate change analysis conducted in the Draft Environmental Impact Statement to determine the project's effects on air quality, carbon emissions and vehicle miles traveled per capita (CRC Task Force, Resolution Recommendations, June 24, 2008).

The Panel met on October 13 and 14, 2008 to provide an independent review of the key travel demand modeling inputs and results related to regional modeling and the CRC project. Review of the greenhouse gas analysis requested in the resolution recommendations will be conducted as part of a separate process. This will occur after the travel demand model review process is complete.

Summary of Panel's Findings Regarding the Travel Demand Model

This report presents the conclusions and recommendations of the Travel Demand Model Review Panel prepared in response to seven specific questions. The panel's findings and general observations are summarized below. This section includes a synopsis of the responses to each question along with an overall observation of the application of the Travel Demand Model to the CRC Project and the resulting outputs. A more complete discussion of each question, topic area and the panel's discussion and conclusions is

provided in later sections of this report. Additional recommendations, outside the scope of the project, are included at the end of report.

Specifically, the Panel addressed the following questions related to the Locally Preferred Alternative resolutions:

- Are fuel price and vehicle operating cost assumptions used in the model reasonable?
- Are the tolling methods used in the model reasonable?
- Are the traffic projections for I-5 and I-205 from the model reasonable?
- Are the vehicle miles travelled results reasonable?
- Are the bridge auxiliary lanes modeled correctly?
- Was the approach used to estimate induced growth reasonable?
- Were the induced growth findings reasonable?

The Travel Demand Review Panel concluded that the Travel Demand Model used by the region is an advanced trip-based tool and that it represents a valid tool for a project of this type:

- The destination choice features of the trip distribution model used for all trip purposes is a positive and allows for fuller consideration of accessibility and policy variables in the analysis.
- The peak factors applied to skims is a better way to represent weighted averages than standard practice, which assumes peak conditions for work trips and off-peak conditions for non-work trips.
- The use of VISSIM offers a more rigorous evaluation of congestion than is possible with a regional planning model.
- The use of Metroscope as one method to evaluate induced growth is an advanced practice for a project evaluation. Normally this type of analysis is used for systemwide / regional transportation planning efforts and not specific project evaluations.

The panel also provided long-term recommendations for the Portland Metro regional travel demand and land use forecasting models, but these long-term recommendations were beyond the scope of the CRC project and were not considered to impact the outcome of the project findings. The long-term recommendations were intended to inform the next generation of models for the Portland Metro region.

Question 1 - Are fuel price and vehicle operating cost assumptions used in the model reasonable?

The Panel concluded that the vehicle operating cost assumptions, of which fuel costs are a component, used in the model for the primary travel demand forecasts were reasonable. The Panel confirmed that vehicle operating costs (which consists of gasoline and oil, tire, and general maintenance costs on a per mile basis) is the appropriate measure to use as it reflects the long-term relationship between fuel price and vehicle fleet fuel efficiency. In the Panel's opinion there was an adequate stratification of fuel cost, other costs and buildup of auto operating costs in the modeling process.

Question 2 - Are the tolling methods used in the model reasonable?

The Panel concluded that the overall approach to the tolling analysis employed by the CRC Project is within standard practice. The resulting volumes on the I-5 Bridge with tolls compared to No-Build volumes demonstrate that the tolling methods are reasonable.

Question 3 - Are the traffic projections for I-5 and I-205 from the model reasonable?

The Panel concluded that model results that indicated that the Build Alternative (LPA) volume difference relative to the No-Build Alternative (6,000 fewer vehicles per day / 3 percent reduction on I-5 and 3,000 additional vehicles per day / 1 percent increase on I-205) are reasonable, due to the fact that:

- There is a higher level of transit service and a resulting higher transit share in the Build alternative which reduces auto volumes on I-5;
- There are tolls on I-5 in the Build alternative versus no tolls in the No-Build alternative which also reduces auto volumes on I-5 and increases volumes on parallel facilities, like I-205;
- There is no added highway capacity north of or south of the project limits; and
- There are changes to trip distribution resulting in a decrease of discretionary trips crossing the river because of the toll.

Question 4 - Are the vehicle miles traveled (VMT) results reasonable?

The Panel concluded that the results showing a decrease in auto VMT on I-5 and a net regional increase (small) overall is reasonable because:

- There is a higher level of transit service and a resulting higher transit share in the Build alternative, which results in lower auto VMT on I-5; and
- There are tolls on I-5 in the Build alternative versus no tolls in No-Build alternative which results in diversion and higher regional VMT.

Question 5 - Are the bridge auxiliary lanes modeled correctly?

The Panel concluded that while the coding of a four-mile continuous auxiliary lane may be unusual in some urban areas, there are local examples of long auxiliary lanes that currently operate and are modeled similarly in the Metro region. Since this length of an auxiliary lane is consistent with regional coding (modeling) practices, this is a reasonable assumption for this project.

Question 6 - Was the approach used to estimate induced growth reasonable?

The Panel concluded that the use of Metroscope and the travel demand model results supported the national research findings. They felt that the use of multiple methods (i.e., case studies, Metroscope, national research) to evaluate induced growth was helpful. The evaluation of a worst case scenario in Metroscope (it assumed a larger build project then the LPA and no tolling) was useful and appropriate

Question 7 - Were the induced growth findings reasonable?

The Panel agreed that the conclusion of the CRC project that the highway capacity improvement would have a low impact to induce growth was reasonable for this corridor because the project is located in a mature urban area/built corridor.

Panel Members

Four experts, each with substantial experience in travel demand modeling in large metropolitan areas, served on the Panel. Each expert is currently in charge of travel demand modeling for a metropolitan planning organization.

Maren Outwater, Chair

Maren Outwater is the Director of Data Systems and Analysis at the Puget Sound Regional Council (PSRC). She specializes in the planning, evaluation, and modeling of land use, transportation and air quality systems. She has 23 years of experience in developing passenger forecast models for transit and highway systems, forecast models of goods movements, and land use forecasts for regional and state governments. She also has 18 years of progressive experience in managing complex multi-modal development efforts. At PSRC, she is leading the current efforts to integrate land use, travel, and air quality modeling to improve the agency's ability to model climate change and address pricing studies. Prior to working at PSRC, Outwater was a Principal at Cambridge Systematics. She has a Masters of Urban Planning in Transportation Planning and a Bachelors of Science in Civil Engineering from the University of Michigan.

Bruce Griesenbeck

Currently Bruce Griesenbeck is the Principal Transportation Analyst for the Sacramento Council of Governments (SACOG). He serves as the team leader for the forecasting, model operations, and model development teams. Primary areas of work for model development have been managing the development of an activity-based tour regional travel demand model, and supervision of the land use and travel network data inputs of this model. He managed the development of a "shortcut" version of the four- step travel demand model for use in modeling citizen-defined transportation alternative in a series of 13 public workshops for the 2007 Metropolitan Plan. Prior to SACOG, Griensenbeck was the project manager for various transportation and analysis and planning projects including light rail extension feasibility studies. Griesenbeck holds a Bachelors of Arts in Sociology and Psychology from Swarthmore College and a Masters of Science. in Civil Engineering and Master of City Planning, both from the University of California at Berkeley.

Arash Mirzaei

Arash Mirzaei is the Travel Model Development Program Manager for the North-Central Texas Council of Governments (NCTCOG) in the Dallas/Fort Worth area, where he has worked for more than ten years. Arash Mirzaei is responsible for travel model development, data collection and analysis activities, and transportation application projects that involve traffic and revenue analysis, preparation of environmental documents, air quality and conformity applications, roadway corridor studies, transit alternative analysis, combined land use and transportation applications, environmental justice analysis and activity-based modeling examinations. Mirzaei has a Bachelors of Science and Masters of Science in Civil Engineering from Sharif University of

Technology in Tehran, Iran, and a Masters of Science in Computer Science and Engineering from the University of Texas at Arlington.

Guy Rousseau

Guy Rousseau has over 20 years of experience working with and managing modeling and traffic engineering teams. He currently works as the Modeling Manager for the Atlanta Regional Commission (ARC). In this position, he oversees modeling of the long range transportation plan updates. This process involves network coding, trip generation, trip distribution, modal split, and traffic assignment and emissions analysis for a variety of network year analyses, as well as base year calibrations and validations involving the population synthesizer. Rousseau also manages the traffic modeling efforts feeding into air quality modeling and related emissions analysis, as well as some post-processing methodology and traffic micro-simulations. Rousseau has a Bachelors of Science. in Civil Engineering from the University of Montreal, a Masters of Science in Civil Engineering from Laval University in Quebec, and has finished all coursework at Tulane/ University of New Orleans towards a doctoral degree in civil engineering and transportation planning, with a dissertation remaining.

Peer Review Process

The Travel Demand Model Review Panel met on two consecutive days (October 13 and 14, 2008) to review and consider the seven specific questions. Background material in the form of a Travel Demand Model Review notebook was provided to each Panel member in advance of the meeting. Information included in the notebook provided background on the CRC project and the LPA as well as technical documentation and context related to the model and its assumptions.

During the Panel sessions, technical presentations from Metro, RTC and CRC staff were provided as background to each question and the Panel asked questions of staff during and following each presentation. Following the presentations, the four Panel members adjourned to a separate room to consider the information presented and to address the seven questions. Two staff members representing the CRC project were in the room with the Panel members to record the discussion and findings. They did not participate in the technical review or the formation of recommendations. The findings presented below represent the conclusions reached exclusively and by consensus by the members of the Travel Demand Model Review Panel.

At the end of the second day the review Panel members verbally presented preliminary findings and recommendations to an audience of agency staff and interested parties. The findings presented in this report represent the final conclusions of the Travel Demand Model Review Panel related to the seven specific questions asked of them.

Panel Response to Questions

The following presents the Panel's discussion on each specific question. Panel discussion on each question was preceded by a presentation by staff on the specific topic. The panel then discussed the question and asked questions of staff when necessary. The Panel's findings and / or recommendations are presented at the end of each question.

Question 1:

Are fuel price and vehicle operating cost assumptions used in the model reasonable?

Staff Presentations

Staff provided a PowerPoint presentation ("Metro Modeling Efforts – Fuel and Auto Operating Costs") that discussed the fuel and auto operating cost assumptions included in the Metro model and the research that supported the assumptions. Staff noted that the recent spike in fuel prices has lead some parties to question the fuel price assumptions, particularly in relation to the auto operating cost assumptions contained in the model.

Staff discussed that in the Metro model, fuel costs are considered as part of auto operating cost, which consists of gasoline and oil, tires, and general vehicle maintenance

costs on a per mile basis. Auto operating cost is used instead of fuel prices because it reflects the long-term relationship between fuel price and automobile fleet fuel efficiency (through technological changes, consumer preferences, and government regulations). Metro assumes the historical trend of relatively stable auto operating costs will continue into the future, as it has in the past.

Staff noted that the current fuel cost assumptions relied on national trends and averages prepared by AAA. Future fuel price assumptions relied upon the "worst-case", or highest, year 2030 forecasts provided by the Energy Information Administration (EIA), the statistical agency of the U.S. Department of Energy. Auto operating costs, which include fuel costs, are a factor in the mode choice model.

Panel Discussion

A panel member noted that his experience with the travel demand model in Sacramento indicated that the traditional four-step modeling process was not very sensitive to changes in fuel prices. It was noted that the transit model is very sensitive to fuel price. The Panel asked what impact a change in fuel pricing would have on VMT and transit use. Staff indicated that Metro tested a range ($0.05 to $0.13 per mile) and the impact on both categories was minimal.

The Panel asked if the destination choice model was based on income and, if so, what were the results? Staff indicated that this model did include income factors and the result was that the longer trip lengths were typically associated with specialty/higher income jobs. Lower income jobs tended to be associated with shorter trip lengths. Staff noted that the land use model used travel time to forecast behavior, not auto operating costs.

The Panel asked staff if you change the vehicle operating costs, what changes result in the model? Staff response was that mode share changes, transit ridership increased, but destination choices do not change.

The Panel did note that overall economic conditions are more of a factor, particularly for discretionary trips. The Panel also noted that statewide or regional (i.e., West Coast) fuel prices would probably be a better source when fuel price assumptions for the Metro area. These tend to be a little higher then the national average prices.

Panel's Findings and/or Recommendations

The Panel concluded that the vehicle operating cost assumptions, of which fuel costs are a component, used in the model for the primary travel demand forecasts were reasonable. The Panel confirmed that vehicle operating costs (which consists of gasoline and oil, tire, and general maintenance costs on a per mile basis) is the appropriate measure to use as it reflects the long-term relationship between fuel price and vehicle fleet fuel efficiency. In the Panel's opinion there was an adequate stratification of fuel cost, other costs and buildup of auto operating costs in the modeling process.

The Panel requested staff to look at alternative reasonable VMT / price elasticity relationships. The results of staff's analysis were that regional VMT could vary by minus six percent to plus six percent if fuel prices were at the lower or higher range of forecasts for 2030 as provided by the independent Energy Information Administration.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 2:

Are the tolling methods used in the model reasonable?

Staff Presentation

Staff provided a PowerPoint presentation ("Metro Modeling Efforts – Tolling Methodology") that discussed how tolling costs were implemented in Metro's model. Staff noted that there has been no single best-practice method identified for implementing tolls within travel demand models. Staff's research indicates that each region and project is unique and, therefore, the approaches to tolling tend to differ widely across the nation. Staff described the unique character of the CRC corridor and the lack of alternative routes. Staff noted that the model assumed peak and non-peak tolling costs and did not assume a toll on I-205. Tolling is reflected in the model as a time penalty assigned to categories of travel (auto peak/non-peak, medium trucks peak/non-peak and heavy trucks peak/non-peak).

Staff described how the tolling methodology and assumptions and how they affected destination choice, mode choice and final assignments in the model. Staff concluded with a discussion of the impacts of tolling on these three categories:

- Destination Choice: 7 percent fewer Washington-Oregon crossings and 11 percent fewer Oregon-Washington crossings;
- Mode choice: Increase in mode split from 9 percent to 11 percent; and
- Final Assignment: During the AM 4-hour southbound period with No Toll there was a 53 percent/47 percent split between traffic on I-5 versus I-205 (62,000 total trips) and with an I-5 Toll there was a 43 percent/57 percent split between I-5; and
- I-205 (59,000 total trips).

Panel Discussion

A panel member asked at what point do tolling costs come into play in the model? Staff indicated at all steps, except trip generation. Staff noted that in the model assignment

there was no differentiation between income groups, but for revenue forecasting income differentiation will be a part of the revenue assessments.

The Panel asked - what is the effective Value of Time (VOT)? The Metro model uses a value of time of $13 per hour in 2005 dollars. For a $2 toll, this translates into 9.23 minutes of additional time impedance. The destination choice model uses 25% of the toll cost and the mode choice model uses 75% of the toll cost. The panel noted that research shows that VOT does vary by income group and also other factors such as purpose of trip. A panel member noted that tolling costs do not effect distribution at all in the Atlanta regional model. It was also noted that in Dallas-Fort Worth, tolling doesn't affect their model.

The Panel asked – how many "feedbacks" (iterations) are there in the modeling process and when are tolling costs included? Staff indicated that there were six to seven "feedback iterations" for the base scenario and basically the same for each alternative. Normally two to three iterations are acceptable when running the regional model, but additional iterations were tested because this is such a saturated corridor. Staff noted that they did not see much difference in the model results between the alternatives and that transit ridership was the main difference. Staff noted that tolling costs were implemented in the "final iteration" of each alternative.

The Panel was informed that there would be tolls on I-5 at river crossing with this project and that not tolling was not an option. Bikes and pedestrians would not be subject to the toll. It was noted that there are currently tolled facilities in the State of Washington – Tacoma Narrows and a pilot HOT project.

The Panel discussion then focused on some of the technical details of tolling and the modeling process including: weighting factors, stopping criteria, speeds, micro-simulation and model assumptions related to capacity and auxiliary lanes. Staff addressed each issue in their comments.

Panel's Findings and/or Recommendations

The Panel concluded that the overall approach to the tolling analysis employed by the CRC Project is within standard practice (given the current range of limitations for modeling tolls). The treatment of tolls in destination choice (i.e., partial cost included) is an appropriate methodology. The resulting volumes on the I-5 Bridge with tolls compared to No-Build volumes demonstrate that the tolling methods are reasonable. The Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 3:

Are the traffic projections for I-5 and I-205 from the model reasonable?

Staff Presentation

Staff provided a PowerPoint presentation ("CRC Project Alternatives and Performance Results") that provided a more detailed description of the corridor, Bridge Influence Area (BIA), travel characteristics within the corridor including travel patterns, crash data, transit ridership, and peaking characteristics. Staff then reviewed the results of the extensive analysis for the No-build and Bridge Replacement Alternatives. Staff described the components of the LPA including the replacement bridge, the auxiliary lanes, and light rail alignment. Finally, Staff provided an overview of existing travel conditions and congestion levels and the VISSIM model.

Panel Discussion

The Panel asked – how did the Metro model compare to the license plate data collection conducted by CRC? Staff responded that the results matched up fairly closely, but the regional model did have some minor inconsistencies associated with dealing with the super-saturated nature of the corridor. The Panel then asked – how did the overall model results compare to the data? Staff indicated that the results for the corridors mainline matched well and that some adjustments needed to occur on the ramps to I-5, but the project was able to accomplish this. The resulting travel times and speeds on the bridge were good. In terms of model "post-processing" staff indicated that they used the NCHRP 255 methodology, using the difference method. Four screen lines were used in this 23-mile long VISSIM model area.

The Panel asked - with congested traffic traveling at 30 mph, what's your corresponding level of service (LOS) and what is the region's standard? Staff responded that the resulting LOS was E/F, but noted that traffic demands are too high to build a feasible project that could meet peak period LOS standards. The Project is trying to improve mobility and safety conditions in the corridor and reduce the duration of congestion, among other things.

The Panel asked about the use of Park-and-Ride lots and how Metro models this type of access. Staff indicated that park-and-ride is one of the modes in the model. They don't model kiss and ride directly, but from survey work staff knows that it constitutes about 15 percent. Staff also noted that the park-and-ride lots in Clark County are at capacity and identified their locations.

The Panel asked if HOV lanes across the I-5 Bridge had been considered. Staff indicated that yes they were considered during earlier screening, but because the project is only

five miles long, staff found no benefit without some larger HOV lane system. If there is future policy direction for a broader HOV lane implementation, that might be looked at. Also, with so many trips getting on and off I-5 in a short five-mile area, it becomes difficult to accommodate them with an HOV lane.

The Panel asked - what's your definition of no-build? Staff indicated that they assumed all the financially constrained projects in the RTP and MTP. Staff noted that there was just one project (SR-502 Interchange) upstream from the project in the I-5 corridor.

Panel's Findings and/or Recommendations

The Panel concluded that model results that indicated that the Build Alternative (LPA) volume difference relative to the No-Build Alternative (6,000 fewer vehicles per day / 3 percent reduction on I-5 and 3,000 additional vehicles per day / 1 percent increase on I-205) are reasonable, due to the fact that:

- There is a higher level of transit service and a resulting higher transit share in the Build alternative;
- There are tolls on I-5 in the Build alternative versus no tolls in the No-Build alternative;
- There is no added highway capacity north of or south of the project limits; and
- There are changes to trip distribution resulting in a decrease of discretionary trips crossing the river because of the toll.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 4:

Are the vehicle miles traveled (VMT) results reasonable?

Staff Presentation

Staff's PowerPoint presentation ("CRC Project Alternatives and Performance Results") introducing Question 3 also included information on Vehicle Miles Traveled (VMT) related to Question 4. Staff reviewed the VMT results with the No-Build and Build Alternatives. These results indicate lower VMT in both the I-5 Bridge Influence Area and the I-5 Corridor with the Replacement Bridge compared to the No-Build Alternative.

Panel Discussion

There was little discussion on the part of the Panel on this question because it was closely related to Question 3. Please see the discussion details above.

Panel's Findings and/or Recommendations

The Panel concluded that the results showing a decrease in VMT on I-5 and a net regional increase (small) overall is reasonable because:

- There is a higher level of transit service and a resulting higher transit share in the Build alternative; and
- There are tolls on I-5 in the Build alternative versus no tolls in No-Build alternative.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 5:

Are the bridge auxiliary lanes modeled correctly?

Staff Presentation

Staff's PowerPoint presentation ("CRC Project Alternatives and Performance Results") introducing Question 3 also included information on Auxiliary Lanes related to Question 5. Staff reviewed the purposes of and the need for auxiliary lanes in this project. Staff described how they were designed into the No-Build and Replacement Bridge Alternatives and discussed the lane capacities that were assigned to these lanes. Staff also presented various examples of existing auxiliary lanes in the Metro Region.

Panel Discussion

The Panel asked for clarification on the length of the auxiliary lanes and capacities assigned to each lane. A panel member noted that in the Sacramento region, they are having discussions about the meaning of auxiliary lanes, which sometimes mean different things to different people. Some concern was expressed about the length (four miles) of the auxiliary lanes, but it was understood that the region has examples of existing auxiliary lanes of this length. Also, the Panel was assured the coding practice was consistent throughout the regional model network.

The Panel asked - did you look at different combinations of auxiliary lanes fewer than three? Staff indicated that there is testing going on right now along those lines. Three lanes were chosen to accomplish lane balance and safety improvements.

The Panel asked if staff made use of collector/distributor roads in the project area? Staff noted that they have a limited set of collector/distributor roads within the project area, but the auxiliary lanes that are shown are part of the I-5 mainline.

The Panel asked if the land use assumptions were the same for all alternatives. Staff indicated that the land use assumptions were the same.

Panel Findings and/or Recommendations

The Panel concluded that while the coding of a four- mile continuous auxiliary lane may be unusual in some urban areas, they were presented with local examples of long auxiliary lanes that currently operate in the Metro region. Since this length of an auxiliary lane is consistent with regional coding practices, this is a reasonable assumption for this project.

The Panel also noted that the project's assignment of reduced lane capacity to the auxiliary lanes is reasonable.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 6:

Was the approach used to estimate induced growth reasonable?

Staff Presentation

Staff provided a PowerPoint presentation ("Induced Growth") that described the topic within the context of NEPA and the CRC Project. Staff began by defining what induced effects were and how they were evaluated in the Draft Environmental Impact Statement. Staff noted that the CRC staff conducted national research on induced effects, including reviewing case studies. Staff then discussed the conclusions of the national case studies. Staff discussed the variety of factors the national research identified as particularly relevant to induced growth, including new access to previously unserved areas, significant improvement to highway travel times, reductions in auto-operating costs, and local regulations that don't manage growth.

Staff noted two key findings particularly relevant to the CRC project and the conclusion that first, the project is unlikely to induce substantial auto travel demand or incur consequential auto-oriented land use changes and second, the project is likely to promote increased densities around new high capacity transit stations.

- Adding highway capacity in a well-planned urban area with a full range of infrastructure and services is unlikely to have substantial indirect effect on land use patterns.
- Improving high capacity transit in a location with supportive land use regulations and markets is likely to promote higher density and TOD, and improve transit mode share.

Staff provided a discussion on the land use regulatory context in Oregon and Washington that will influence the project. Staff then talked about the travel demand model results that related to factors potentially associated with induced growth. A discussion on Metroscope and its application to the project followed. Staff noted that the Metroscope analysis conducted for the project was a "worst-case" scenario – it assumed more new highway lane miles than all of the DEIS alternatives and did not assume a toll on the bridge. The key finding of Metroscope was that there was a potential for a small job growth shift (one percent) from other areas of the region into the I-5 Corridor area as a result of the CRC improvements, and a potential minor increase (less than three percent) in housing prices/demand in Clark County, Vancouver, and north Portland around the I-5 corridor.

Panel Discussion

The Panel asked - how many regional centers are included in Metro's 2040 Regional Growth Concept and how was the Urban Growth Boundary addressed in the model? Staff indicated 10 to 12 centers (combination of regional and town centers). Staff further noted that the UGB identified where the region's buildable land was and, therefore, where future growth would occur. Staff noted that the UGB is reviewed and updated every five years so the Metro region can maintain a 20-year supply of buildable land.

The Panel wanted to know if Metroscope was used for project-level evaluations. Staff indicated that Metroscope was not typically used for project-level evaluation, that it is normally used for the RTP and system-wide analyses.

The technical aspects of Metroscope and the travel demand model were explored by the Panel. They discussed the census tract level analysis Metroscope operates on the relationship of Metropscope results to VISSIM. The Panel asked for additional information on VMT and person trips (this information was provided to the Panel).

Panel discussion then focused on the likelihood for City of Vancouver support for high-capacity transit. How likely is it that the LRT portion within downtown Vancouver would be highly used and see a lot of transit-oriented development? How much support for the intra-Vancouver portion of LRT is there? Staff thought there was increased support for LRT in Vancouver. Staff indicated that given the length of the line, it's likely they'll see more of a reverse commute on LRT from North Portland than from farther north in Clark County. It will function more as a commuter route and for shorter distance intra-

downtown trips. Staff felt there was a strong potential for increased TOD development in Vancouver and noted recent higher density projects that have been built in Vancouver.

The follow-through on the stated intent by Vancouver and Clark County to focus development in the station areas will be critical to the overall success of the LRT portion of the project and the panel findings on induced growth.

Panel discussion then focused on the minor reallocation of jobs into the I-5 Corridor. The Panel wanted to know where the jobs relocated from, which areas of the region contributed to the shift of jobs to the corridor and whether, as a consequence of the shift, was the resulting shift more or less VMT-efficient. Staff indicated that the reallocation didn't come from one specific area, that it was widespread, throughout the region. Staff did note again that the potential shift was minor.

Panel's Findings and/or Recommendations

The Panel concluded that the Metroscope and the travel demand model results appeared to support the national research findings. They felt that the use of multiple methods (case studies, Metroscope, national research) to evaluate induced growth was very helpful. The evaluation of a worst case scenario in Metroscope (it assumed no toll, more new highway lane miles and more auto trips than the LPA) is useful and appropriate. The use of the year 2020 for Metroscope analysis was reasonable at the time it was conducted. The Panel felt that the overall evaluation of induced growth impacts was thorough and robust.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Question 7:

Were the induced growth findings reasonable?

Panel Discussion

The Panel discussion that occurred on this specific question occurred during the discussion on Question 6.

Panel's Findings and/or Recommendations

The Panel did conclude that the CRC project finding would have a low impact to induce growth is reasonable for this corridor because the project is located in a mature urban area. Insofar as the Metroscope analysis indicates that the project contributes to a better jobs housing balance in Clark County, the Panel believes that this is a positive outcome of the project.

Please see "Additional Panel Findings and/or Recommendations" for long-term recommendations – beyond the scope of the CRC project – for the region to consider.

Additional Panel Findings and/or Recommendations

The Panel also identified a series of long-term regional model improvements. These were not considered as significant to project outcomes at this time and are presented for information only for consideration by Portland Metro in their future enhancements of the regional land use and travel demand forecasting models:

- The Panel noted that the 1994 household survey is 14 years old and suggested that the region consider conducting a new survey soon. Typically, household surveys are conducted every ten years for regional planning purposes.
- The region should consider using the North American Industrial Classification System (NAICS) rather than the Standard Industrial Classification (SIC) codes for employment. NAICS is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. NAICS was developed under the auspices of the Office of Management and Budget (OMB), and adopted in 1997 to replace the Standard Industrial Classification (SIC) system.
- Multinomial mode choice factors in the model limits consideration compared to the use of a fully nested mode choice. Nested logit models can provide a more accurate representation of tradeoffs between modes that are similar (like rail and bus) compared to modes that are more different (like auto and transit).
- Destination choice should consider a Central Business District dummy variable instead of deleting the full cost from destination choice. This was a tradeoff identified by Portland Metro staff during the calibration of the model. The inclusion of full costs in destination choice will provide a more accurate picture of the impacts of tolls, parking costs, operating costs, and fares on traveler's decisions to make a trip across the river or not. This change will require a recalibration of the destination choice models.
- The use of fixed-time factors are a limitation for the evaluation of variable pricing. Variable pricing is designed to shift travelers from congested periods to less congested periods and these shifts are not currently represented by the fixed time factors.
- Updating the future travel demand modeling efforts to redirect the feedback loop from trip distribution to trip generation and to show effects of accessibility on trip generation should be considered. This will involve revising the trip generation model to incorporate accessibility as an input and will provide changes in trip-making as a result of changes in accessibility.

- The incorporation of auto operating and other costs to the trip generation, destination, time of day, and assignment components of the travel demand model should be considered.
- The region should consider testing the use of the activity-based model for evaluation of tolls for future analysis. There is a growing body of research that shows that activity-based models can evaluate the effects of tolls more accurately than trip-based models. This is primarily because of the disaggregate nature of activity-based models, which can identify individual responses to tolls and the value of time.
- In future modeling efforts, the region should consider the inclusion of the full cost of tolls in destination choice. As well, introducing tolls after the last equilibration model loop should be fully tested and compared to full feedback with tolls.
- The Panel felt that the Value of Time (VOT) should be segmented in the model assignment by income and purpose, and an updated VOT should be explored in light of more recent revealed choice surveys and planned CRC stated preference surveys for revenue projections.
- The region should consider "splitting-out" the transit riders without a toll from all other trips with a toll during trip distribution so that transit trips do not divert due to a toll. There is a potential for an under-estimation of transit unless this is done. (However, the Panel concluded that the potential for underestimation of transit riders would not have a significant effect on highway volumes. Staff provided additional analysis that showed that cross river transit trips would increase by about 900 daily person trips (if park-and-ride lot capacity in Vancouver was expanded substantially beyond what has been agreed to as part of the LPA), which represents roughly three percent of total daily cross river transit trips, or less than one percent of cross river auto trips.)
- The region should consider coding auxiliary lanes with lower free flow speeds. For multiple auxiliary lane segments, staff should review the Highway Capacity Manual for less-than-1/2 lane capacity coding for additional auxiliary lanes.
- Future travel demand modeling could include sensitivity testing with Metroscope to evaluate the impacts of highway capacity on regional VMT and trips. This would provide an assessment of how sensitive Metroscope is to changes in highway capacity compared to other research in this area.

Conclusion

This report presented the findings and recommendations of the Travel Demand Model Review Panel to the seven specific questions presented to them on October 13 and 14, 2008. Following the intensive two-day review session, panel members provided specific conclusions and recommendations that indicated overall agreement with the outcomes of the technical modeling process followed in the CRC Draft Environmental Impact Statement process. Specific recommendations intended to improve future travel demand modeling efforts were also provided by panel members.

Columbia River CROSSING

January 6, 2009

TO: CRC Project Sponsors Council

FROM: CRC Staff

SUBJECT: **Impacts of the CRC Project on Land Uses in Oregon and Washington**

Summary Conclusions of the CRC Project on Land Uses in Oregon and Washington

Studies of "induced travel demand" have found that under certain conditions improvements in highway capacity lowers the cost (time and money) of travel, resulting in additional traffic and vehicle miles of travel. These studies also found that improved highway access may lead to greater levels of urban development on the fringes of the metropolitan area, influencing urban sprawl.

The conditions that create significant induced demand, including urban sprawl, are not present for the CRC project. Consequently, significant induced demand is not anticipated for any of the lane configuration options being considered by the PSC.

Specifically, this analysis found:

- The CRC Project, including all of its lane configuration options, would not provide additional through capacity on I-5 outside the bridge influence area or any new access to fringe development areas. The improved accessibility benefits of the project would be derived from the travel time savings in the bridge influence area.

- Drivers consider the total cost of a trip, both the value of travel time and the cost of the trip, when determining if, when, how, and where to travel. Trip-making is particularly sensitive to a toll because it is a direct, out-of-pocket expense.

- Tolling the I-5 Bridge would offset the limited induced demand that would otherwise be generated by the modest increase in highway capacity provided by the add/drop lane options within the bridge influence area:

    - Because of tolls, the modeling shows all bridge configuration options exhibit lower volumes of cross-river trips (3,000 -10,000 daily trips depending on the option) compared to the No Build.
    - The number of add/drop lanes on the I-5 Bridge have only a minor impact on the volume of river crossing trips. The 12-lane option exhibits only 2,000 more daily trips than the 10-lane option; the 10-lane option 4,500 more than the 8-lane option.

    - The higher the number of add/drop lanes on the I-5 Bridge, the less diversion of trips to I-205, and the lower the VMT. The 12-lane option diverts 3,000 daily trips to I-205; the 10-lane diverts 4,500; and the 8-lane 7,500. As a result, the 12-lane option

exhibits 4,000 less daily vehicle miles of travel than the 10-lane option, and 24,000 less than the 8-lane option.

- The form of urban development in the I-5 Bridge impact area will be largely dictated by adopted land use plans and policies; the traffic impacts of the I-5 Bridge options are not sufficiently large to have a major affect.

- Land use plans are in place on both sides of the river that ensure that the urban development effects of the CRC Project would occur within urban growth areas, would not create urban sprawl, would support urban densities, and would be consistent with adopted 20-year plans that provide for efficient and sustainable use of land and resources.

Impacts of the CRC Project on Land Uses in Oregon and Washington

Background

Issues and concerns have been raised about the relationship between land use and the number of lanes associated with the CRC project and the potential to increase sprawl on the fringe of the urban area. In order to understand this relationship, it is important to understand the context for the discussion in terms of how the proposed add/drop lanes would affect the capacity and function of the through lanes. This relationship is key to determining whether the improved accessibility provided by the CRC project would be sufficient to increase demand for land at the periphery of the region or induce more travel compared to the No-Build condition.

There are many factors that influence the demand for more land at the edge of adopted urban growth boundaries in the metropolitan area. They include the supply of land available to be urbanized inside currently adopted urban growth boundaries; the policies regulating growth inside these boundaries; the cost and the market for a given set of land uses as well as transportation mobility and accessibility; and other infrastructure costs. No one factor in isolation can cause urban growth to occur.

As an integral link in the Interstate highway system, the CRC project area is vital to the movement of freight and people up and down the west coast, as well as within the Portland/Vancouver region. The CRC project is analyzing the appropriate number of lanes to safely and efficiently move the very high number of auto and truck trips that are entering and exiting I-5 in a very short congested area, as well as accommodating the high overall number of trips on the Interstate itself.

There are seven high volume interchanges within the project area. The area warrants a standard two-mile spacing to accommodate the heavy traffic volumes; however, these seven interchanges have an average spacing of less than the minimum standard of one mile. The merging and weaving created by these closely spaced interchanges creates unsafe and congested conditions. This section of I-5 has the highest accident rate of any Interstate highway in the entire state of Oregon. In 2030 it is projected to be congested for as much as 15 hours a day if no improvements are made.

The add/drop lanes being considered are new lanes that would connect the closely spaced interchanges with the heaviest on/off volumes. They would provide better access to areas that have reduced development capacity, such as the Marine Drive corridor and Hayden Island; as well to improve safety and manage the operation of the freeway. Their primary purpose is not to add new capacity.

Overview of Analysis

The CRC project team evaluated whether and how this project could change travel behavior and consequentially influence land use patterns. The evaluation was presented in the May 2008 Draft Environmental Impact Statement (EIS) and subsequently reviewed by an independent panel of experts.

As noted in the Draft EIS, the project's analysis concluded that the CRC project is unlikely to induce growth around the region's urban periphery ("sprawl"). However, CRC is likely to promote transit-oriented development around new light rail stations on Hayden Island and in downtown Vancouver, and to promote additional density of jobs and housing near the I-5 corridor. An evaluation summary can be found in the Draft EIS (Section 3.19.4, pages 3-427, 3-428) and additional details are presented in the Land Use Technical report. Both documents are available online: www.ColumbiaRiverCrossing.org.

In October, 2008, the project convened a panel of national experts to review the travel demand model methodology and conclusions, including a land use evaluation. The panel unanimously concluded that CRC's methods and the conclusions were valid and reasonable. Specifically, the panel noted that CRC would "have a low impact to induce growth…because the project is located in a mature urban area," and that it would "contribute to a better jobs housing balance in Clark County…a positive outcome of the project" (page 16).

Land Use Evaluation

The CRC project's evaluation of the potential to induce land use changes included four analytical methods, which are summarized in the Draft EIS and described below.

1. A survey of national research and case studies on how transportation infrastructure can indirectly impact land use,
2. An analysis of growth management techniques in Washington and Oregon land use planning,
3. The results of travel demand modeling and operational analysis for the CRC project alternatives, and
4. Integrated land use/transportation modeling that estimates how the CRC project might or might not influence the location of future growth in housing and employment.

1. Survey of research and case studies

National research and case studies revealed a variety of important factors that influence whether and how transportation investments change travel and land use patterns. In general, some transit projects tended to promote higher density development, particularly around new transit stations, while some highway projects increased automobile use when adding through capacity and could have the potential to induce low-density, auto-oriented development further from urban centers. At the same time, other transit projects and highway projects did not have these effects. The most relevant findings from the national research were the answers to the following two questions:

- What factors were associated with highway projects that tended to increase auto use and low density development, and
- What factors were associated with high capacity transit projects that tended to increase transit-oriented and higher density development?

The answers identified in the national research are summarized on the left side of the following two tables. The right side of each table identifies the extent to which each of those factors is or is not included in the CRC project and project area.

TABLE 1: Factors associated with highway projects that influence induce auto travel and sprawl	**Does the CRC project exhibit these factors?**
Does the project provide new access to areas previously un-served or greatly underserved by highways?	**No.** CRC is entirely within an urbanized area, and I-5 has been an Interstate corridor since 1958. Project adds no new interchanges.
Does the project provide new highway access to land on the urban edge?	**No.** CRC improvements are located 7 miles inside Vancouver Urban Growth Area boundary to the north, and over 13 miles inside Metro Urban Growth Boundary to the south.
Does the project substantially improve highway travel times?	**Yes but induced demand impacts from travel time savings are offset by the higher cost of tolls.** Drivers consider both the value of travel time and the cost of the trip, when determining if, when, how, and where to travel. Compared to the No Build, the 12-lane bridge configuration has a 23-minute travel time savings for a round trip between 179th and I-84 during peak periods. Applying a travel time penalty to offset the cost of the toll negates almost 3/4ths of the trip-making effect of this travel time savings. The net effect of these countervailing factors is equivalent to a 6% decrease in travel time; which does not have a material impact on induced demand or access to fringe areas.
Does the project reduce auto travel costs?	**No**. CRC adds a toll on the highway that increases auto travel costs relative to No Build alternative.
Are local and regional land use regulations ineffective at managing growth?	**No**. Effective growth management controls backed by state law exist in the I-5 corridor on both sides of the river that require; • the vast majority of future growth to occur within urban growth areas that reduce sprawl and that are sized to meet population and employment forecasts; • comprehensive plans that implement efficient and sustainable urban development within urban growth areas; • minimum densities in urban areas; and, • protections for rural, agricultural, and environmentally sensitive areas.
Are there real estate markets supporting low density development?	**Yes, but these areas are extremely minor and distant from the Project's influence area.** The minimum average densities required to be achieved in Vancouver growth management areas is notably higher than that required in Metro's "Inner Neighborhood" designation. In certain locations densities as high as those targeted for Town Centers, Station Areas, and Main Streets are anticipated. The minimum densities required in the urban growth areas of Washougal, Battle Ground, Camas, and Ridgefield are similar to the densities required in Metro's "Outer Neighborhoods." The two urban growth areas that allow low densities are Yacolt (20 miles from Vancouver) and La Center (15 miles from Vancouver). These growth areas are distant and quite small, representing only 0.9% of the County's population in 2004, and 1.7% of the County's projected population in 2024; no material urban sprawl is anticipated in these areas from the CRC Project.

TABLE 2: Factors associated with high capacity transit projects that tend to promote higher density and/or transit oriented development	**Does the CRC project exhibit these factors?**
Would the project increase transit ridership?	**Yes**. Transit mode split is projected to be about 17 percent with the project, compared to 7 percent with the No Build alternative.[1]
Does the project provide new access to developable/redevelopable land previously unserved or underserved by transit?	**Yes**. The project area is not currently served by high capacity transit and there is substantial latent demand for cross-river transit service
Are there real estate markets supporting such development?	**Yes**. The majority of the recent and planned developments in downtown Vancouver are high density and/or mixed use.

1 PM Peak period transit mode split for I-5 crossings

Is there positive public perception of transit?	**Yes**. Over 70 percent of residents polled support extending light rail across the river to Vancouver.[2]
Do local and regional land use regulations effectively manage growth?	**Yes**. Comprehensive plans and implementing regulations, including zoning, exist on both sides of the river that (a) require minimum densities in urban areas, (b) encourage compact nodal and mixed-use development, and (c) encourage transit-oriented development.

As evident from the tables, and supported by the independent expert review panel, the CRC project is far more likely to encourage compact, higher density development in established urban areas than promote auto-oriented, lower density development on the urban fringe.

This project would decrease travel times, improve travel reliability and reduce congestion. However, tolling the river crossing offsets much of the potential for inducing auto travel. It serves to reduce total auto trips and increase transit mode share. The light rail extension into Vancouver further increases transit ridership and promotes transit-oriented development around the new stations on Hayden Island and downtown Vancouver. Ultimately, the transit and highway improvements are more likely to help realize long-term, regional land use visions by supporting concentrated growth in established urban centers.

2. Analysis of Washington and Oregon growth management

The national research and case studies emphasized the importance of local land use regulations for influencing the type and magnitude of effect from transportation improvements. Metro has a long history of effective growth management, and the City of Portland has a sophisticated zoning code with provisions for focusing growth where desired and encouraging compact mixed-use development around transit facilities. The land use regulations in the City of Vancouver and Clark County also have robust growth management policies and regulations. The Vancouver Comprehensive Plan targets growth in designated urban centers and corridors connecting these centers in a growth management approach comparable to Metro's 2040 Growth Concept. Vancouver also has a Transit Overlay District allowing for "higher densities and more transit-friendly urban design" than afforded by base zoning. This overlay zone is similar to Portland's Light Rail Transit Station Zone that is an overlay zone allowing for "increased densities for the mutual re-enforcement of public investments and private development". Also, in preparation for the construction of the CRC project, the City of Vancouver has recently made changes to the downtown plan (the Vancouver City Center Vision) and is implementing regulations that encourage complimentary development along the light rail alignment.

In 1990, the Washington Growth Management Act (GMA) established requirements for counties to plan for and manage growth. The GMA requires local governments to identify and protect critical and natural resource lands, designate urban growth areas, and prepare comprehensive plans to be implemented through capital investments and development regulations.

A comparison of urban growth area expansions by Metro and Clark County since 2000, shows Metro and Clark County added approximately 21,000 and 16,400 acres respectively. Clark County and the City of Vancouver have planned residential densities of approximately 16 and 20 persons per acre. This compares favorably to Metro's "inner neighborhood" and "outer neighborhood" areas that target 14 and 13 persons per acre, respectively. Metro has other significant goals applied throughout its jurisdiction, tied to designations such as Regional, Town Centers and Main Streets with much higher density targets. The City of Vancouver does have policy and regulations encouraging higher densities in planned sub-areas, downtown, and along transit corridors that are comparable to the densities anticipated in Metro's Town Centers and Main Streets.

[2] Riley Report / Portland-Vancouver Area Survey. Riley Research Associates. June 18, 2008. A scientific telephone poll of 504 randomly selected households in Multnomah, Washington, and Clackamas Counties in Oregon, and Clark County in Washington.

3. Travel demand modeling and traffic operations analysis

Travel time and resulting accessibility can influence the demand for land at both the urban fringe and in established urban areas. Travel demand modeling and traffic micro-simulation could provide valuable information about how the CRC project might change travel behavior and, in turn influence land use patterns. Significant improvements in travel time from areas along the urban periphery to key destinations such as downtown Portland could increase pressure for suburban residential development in northern Clark County. At the same time, increases in transit ridership could promote higher density development around transit stations the central Vancouver area. The modeling results presented in the Draft EIS indicate this project has a far greater effect on transit ridership than I-5 travel times. Though CRC would substantially reduce congestion within the project area compared to the No Build alternative, travel times are not as dramatically changed because this project improves a relatively small portion of the region's highway system, and because the toll on the I-5 crossing would add a perceived penalty to auto travel[3]. In fact, because of the toll and the introduction of a reliable and efficient transit alternative, modeling shows that the project would actually lower the number of vehicles using the I-5 crossing each day by about 3 percent[4]. In contrast, transit ridership would increase over 250 percent during the p.m. peak hour.[5]

4. Transportation-land use modeling (Metroscope)

The fourth method for evaluating this project's potential for inducing land use changes entailed evaluating a Metroscope model analysis that included transportation improvements in the corridor similar to the CRC locally preferred alternative (LPA). The analysis included a replacement bridge with four through lanes and light rail to Clark College. Metroscope is an integrated land use and transportation model designed by Metro to predict how changes in several factors, including transportation infrastructure, could change the future distribution of employment and housing throughout the region. In 2001, as part of the I-5 Partnership Study, Metro used its Metroscope model to estimate land use changes if I-5 were to increase to four through-lanes between Going Street in Portland and 134th Street in Vancouver, and light rail were extended to Clark College. This scenario had the same transit improvements as the LPA, but added capacity to a significantly longer portion of I-5, and did not include a toll on the bridge. These differences resulted in greater travel time savings and increased vehicle use compared to the project's LPA.

Under this scenario, Metroscope showed only minimal changes in employment location and housing demand compared to the No Build alternative. Metroscope estimated a one percent regional redistribution of jobs to the I-5 corridor with 4,000 more in North and Northeast Portland and 1,000 more in Clark County. The model estimated very modest changes in residential values (a proxy for residential demand), with the highest increase in some Clark County and North Portland areas experiencing up to three percent greater values by 2020, equating to about 0.12 percent growth per year. This analysis also concluded the land-use policies in the Metro boundary and in Clark County were far more likely to influence growth patterns than the CRC project.

Conclusion

Rigorous analysis and independent review suggest that CRC is more likely to encourage compact, higher density development in established urban areas, than promote auto-oriented, lower density development

3 Modeling the toll entailed incurring a 9 minute time penalty to simulate drivers' response to paying this fee. Travel time savings on I-5 between I-84 and 179th Street during the PM peak (3pm to 7pm) period shrink from 18 minutes without accounting for the toll to 9 minutes with the toll.

4 184,000 cars would travel over the I-5 bridges under the No Build alternative versus 178,000 with a replacement crossing, a toll on I-5, and light rail.

5 With a replacement crossing, a toll on the I-5 bridges, and light rail, 7,250 people would ride transit during the PM peak period compared to 2,050 people for the No Build alternative.

on the urban fringe. These findings were in the Draft EIS analysis, and they have been confirmed by the independent panel of experts that reviewed this analysis in October 2008.

As the research indicates, there are many land use and economic policy factors beyond the scope of the CRC project that would have a much larger impact on the urban growth pattern of the bi-state region than the CRC project alone.

Columbia River CROSSING

Issues Raised by Metro in LPA Resolution 08-3960B

Date	#	Issue	Response	Progress/Status
7/17/08	98	Interchanges - design must take into account impact on urban development potential	CRC has worked in close coordination with the City of Portland in developing the Hayden Island Development Plan. CRC is working with Metro and MERC on the design of the Marine Drive interchange. ODOT is preparing an Interchange Area Master Plan for the Hayden Island/Marine Drive Interchanges.	In Progress
7/17/08	99	Auxiliary Lanes - to be determined in separate process and amendment to Regional Transportation Plan	A recommendation will be made by the Project Sponsors Council (PSC) on the number of auxiliary lanes. CRC has provided extensive information to the PSC members and agencies to aid in making a recommendation.	Decision expected February 6, 2009
7/17/08	100	Ped/Bike - prepare a more detailed plan of "world class" facilities	CRC formed a multi-agency Pedestrian/Bicycle Advisory Committee (PBAC). The committee has made recommendations for pedestrian/bicycle improvements. The PSC will review PBAC recommendations for concurrence.	In Progress
7/17/08	101	Bridge Design - aesthetics is an important consideration	CRC brought in a new bridge design team and bridge architect to the project and is working through the Urban Design Advisory Committee for recommendations. Information will be presented to PSC for concurrence.	In Progress
7/17/08	102	Environmental Justice - propose mitigation for any potential adverse health impacts (existing and future/induced), including community enhancement projects	CRC has a Community Environmental Justice Committee (CEJG) tasked with assuring project needs are addressed. Extensive project related community enhancements are included in the project. Potential project related health impacts have been discussed in the Draft EIS and mitigation will be proposed where warranted.	In Progress
7/17/08	103	Freight - describe specific physical and fiscal methods to give trucks priority over SOVs	CRC established a Freight Working Group tasked with providing recommendations to the project relating to freight movement. TDM strategies will encourage fewer trips by SOV and will benefit freight mobility. Tolling rate structures that may impact freight movements will be included in refinement of the Financial Plan that will ultimately be reviewed by the Project Sponsors Council.	Design recommendations have been incorporated into the project. Freight Working Group meets regularly for updates.
7/17/08	104	Freight/Interchanges - ensure capacity at interchanges is not diminished by industrial land conversion	Major redesign of Marine Drive Interchange to enhance freight movement to and from the Port of Portland is an example of improvements recommended by the Freight Working Group.	In Progress
7/17/08	105	Financial Plan - prepare and present to partners details with costs and revenues	A draft financial plan was included in the DEIS. Refinement of the Financial Plan will be developed through close coordination with the Project Sponsors Council.	In Progress
7/17/08	106	Greenhouse Gas - require an independent analysis & display results in the Final EIS, including impact of auxiliary lanes	CRC convened a national expert panel to provide an independent analysis of greenhouse gases. Work has been completed and a report of the findings has been provided to Project Sponsors Council, Metro Council and posted on the CRC web site.	Completed
7/17/08	107	Interchanges - preserve and improve functionality of Marine Drive and Expo Center	CRC initiated a review of design options for Marine Drive Interchange. A Transportation Stakeholder Group comprised of properties and agencies impacted by proposed alignments has been used to evauate options and recommend a proposed solution. Recommendations are forthcoming and will be presented to the Portland Council for their consideration and recommendation to CRC.	In Progress

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Issues Raised by Metro in LPA Resolution 08-3960B

Date	#	Issue	Response	Progress/Status
7/17/08	108	Sustainability - ensure sustainable design and construction	CRC will have a sustainability plan. Both WSDOT and ODOT are strong proponents of incorporating sustainability elements into their projects. The plan will assure proven sustainability practices are incorporated from the continuation of design through final construction.	In Progress
7/17/08	109	TDM Plan - develop state of the art techniques in addition to tolling	CRC has convened a multi-agency TDM committee tasked with developing a TDM Plan for the FEIS. This plan will be reviewed and concurred with through the Project Sponsors Council. Key elements include developing TDM strategies that reduce travel demand during construction and if effective, can be continued after construction is completed. Other key strategies include tolling, providing LRT, and substantially improved pedestrian/bicycle facilities. More than two dozen additional strategies will be recommended in the plan.	In Progress
7/17/08	110	Tolls - on existing bridge as soon as legally & practicably permissible	Early tolling remains a possibility for the CRC project. CRC is working with both state legislatures on tolling language. In Washington, consideration for early tolling on the SR 520 project in the Puget Sound Region may set a precident that enables early tolling to be considered on the CRC project.	In Progress
7/17/08	111	Tolls - Consideration given to traffic diversion to I-205 and potential for tolling both I-5 and I-205	Future recommendations will be made whether to toll I-5 only or both I-5 and I-205 - for their recommendation as part of the Financial Plan.	In Progress
7/17/08	112	Tolls - use for TDM & ongoing funding for construction and operations	Congestion pricing is assumed in the existing finance plan.	In Progress
7/17/08	113	Traffic Forecasting - independent analysis of induced automobile demand	CRC convened a national independent expert panel to provide an analysis of Metro's Travel Demand Model and to confirm travel projections used on the CRC project. The report was made available to the Project Sponsors Council, Metro Council, and has been posted on the CRC web site.	Completed
7/17/08	114	VMT Reduction - commitment to pursue to meet state greenhouse gas goals	Both Washington and Oregon have established guidelines to reduce greenhouse gases. Both states will have regional policies and strategies in place to achieve their goals. Tolling, LRT, enhanced pedestrian/bike facilities, and other TDM programs planned for the CRC project will help achieve these goals.	In Progress
7/17/08	115	Advisory Committees - Create local oversight committee to succeed the Task Force	The Project Sponsors Council was established by the governors of Oregon and Washington to succeed the Task Force.	Completed
7/17/08	116	Light Rail - must be included in any alternative that is constructed	Light Rail Transit is included in the preferred alternative for the FEIS. CRC is actively pursuing FTA New Starts funding for LRT.	Completed

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