

November 26, 2008

TO: Project Sponsors Council
FROM: Doug Ficco
SUBJECT: Transmittal of Materials for December 5 PSC Meeting

December 5, 2008 Meeting Materials and Agenda

The December 5 PSC meeting will be the first of two meetings focusing on the number of add/drop traffic lanes to be carried forward into the Final Environmental Impact Statement (EIS). Our goal is to get a recommendation from the PSC on number of add/drop lanes during the group's meeting on January 9.

Considerations into the number of add/drop lanes decision include the following major topics. The meeting date these issues will be discussed is in parentheses.

- Inputs to the Metro region travel demand model (December 5)
- Travel demand model evaluation (December 5)
- Operational analysis of 8, 10, and 12 lane scenarios (December 5)
- Impacts of tolling on vehicle miles travelled (December 5)
- Potential for induced demand and change in land use (January 9)
- Travel demand management strategies to reduce vehicle miles travelled (January 9)
- Impacts on greenhouse gases (January 9)

Attached is the December 5 agenda that will include the first four items listed above and a summary of project open houses held December 2 and 3, 2008. Presentations will be short to allow opportunity for discussion.

Meeting Materials

Attached are meeting materials for review prior to the December 5 meeting:

- Agenda
- Draft November meeting notes
- Memorandum on public meeting laws
- Updated summary of board and council resolutions
- Travel Demand Model review panel report
- Memorandum from Metro on data inputs to travel demand model
- Memorandum on summary of December 5th add/drop lanes presentation

Future Meetings and Agenda Topics

Future meetings are scheduled for:

- January 9 – WSDOT SW Region, 10:00 a.m. to noon
- Presentation on Greenhouse Gas Expert Panel findings
 - Presentation on progress for TDM strategies for incorporation into Final EIS
 - Discussion and recommendation on number of add/drop lanes
 - If time allows – initial presentation on bridge type

February 6 – ODOT Region 1, Portland 10:00 a.m. to noon

- Recommendation on number of add/drop lanes, if not completed at January meeting
- Presentation of bridge types and aesthetics
- Presentation of pedestrian/bicycle preliminary concepts and process

Future meetings in March and April (dates and locations TBD):

- Sustainability Plan
- TDM strategies
- Beginning discussions on tolling options
- Beginning discussions on financial plan

Columbia River CROSSING DRAFT Meeting Agenda

MEETING TITLE: Project Sponsors Council
DATE: December 5, 2008
LOCATION: The Portland Building, 1120 SW Fifth Avenue (between Main St. and Madison St.), Room C (second floor), Portland, Oregon

TIME	AGENDA TOPIC
10:00 - 10:10 a.m.	Welcome and Introductions
10:10 – 10:15 a.m.	Response to Action Items from Last Meeting: <ul style="list-style-type: none"> • Board/Council Resolutions • Integrated Schedule • Public Meeting Laws
10:15 – 11:45 a.m.	Add/Drop Lanes Decision Process: <ul style="list-style-type: none"> • Overview • General Modeling Assumptions • Presentation and Discussion on Travel Demand Expert Panel Findings • Purpose of Add/Drop Lanes- Safety and Operations • Analysis of 8, 10, and 12 lane Scenarios • Presentation and Discussion on Tolling/Travel Demand Relationship • Next Steps for Continuing Discussion and Action
11:45 – 11:50 a.m.	Recap of CRC Project Open Houses, December 2 - 3
11:50 a.m. – 12:00 p.m.	Next Steps and Next Meeting Topics
12:00 p.m.	Adjourn

TRANSIT DIRECTIONS from PORTLAND: TriMet serves the downtown Portland area, visit TriMet, www.trimet.org, 503-238-RIDE for detailed transit directions from your starting location.

TRANSIT DIRECTIONS from VANCOUVER: From the Vancouver Mall Transit Center, board the #4 bus (Fourth Plain WB), get off at Delta Park/Vanport MAX station. Board MAX Yellow line to City Center, get off at Mall/SW 5th Ave, walk four blocks south. For detailed trip planning, please contact C-TRAN, www.c-tran.com.

Meeting facilities are wheelchair accessible and children are welcome. Individuals requiring reasonable accommodations may request written material in alternative formats or sign language interpreters by calling the project team at the project office (360-737-2726 and 503-256-2726, TTY 711) one week before the meeting.

November 26, 2008

TO: Project Sponsors Council
FROM: Richard Brandman and Don Wagner
SUBJECT: Oregon and Washington Open Meeting Laws

At the November meeting of the Project Sponsors Council, members requested information on the public meetings laws of each state to ensure public notice requirements are met. Both Oregon and Washington place high importance on carrying out the business of government in an open and accessible process. This memorandum provides a brief summary of the public notice requirements. The complete text of the laws of each state may be viewed online:

Oregon: <http://www.leg.state.or.us/ors/192.html>
Washington: <http://apps.leg.wa.gov/rcw/default.aspx?cite=42.30>

Applicability:

Open meetings laws of both states apply to a "governing body." This term is defined slightly differently for the two states, but generally means a group that acts on behalf of a public agency to make decisions, recommendations or takes public comments. For the purpose of the Public Meetings Law, we are treating the Project Sponsors Council as a governing body.

Public notice:

Both states require that reasonable notice is provided to the public on the time and location of the meeting. Oregon also requires that the subject matter of the meeting be noticed. However, a required length of time for the notice is not provided. Oregon states that notice should be "reasonably calculated to give actual notice to interested persons."

Meeting materials:

Neither state requires meeting materials to be provided to the public ahead of the meeting.

Public comment:

Neither state requires the provision for public comment at a public meeting. The laws provide for the public to view the meeting.

Web sites maintained by the attorney general in each state provide additional information as well as questions and answers about the open meeting laws.

Oregon: <http://www.doj.state.or.us/pros/mli.shtml>
Washington: <http://www.atg.wa.gov/OpenGovernment/InternetManual/Chapter3.aspx>



Columbia River CROSSING Draft Meeting Summary

MEETING TITLE: Project Sponsors Council
DATE: November 4, 2008, 1:00 pm – 3:00 pm
LOCATION: Washington State Department of Transportation, SW Region
 11018 NE 51st Circle, Vancouver WA

ATTENDEES:

Dengerink, Hal (Chair)	Chancellor, Washington State University, Vancouver
Hewitt, Henry (Chair)	Past chair, Oregon Transportation Commission
Adams, Sam	Mayor-elect, City of Portland
Bragdon, David	Council President, Metro
Garrett, Matthew	Director, Oregon Department of Transportation
Hammond, Paula	Secretary, Washington State Department of Transportation
Hansen, Fred	General Manager, TriMet
Leavitt, Tim	Chair of the Board of Directors, C-TRAN
Pollard, Royce	Mayor, City of Vancouver
Stuart, Steve	Vice-chair, SW Washington Regional Transportation Council

Note: Meeting materials and handouts referred to in this summary can be accessed online at:
http://www.columbiarivercrossing.org/FileLibrary/MeetingMaterials/PSC/PSC_MeetingMaterials_110408.pdf

Welcome and introductions

Citizen co-chairs Hal Dengerink and Henry Hewitt welcomed the group and asked them to introduce themselves. Co-chair Dengerink said the Columbia River Crossing (CRC) project is a high priority for the governors of Oregon and Washington. He added that the Project Sponsors Council’s role is to provide advisory input to decision makers.

Council charter and protocols

Discussion of whether to assign alternates

Dengerink explained that the Project Sponsors Council (“the Council”) has been set up without alternates. Mayor-elect Sam Adams said he would like the option of assigning an alternate for meetings where he is unexpectedly unable to attend. A discussion followed in which several Council members emphasized the importance of having all members in attendance. Dengerink said the Council could follow the approach used in the past by the CRC Task Force in which members assigned non-voting alternates. The Council agreed that alternates will be allowed to attend a meeting but will not be used for meetings in which decisions must be made. Council members also agreed that attendance would be a high priority.

Meeting schedule

Dengerink said the Council will likely meet once a month for the near future. WSDOT regional administrator Don Wagner said the following dates were checked for future availability and held on Council members’ schedules: Dec. 5, 10am-12pm; Jan. 30, 1pm-3pm; and Feb. 27, 1pm-3pm. Some members expressed concern with the January date. CRC staff will reschedule. The meeting locations will alternate between Portland and Vancouver. Secretary Paula Hammond asked the group to be mindful, when choosing dates, of the Washington state legislative session kickoff.

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Public comment

Dengerink said the project continues to host open houses and other public comment opportunities. The project will accept written input at all Council meetings. Before making project decisions, there will be time for verbal public input at Council meetings.

Commissioner Steve Stuart asked how this group fits with the open public meetings act and corresponding legal requirements, such as publishing meeting dates. Don Wagner said the project will confirm that information, given different laws for each state.

Review charge given by governors

Dengerink explained that based on a June 19, 2008, letter from Governor Gregoire and Governor Kulongoski, the Project Sponsors Council is charged with advising the CRC project on the following six issues:

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 greenhouse gas emissions
6. A finance plan that balances revenue generation and demand management

Commissioner Stuart commented that getting the CRC project built will require more work and funding. He hopes this Council will act as leaders to ultimately attract project funding. Dengerink asked whether any Council members have concerns with acting as ambassadors for this project and working to attract funding. Metro Council President David Bragdon said he would do so with the assumption that the Council will make this a good project. All members agreed.

Review project purpose and need

CRC co-director Richard Brandman reviewed the project's *Statement of Purpose and Need*, which includes growing travel demand and congestion; impaired freight movement; limited public transportation operation, connectivity and reliability; safety and vulnerability to incidents; substandard bicycle and pedestrian facilities; and seismic vulnerability. Full text of the purpose and need can be read at <http://www.columbiarivercrossing.org/FileLibrary/GeneralProjectDocs/PurposeandNeedStatement.pdf>

Review major points of agreement

Co-chair Henry Hewitt reviewed the major points of agreement in the project's locally preferred alternative (LPA), including a replacement bridge with light rail to Clark College in Vancouver. Other points of agreement include three through lanes, with the number of add/drop (auxiliary) lanes to be determined; transportation demand management; a world-class bicycle and pedestrian facility, improved through traffic, improved on and off capabilities, and use of express buses to supplement light rail service.

Issues raised by project partners in LPA resolutions

There were more than 120 issues raised by project partners in their LPA resolutions. Don Wagner provided an overview of these, referring to the meeting material titled "Draft: Locally Preferred Alternative Issues Summary."

He said these items fall into nine broad categories, including number of add/drop (auxiliary) lanes; safety; bridge; financial plan and federal strategy; independent analysis of greenhouse gases; tolling; transportation demand management; pedestrian and bicycle facilities; and a category titled "other" which includes freight mobility, community livability, and sustainability.

Wagner reminded the Council that this project has a “critical path” schedule that sets priorities. The project will share this critical path schedule with the Council at the next meeting.

Vancouver City Councilmember Tim Leavitt asked if there are opportunities for efficiencies by filtering out some items on this list of issues. Wagner said if there are items that affect only one entity rather than the entire region, such matters were not included on the summary list. The list was designed to reflect matters of bi-state, regional interest.

Mayor-elect Adams said he is not prepared to sign off on the list at this meeting, having just received this information.

Metro Council President David Bragdon said some of the items are stated as conditions that will need to be satisfied. But many others, he continued, are stated simply as issues to be resolved, such as a financial plan, which will be forthcoming. He added that the City of Portland expressed concerns about interchanges. Bragdon would like clarification on the effect of additional capacity on induced demand of commuter traffic, since he said it is not shown on the list.

Co-chair Hewitt said the Council needs to figure out where these issues fit on the critical path timeline.

Commissioner Stuart suggested that Council members’ staff review this list and make sure everything was captured correctly and to their satisfaction. For instance, Stuart said, RTC’s resolution on the LPA said tolls must be limited to the five-mile bridge influence area, a sentiment not reflected on this list. Stuart also said he would like to see the Council focus on a single issue at each meeting. If number of lanes is the next issue on the critical path, he said, the Council should begin with that.

Several members agreed that key issues include the number of lanes and financing.

Commissioner Stuart asked if the City of Vancouver took a position on tolling in their resolution adopting the LPA. Mayor Royce Pollard said Vancouver City Council voted 6-1 not to mention tolling in their resolution.

Mayor-elect Adams said it would be helpful for him to receive from CRC staff a timeline of how long it would take to complete the research for the various asks in the resolutions. It would also be helpful, he said, for the issues list to match the format and language used in headings on the summary list handout titled “Draft: Locally Preferred Alternative Issues Summary.”

Number of lanes

At the next Council meeting, Brandman said, the critical path schedule will be discussed. The number of lanes will also be discussed because it is the key project issue to address first.

Mayor-elect Adams asked how scalable or incremental the data is for the number of lanes. Brandman said CRC staff’s intent is to provide enough information on the number of lanes to distinguish between throughput and highway operations. Staff will also address induced demand and cost implications related to number of lanes. Adams wondered what development potential is allowed or restricted on Hayden Island related to throughput and the like and if CRC would affect these areas. He said the Portland Bureau of Planning would have more information.

Councilmember Leavitt asked if there are criteria related to federal funding and the National Environmental Policy Act (NEPA) that affect the project’s viability when talking about the number of lanes. Brandman said it first depends on going through NEPA to a record of decision. He said he doesn’t think there is a hard and fast rule on pass/fail, but if something moved forward that didn’t meet the project purpose and need, that might pose challenges.

Secretary Hammond said the number of add/drop (auxiliary) lanes will consider throughput, operational flow, and safety impacts. CRC will have to demonstrate to the Federal Highway Administration that the project hasn’t created a problem. There also is a role for transportation demand management to play related to number of lanes.

Dengerink said the project’s integrity will depend on having data driving the decisions. The success of the CRC Task Force was that they were guided by data, he said.

Commissioner Stuart added that data can be chosen selectively. What data we choose will help shape the result, he said.

Secretary Hammond and regional administrator Wagner reminded the Council that there is a staff working group focused on modeling inputs. Each sponsor agency has a representative on the Sponsor Agency Senior Staff (SASS) group and many of the agencies' respective staff are leading project components. This is a bi-state multimodal project, so the "rules" are difficult to pin down because the project is reconciling the needs of both highway and transit improvements.

Dengerink reminded members that they should be relying on their respective agency staff who are working in the project office to help get them information they need.

Mayor-elect Adams said it would be helpful if the staff group would be clear about the assumptions in their analyses, since they're not always the same assumptions used by the City of Portland. He added that Council members should reserve the right to revisit, for instance, a decision on number of lanes if future information on greenhouse gases or other issues emerges.

The Council discussed the importance of ensuring an iterative process and yet, for Commissioner Stuart and Mayor-elect Adams, not blocking the possibility of adjusting decisions along the way. Adams emphasized that the data should be analyzed in a scalable way.

The CRC project directors said the greenhouse gas analysis will be conducted in the next month. A peer review panel on travel demand was conducted in October and a report is forthcoming.

Secretary Hammond, looking at the spreadsheet of LPA resolution issues, said she sees a lot of duplication and thinks it will be easy to identify the five key decisions this Council needs to move forward on.

Mayor Pollard said he wants to see a decision soon about the stacked transit/highway bridge option because it seems like a lower cost option with less environmental impact.

Brandman said there is a relationship between the number of lanes and the feasibility of the stacked transit/highway option. Bridge type also plays a role. Staff will try to make this clear at an upcoming meeting.

Councilmember Leavitt said the goal is to minimize the bridge's footprint. Both the City of Vancouver and C-TRAN expressed a preference for the stacked bridge option.

Review key findings and project benefits

Richard Brandman reviewed the handout titled "Why is CRC important for the Portland-Vancouver region?" He read from select bullet points under the headings of Safer Travel and Improved Design, More Commuter Choices and Community Connections, Jobs and the Economy, Environmental Protection, and Community Livability. These highlighted project benefits ranging from reductions in travel time to the creation of thousands of jobs.

Co-chair Hewitt added that this is an opportunity to create one region. The collaborative, regional nature of this discussion is encouraging, he said.

ODOT Director Garrett said there are also statewide and national implications of this project. If there was a liability in the first chapter of this project, he said, it was not sharing this story of collaboration widely enough.

Secretary Hammond added that the beauty of CRC is that it has developed as a multimodal project that is leveraging both federal highway and transit money for the good of the project. It's an opportunity to make CRC a model project that maximizes federal investment, she said.

Councilmember Leavitt said the citizens of this region enjoy a high quality of life and we need to plan for the growth of this region because the word is out. Mayor Pollard said he believes the project is on the verge of success and that he finds it refreshing to see who is sitting around this table.

Next meeting

Friday, December 5, 2008 | 10:00 am – 12:00 pm

The Portland Building
Room C (second floor)
1120 SW Fifth Avenue (between Main St. and Madison St.)
Portland, Oregon

Co-chair Hewitt, who will chair the next meeting, said the first issue the Council needs to confront at that meeting is the number of lanes. There will also be a report on the greenhouse gas analysis independent review panel.

Commissioner Stuart said he would prefer not to have both those topics covered at the same meeting, instead using each meeting to focus on one major topic. He also asked that meetings be limited to discussion and decision points rather than including presentations by staff.

Some worried that this would not be considerate of the public's need to be familiar with background material prior to each meeting. After hearing that the meeting agenda and materials will be posted to the CRC web site a week in advance – allowing both Council members and the public to “do their homework” ahead of time – most of the Council agreed that they would like more time at meetings for decision making and slightly less for presentations.

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Issues Raised by Project Partners in LPA Resolutions - Discussion Draft

Yellow and blue = added after Nov 4, 2008 PSC meeting

Date	#	Resolution #	Request From	Issue	CRC Area
6/24/08	1	n/a	Task Force	Auxiliary Lanes - determine number for safety and functionality	Traffic
6/24/08	2	n/a	Task Force	Ped/Bike - should be world class, meet or exceed standards	Traffic
6/24/08	3	n/a	Task Force	Ped/Bike - study low powered scooters, mopeds, neighborhood electric vehicles	Traffic
6/24/08	4	n/a	Task Force	Bridge Design - aesthetically pleasing, cost efficient, sustainable	Design
6/24/08	5	n/a	Task Force	Environmental Justice - establish community enhancement fund in addition to impact mitigation costs	Policy
6/24/08	6	n/a	Task Force	Financial Plan - create a detailed plan of funding/financing sources and equity between the states	Financial
6/24/08	7	n/a	Task Force	Financial Plan - public vote to approve funding required to implement light rail	Financial
6/24/08	8	n/a	Task Force	Financial Plan - independent review of feasibility, risks, and relationship to other regional projects	Financial
6/24/08	9	n/a	Task Force	Greenhouse Gas - independent validation, including climate change, air quality, carbon emissions and VMT	Environmental
6/24/08	10	n/a	Task Force	Interchanges - design to meet state(s), federal safety standards, minimize impacts	Engineering
6/24/08	11	n/a	Task Force	Interchanges/Freight - design to be freight sensitive	Engineering
6/24/08	12	n/a	Task Force	Urban Design - ensure LPA reinforces density in urban core and pedestrian-friendly, compact development	Policy
6/24/08	13	n/a	Task Force	Mitigation - develop a mitigation plan with avoidance of adverse impacts where possible	Environmental
6/24/08	14	n/a	Task Force	Environmental Justice - continued study of health impacts indentified in Multnomah County Health Department submittal to Task Force	Environmental
6/24/08	15	n/a	Task Force	Sustainability - be a model of design and construction	Environmental
6/24/08	16	n/a	Task Force	Sustainability - create plan and form a working group	Environmental
6/24/08	17	n/a	Task Force	Sustainability - seek advice from Washington Climate Action Team and Oregon Global Warming Committee about how to achieve state goals	Environmental
6/24/08	18	n/a	Task Force	TDM - develop program to encourage more efficient use of road capacity	Traffic
6/24/08	19	n/a	Task Force	Tolls - on existing bridge as soon as legally & practicably permissible	Policy
6/24/08	20	n/a	Task Force	VMT - independent analysis of VMT per capita	Traffic
6/24/08	21	n/a	Task Force	Regional - Revisit recommendations in Strategic Final Plan of I-5 Transportation and Trade Partnership Study (Sept 2002)	n/a
6/24/08	22	n/a	Task Force	Regional - evaluate other system bottlenecks	n/a
6/24/08	23	n/a	Task Force	Regional - develop plan for bi-state TDM	n/a
6/24/08	24	n/a	Task Force	Regional - evaluate regional HOV lane system effectiveness	n/a
6/24/08	25	n/a	Task Force	Regional - develop regional freight plan that considers work of CRC Freight Working Group	n/a
6/24/08	26	n/a	Task Force	Regional - develop regional web-based transit trip planning resource	n/a
7/7/08	27	M-3663	City of Vancouver	Financial Plan - Federal funding should be prominent share	Financial
7/7/08	28	M-3663	City of Vancouver	Urban Design - project should support downtown development plans, neighborhood plans, VCCV - improve historical legacy, access for all travel modes, and community connections for seven key streets or corridors named in resolution Attachment A	Policy
7/7/08	29	M-3663	City of Vancouver	Bridge Design - preference for stacked transit-highway bridge	Engineering
7/7/08	30	M-3663	City of Vancouver	Sustainability - highest standard in design and construction	Environmental
7/7/08	31	M-3663	City of Vancouver	Advisory Committees - support creation of formal oversight committee including city participation	Policy
7/7/08	32	M-3663	City of Vancouver	Mitigation - continue to develop mitigation plan; City plans and initiatives that are precluded must be addressed/mitigated	Environmental
7/7/08	33	M-3663	City of Vancouver	Mitigation - construction disruption must be mitigated with dedicated resources and expertise such as additional transit or other mobility services, business support services, funding support for a transportation management association, and direct or indirect financial aid to minimize construction disruption ; pavement degradation to be addressed	Environmental
7/7/08	34	M-3663	City of Vancouver	Urban Design - use Urban Design Advisory Group report as starting point for refinement	Engineering
7/7/08	35	M-3663	City of Vancouver	Bridge Design - highest quality bridge design given engineering and cost limitations	Engineering
7/7/08	36	M-3663	City of Vancouver	Ped/Bike - shall include world class facilities and consider non-auto vehicle classes	Traffic
7/7/08	37	M-3663	City of Vancouver	Light Rail - high quality design that provides maximum rider comfort and community safety	Transit
7/7/08	38	M-3663	City of Vancouver	TDM - must be a central principle	Traffic
7/7/08	39	M-3663	City of Vancouver	Ped/Bike - access to transit stations should be facilitated	Traffic
7/7/08	40	M-3663	City of Vancouver	Light Rail - stations/park and rides must be active, secure facilities; consider multi-use and public/private development	Transit
7/7/08	41	M-3663	City of Vancouver	Light Rail - park and rides must integrate into surrounding facilities	Transit
7/7/08	42	M-3663	City of Vancouver	Light Rail - station area planning must engage the Vancouver community	Transit
7/7/08	43	M-3663	City of Vancouver	Interchanges - freeway access streets need additional traffic management/ITS	Engineering
7/7/08	44	M-3663	City of Vancouver	Traffic Forecasting - maintain multi-modal traffic circulation	Traffic
7/7/08	45	M-3663	City of Vancouver	Mitigation - mitigate direct impacts to the full extent practicable as required by laws and ordinances	Environmental
7/8/08	46	BR-08-019	C-TRAN	Auxiliary Lanes - seek the minimum number needed for functionality	Traffic
7/8/08	47	BR-08-019	C-TRAN	Bridge Design - preference for stacked transit-highway bridge	Engineering
7/8/08	48	BR-08-019	C-TRAN	Financial Plan - light rail construction financing should be structured to not require a public vote	Financial
7/8/08	49	BR-08-019	C-TRAN	Financial Plan - light rail operation funding shall be submitted to C-TRAN voters	Financial
7/8/08	50	BR-08-019	C-TRAN	Financial Plan - light rail cost share proportional to length of track in each state	Financial
7/8/08	51	BR-08-019	C-TRAN	Light Rail - provide net service benefit, without diverting revenue from existing revenues	Financial
7/8/08	52	BR-08-019	C-TRAN	Light Rail - permit local bus access along alignment	Transit
7/8/08	53	BR-08-019	C-TRAN	Light Rail - do not use satellite park and ride lots	Transit
7/8/08	54	BR-08-019	C-TRAN	Light Rail - stations/terminus/alignment should be flexible and allow for future extensions and connections	Transit
7/8/08	55	BR-08-019	C-TRAN	Sustainability - project design should reflect principals of sustainability, cost efficiency and context sensitivity; avoid/minimize impact	Environmental
7/8/08	56	BR-08-019	C-TRAN	Advisory Committees - support creation of formal oversight committee	Policy
7/9/08	57	36618	City of Portland	Arterials - extend project arterial 600 ft. west of freeway ramp extension on Hayden Island/Jantzen Beach Drive (HI3)	Engineering
7/9/08	58	36618	City of Portland	Arterials - serve community needs and consider smaller versions (HI2)	Engineering
7/9/08	59	36618	City of Portland	Arterials - Tomahawk Lane designated as a community main street. Resolve clearances, access, stormwater, safety and aesthetics (HI4)	Engineering
7/9/08	60	36618	City of Portland	Auxiliary Lanes - further technical analysis and public involvement needed to determine appropriate number of auxiliary lanes and appropriate size of all multi-modal components (LPA3).	Traffic
2/29/00	61	36618	City of Portland	Ped/Bike - provide three separated, continuous facilities (north and south bound bike lanes and pedestrian) (PB1)	Traffic
7/9/08	62	36618	City of Portland	Ped/Bike - construct Bridgeton Trail (MD 3)	Traffic
7/9/08	63	36618	City of Portland	Ped/Bike - should meet or exceed standards set by world class facilities (LPA5, PB1)	Traffic
7/9/08	64	36618	City of Portland	Ped/Bike - should include rest areas or look out points on the bridge (PB2)	Traffic
7/9/08	65	36618	City of Portland	Ped/Bike - facilities should be continuous, and connect to the Hayden Island and Expo Center transit stations (PB3)	Traffic
7/9/08	66	36618	City of Portland	Ped/Bike - improve interchanges, connect Bridgeton to Hayden Island on east side of Portland Harbor with "urban standard" pedestrian facility (PB4, MD2)	Traffic
7/9/08	67	36618	City of Portland	Ped/Bike - implement the pedestrian and bicycle improvements identified for the recommendations for the Hayden Island and Marine Drive interchanges (PB5)	Traffic
7/9/08	68	36618	City of Portland	Bridge Design - consider iconic design elements for North Portland Harbor span (UD4)	Design
7/9/08	69	36618	City of Portland	Bridge Design - reconsider constraints related to navigation and airspace (LPA4)	Design
7/9/08	70	36618	City of Portland	Bridge Design - signature distinction design given engineering and cost limitations (LPA4,UD1)	Design

Issues Raised by Project Partners in LPA Resolutions - Discussion Draft

Yellow and blue = added after Nov 4, 2008 PSC meeting

Date	#	Resolution #	Request From	Issue	CRC Area
7/9/08	69	36618	City of Portland	Contracting - at a minimum follow City MWESB requirements (LPA10)	Policy
7/9/08	70	36618	City of Portland	Environmental Justice - assess impact of tolls on low-income people (EJ1)	Policy
7/9/08	71	36618	City of Portland	Environmental Justice - assess access to affordable housing and employment for low-income and minority populations (EJ2)	Policy
7/9/08	72	36618	City of Portland	Environmental Justice - assess impacts on populations at or below poverty level (EJ3)	Policy
7/9/08	73	36618	City of Portland	Freight - consider long range plans for truck and rail improvements, including rail bridge and connection facilities (LPA9)	Traffic
7/9/08	74	36618	City of Portland	Interchange/Freight - develop Marine Drive with priority for freight, needs of Expo Center and wetland protection (MD1)	Engineering
7/9/08	75	36618	City of Portland	Financial Plan - discuss impact on other transportation projects' financing (LPA11)	Financial
7/9/08	76	36618	City of Portland	Financial Plan- present costs and sources of revenue (LPA11)	Financial
7/9/08	77	36618	City of Portland	Financial Plan - use State of Oregon share of gas tax revenue, not city or county allocation	Financial
7/9/08	78	36618	City of Portland	Greenhouse Gas - require an independent analysis (LPA12, PR1)	Environmental
7/9/08	79	36618	City of Portland	Interchange - adopt an interchange area management plan (HI6, MD5)	Engineering
7/9/08	80	36618	City of Portland	Interchange - reconfigure Marine Drive to strengthen property access to waterways (UD2)	Engineering
7/9/08	81	36618	City of Portland	Interchange - Evaluate a local connection to Kenton from Marine Drive (MD4)	Engineering
7/9/08	82	36618	City of Portland	Light Rail - Hayden Island station must be ultra high-quality & community focal point with safe/accessible ped/bike facilities, support Hayden Island Concept Plan (HI1, UD3)	Transit
7/9/08	83	36618	City of Portland	Mitigation - allow for reuse of areas north of Hayden Island Drive for stormwater, open space or habitat (HI5)	Engineering
7/9/08	84	36618	City of Portland	Sustainability- design and construction shall provide highest model including stormwater, fish, wildlife and watershed impacts (LPA6)	Environmental
7/9/08	85	36618	City of Portland	TDM - strategy should be comprehensive, including variable-priced tolls in perpetuity (LPA7)	Traffic
7/9/08	86	36618	City of Portland	Tolls - use variable-priced tolling in perpetuity (LPA7)	Policy
7/9/08		36618	City of Portland	Tolls - investigate potential to toll I-205 and apply revenue to other highway projects in Portland (PR1, sub-bullet 8)	Policy
7/9/08	87	36618	City of Portland	Traffic Forecasting - require an independent analysis (LPA12)	Traffic
7/9/08	88	36618	City of Portland	VMT - project should contribute to a reduction per capita in bi-state metro area (LPA8)	Traffic
7/9/08	89	36618	City of Portland	Advisory Committees - continue existing advisory groups, consider combine design advisory group (PR2)	Policy
7/9/08	90	36618	City of Portland	Advisory Committees - Bi-state coordinating committee should review post-LPA project recommendations, update land use accord (PR3)	Policy
7/9/08	91	08-07-58	TriMet	Advisory Committees - create formal oversight committee that strives for consensus, public process	Policy
7/9/08	92	08-07-58	TriMet	Advisory Committees - LPA refinement through continued advisory group support (FWG, PBAC, UDAG, CEJG, and a new sustainability group)	Policy
7/9/08	93	08-07-58	TriMet	Light Rail - continue to develop downtown Vancouver alignment options and define impacts/costs in FEIS; balance long-term development opportunities with transit safety, efficiency, traffic movement and construction costs/impacts	Transit
7/9/08	94	08-07-58	TriMet	Light Rail - conduct further analysis on park and ride size and design	Transit
7/9/08	95	08-07-58	TriMet	Light Rail - stations, roadwork and other enhancements should be of a character consistent to downtown Vancouver	Transit
7/9/08	96	08-07-58	TriMet	Light Rail - station locations generally consistent with DEIS and finalized prior to FEIS; take into account safety, compatibility with surroundings, cost-effectiveness, efficiency	Transit
7/9/08	97	08-07-58	TriMet	Light Rail - adjacent alignment on Hayden Island to be consistent with Hayden Island Concept Plan	Transit
7/17/08	98	08-3960B	Metro	Interchanges - design must take into account impact on urban development potential	Traffic
7/17/08	99	08-3960B	Metro	Auxiliary Lanes - to be determined in separate process and amendment to Regional Transportation Plan	Traffic
7/17/08	100	08-3960B	Metro	Ped/Bike - prepare a more detailed plan of "world class" facilities	Traffic
7/17/08	101	08-3960B	Metro	Bridge Design - aesthetics is an important consideration	Design
7/17/08	102	08-3960B	Metro	Environmental Justice - propose mitigation for any potential adverse health impacts (existing and future/induced), including community enhancement projects	Policy
7/17/08	103	08-3960B	Metro	Freight - describe specific physical and fiscal methods to give trucks priority over SOVs	Traffic
7/17/08	104	08-3960B	Metro	Freight/Interchanges - ensure capacity at interchanges is not diminished by industrial land conversion	Engineering
7/17/08	105	08-3960B	Metro	Financial Plan - prepare and present to partners details with costs and revenues	Financial
7/17/08	106	08-3960B	Metro	Greenhouse Gas - require an independent analysis & display results in the Final EIS, including impact of auxiliary lanes	Environmental
7/17/08	107	08-3960B	Metro	Interchanges - preserve and improve functionality of Marine Drive and Expo Center	Engineering
7/17/08	108	08-3960B	Metro	Sustainability - ensure sustainable design and construction	Engineering
7/17/08	109	08-3960B	Metro	TDM Plan - develop state of the art techniques in addition to tolling	Traffic
7/17/08	110	08-3960B	Metro	Tolls - on existing bridge as soon as legally & practicably permissible	Policy
7/17/08	111	08-3960B	Metro	Tolls - Consideration given to traffic diversion to I-205 and potential for tolling both I-5 and I-205	Policy
7/17/08	112	08-3960B	Metro	Tolls - use for TDM & ongoing funding for construction and operations	Policy
7/17/08	113	08-3960B	Metro	Traffic Forecasting - independent analysis of induced automobile demand	Traffic
7/17/08	114	08-3960B	Metro	VMT Reduction - commitment to pursue to meet state greenhouse gas goals	Environmental
7/17/08	115	08-3960B	Metro	Advisory Committees - Create local oversight committee to succeed the Task Force	Policy
7/17/08	116	08-3960B	Metro	Light Rail - must be included in any alternative that is constructed	Transit
7/22/08	117	07-08-10	RTC	Auxiliary Lanes - number of lanes (2-3) to be determined through further analysis	Traffic
7/22/08	118	07-08-10	RTC	Financial Plan - prepare and present to partners/public details with costs and revenues	Financial
7/22/08	119	07-08-10	RTC	Financial Plan - funding for light rail operations shall be submitted for C-TRAN voter approval	Financial
7/22/08	120	07-08-10	RTC	Financial Plan - roadway and interchange costs in each state covered by each state	Financial
7/22/08	121	07-08-10	RTC	Financial Plan - bridge design and construction cost shared equally between the states	Financial
7/22/08	122	07-08-10	RTC	Financial Plan - light rail cost share proportional to length of track in each state	Financial
7/22/08	123	07-08-10	RTC	Greenhouse Gas - further analysis should be undertaken	Environmental
7/22/08		07-08-10	RTC	Light Rail - Vancouver alignment that travels south/north on the Washington/Broadway couplet, then turns east on McLoughlin with a terminus at the Clark College vicinity	Transit
7/22/08		07-08-10	RTC	Multi-modal - interweave components to produce a balanced multi-modal project that includes highway, HCT, freight movement, TDM, and bicycle and pedestrian improvements	Policy
7/22/08	124	07-08-10	RTC	Sustainability - design of CRC should reflect principals of sustainability, cost efficiency and context sensitivity	Environmental
7/22/08	125	07-08-10	RTC	Tolls - limit revenue to fund the local share of construction of the CRC	Policy
7/22/08	126	07-08-10	RTC	Tolls - model a process after House Bill 3096/SR 520 to inform the public	Policy
7/22/08	127	07-08-10	RTC	Tolls - The Project Sponsor's Council should consider alternative methods to achieve greater funding equity	Policy
7/22/08	128	07-08-10	RTC	Advisory Committees - create formal oversight committee according to letter from governors	Policy
7/22/08	129	07-08-10	RTC	Direct Bi-State Coordination Committee to evaluate other bottlenecks within the system (e.g. I-405/I-5 loop, Rose Quarter, etc.)	Policy

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.

A handwritten signature in black ink, appearing to read 'M Outwater', with a long horizontal flourish extending to the right.

Maren Outwater, Chair
Bruce Griesenbeck
Arash Mirzaei
Guy Rousseau

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Appendix:

Review Panel Meeting Agenda
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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 than 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, Griesenbeck 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 than 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 MetroScope 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.

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METRO

Subject: Data inputs for the Metro Travel Demand model

Date: November 24, 2008

The following memorandum lists and describes input data used within the Metro Travel Demand model. Model input data fall into one of four general categories: Socioeconomic / Land Use, Access Measurement and Environmental Design, Travel Times, and Trip Costs.

Socioeconomic and Land Use Data

Socioeconomic data is used to determine trip generation at each of +2,000 transportation analysis zones (TAZs) within the Portland-Vancouver Metropolitan Region. The socioeconomic and land use data used in Metro's modeling process are listed below:

- Residential – Number of households for each of sixty-four categories of households based on household size, income class, and age of household head
- Employment by each of ten employment categories

For the CRC project, land use data for counties comprising the Oregon portion of the Portland-Vancouver Metropolitan Region (Clackamas, Multnomah, and Washington) were provided by Metro. Land use data for Clark County in Washington state was provided by Southwest Regional Transportation Council (RTC).

Access Measurement and Environmental Design Data

Accessibility measurements are used to determine access to retail, employment, employees, and transit:

- Number of employees within 30 minutes of transit travel time (includes walk and wait time)
- Households within ½ mile of each zone
- Retail employment within ½ mile of each zone
- Total employment within ½ mile of each zone
- Number of local intersections within ½ mile of each zone

Environmental design data refers to measurements of urban design that are known to affect travel behavior:

- Household density
- Employment density
- Intersection density (a measure of street connectivity)

Major shopping centers and universities receive special treatment in the generation and distribution models. Due to the unique trip generation characteristics of these locations, the following data are required for each site:

- Shopping center square footage
- College students and staff

Travel Time Data

Travel time is an important variable in the destination choice and mode choice models. Travel times refer to zone-to-zone travel times along the highway and transit networks. Depending on mode choice, travel time is a composite of the following:

- In-vehicle time (time spent in automobile or transit vehicle)
- Walk time (time spent walking to/from automobile or transit station)
- First wait time (time spent waiting for first transit vehicle to arrive at station)
- Transfer wait time (time spent waiting for transit vehicle to arrive between transfers)
- Number of boardings (number of transfers between transit vehicles)

Trip Cost Data

Travel cost is an input to the mode choice model. Standard trip cost inputs are as follow:

- Auto operating cost per mile
- Parking costs
- Transit fares

The CRC project has one additional trip cost input:

- Toll costs (cost of toll paid by motorist on the I-5 Bridge)

November 26, 2008

TO: Project Sponsors Council
FROM: Doug Ficco, P.E.
SUBJECT: Summary of December 5th Presentation on Add/Drop Lanes
COPY: CRC Web Site

Add/Drop Lanes

At the December 5th PSC meeting we will focus most of our time on the determination of the number of add/drop lanes to be carried forward into the Final Environmental Impact Statement (EIS). This memorandum is intended to summarize several of the issues that go into determining the appropriate number of lanes. The advance materials and presentation at the December 5th meeting will provide additional information. It is not the intent of this memorandum to provide a recommendation for the decision, only to provide the context.

This project is on a path to deliver a Final EIS by Fall 2009 and receive a Federal Record of Decision (ROD) by Spring 2010. In order to meet these timelines, there are several critical path decisions needed, the first of which is the number of add/drop lanes. The ultimate recommendation for project footprint will influence bridge type, environmental impacts, and development of the Biological Assessment and Opinion. The project will need a Biological Opinion from the National Marine Fisheries Service prior to receiving a ROD from the Federal Transit Administration and the Federal Highway Administration. Biological Opinions typically take 6-9 months to receive, which is why the timing of this decision is so important.

Number of Add/Drop Lanes - Background

The CRC project, in the Draft EIS published in May 2008, analyzed up to 3 add/drop traffic lanes for short segments of the project, including 12 total lanes (three through lanes and three add/drop lanes in each direction) on the replacement bridge across the Columbia River.

In July 2008, the project sponsors recommended a Locally Preferred Alternative (LPA) that included replacement of the I-5 Bridge with three through lanes in each direction and tolls, light rail as the high capacity transit mode, and a light rail terminus at Clark College. Resolutions adopted by the sponsor agencies Boards and Councils requested the add/drop lanes be analyzed to determine the number needed for safe operations and functionality.

Why did CRC analyze up to 3 add/drop lanes (total of 12 lanes on the Interstate Bridge) in segments of the project?

Operational safety is the primary emphasis required by the State DOTs and FHWA standards and policies when determining the appropriate number of lanes for a new project on the Interstate. The number of add/drop lanes for CRC is also influenced by the number of closely spaced interchanges and high traffic volumes entering and leaving within the bridge influence area. Today there are three lanes in each direction across the river. Due to the close spacing of the interchanges at the north and south sides of the Columbia River, the three lanes are unable to function as true through capacity for the Interstate.

Following are key steps in developing the number of add/drop lanes:

- **Determine Travel Demand:** FHWA and State criteria requires that projects be designed for travel demand that will occur 20 years beyond the start of construction, even though they require the new Interstate Bridge be designed with a 100 year life. CRC used 2030 as the design year and will be preparing the Final EIS based on traffic projections for 2035. Metro's travel demand model was the basis for the projections. An independent analysis of the travel demand forecasts was conducted by a nationwide expert panel and has confirmed the results. The full report of the expert panel is included in the December 5 PSC meeting materials.
- **Determine number of lanes that are needed for safe operation of the Interstate:** CRC applied State and Federal design criteria in determining the optimum number of add/drop lanes for the replacement bridge alternative. A base assumption was the need for maintaining three general purpose lanes ("through lanes") in each direction. Methodologies included applying Interstate design and safety standards, performing operational analysis through use of traffic modeling software, and considering environmental and physical constraints. The number of add/drop lanes is heavily influenced by the impact of closely spaced interchanges and achieving lane balance from the on-off connections. A brief presentation on the operational analysis of 8, 10, and 12 lane scenarios will be made at the December 5 meeting.

What happens if one add/drop lane is added to the project?

The Draft EIS included an analysis of a supplemental bridge option that was restricted to four lanes in each direction across the river. Reducing the number of add/drop lanes creates "hot spots" where traffic must merge with through traffic rather than having a dedicated receiving lane for safe entry onto the freeway. "Forced" merges, similar to those required today for the on-ramps located at either end of the Columbia River Bridge, increases the potential for accidents and reduces general purpose through lane capacity.

Both the 8 and 10-lane bridge options create more impacts on connecting city arterials and state highways connecting with the Interstate. Reduced freeway connectivity and throughput encourages cut-through traffic to use city arterials and results in back-ups entering and leaving the freeway, adding to local street congestion.

Major operational impacts are:

- Results in 7 to 9 hours of I-5 Bridge congestion per day
- Increases accidents by 50 percent over the 12 lane option
- Increases number of forced merge and weaving sections (9 traffic "hot spots") compared to the 12-lane option
- Increases the cut-through traffic on Vancouver and Portland arterials for trips that belong on the Interstate (more impact than the 10 lane option)
- Eliminates the potential for a future regional HOV system across the river

What happens if two add/drop lanes are added to the project?

Reducing the total number lanes to 10 (three general purpose plus two add/drop lanes in each direction) creates five merge/weave "hot-spots" compared to the 12-lane bridge option. With two add/drop lanes in both directions instead of three, northbound traffic bottlenecks would be expected between Hayden Island and Marine Drive and between SR 14 and Mill Plain Boulevard. Southbound traffic bottlenecks would be expected between SR 500 and Fourth Plain Boulevard, between Mill Plain Boulevard and SR 14, and between Hayden Island and the I-5 Bridge.

Major operational impacts are:

- Results in 5 to 7 hours of I-5 Bridge congestion per day

- Increases accidents by 20 percent over the 12 lane option
- Increases number of forced merge and weaving sections (5 traffic “hot spots”)
- Increases the cut-through traffic on Vancouver and Portland arterials for trips that belong on the Interstate (less impact than the 8 lane option)
- Reduces the potential for a future regional HOV system across the river

What happens if up to three add/drop lanes are used at select interchange locations?

The addition of three add/drop lanes in short sections of the project, allowing six lanes in each direction (12 total) on the river crossing is similar to the 10 lane option, except it adds short add/drop lanes in the hot spot areas of the 10 lane option. This concept adds one additional add/drop lane across the river, with the added lanes ending at their connections with SR 14 and Hayden Island off ramps. This concept also adds an add/drop lane between the Fourth Plain and SR 500 interchanges in order to provide a safer transition to and from SR 500, a major state route. This concept eliminates all of the hot spots identified in the 8 and 10 lane options.

Major operational impacts are:

- Results in 3.5 to 5.5 hours of congestion per day (No-Build estimated at 15 hours per day)
- Provides improved balance for high traffic volumes entering and leaving the highway
- Reduces the number of forced merges and weaves, reducing accidents by 50 percent
- Serves as a surrogate for arterial traffic between Marine Drive, Hayden Island and Vancouver
- Provides better connections for freight from I-5 to the ports
- Results in less spillover traffic to city streets in Vancouver and Portland
- Provides a better option for implementing a future managed lane system

What are the impacts of congestion pricing and other aggressive travel demand strategies for reducing peak hour demand?

The local agencies, project partners and the project are committed to and supportive of aggressive Travel Demand Management (TDM) strategies that are designed to allow more efficient use of the region’s transportation system. The project will continue to evaluate the effectiveness of TDM measures throughout the project, even after construction. Congestion pricing by increasing tolls during peak travel periods and implementing other aggressive TDM measures will reduce daily travel demand, but would have less impact on reducing peak hour travel and would have less impact on the add/drop lane decision because of the safety and operational issues.

Tolling, or more specifically congestion pricing, has been discussed as a tool that may have a significant effect on the number of trips that cross the river. CRC recently conducted sufficient tolling analysis to determine the impacts to I-5 and I-205 for varying toll rates. By tolling I-5 only, higher toll rates than were assumed in the Draft EIS would slightly reduce trips crossing I-5, but most of this reduction would be achieved by shifting trips to I-205. With the higher toll, the shift of traffic from I-5 to I-205 would result in unacceptable levels of congestion on I-205 and connecting systems and would increase regional VMT because of the out of direction travel caused by the diversion.

If both I-5 and I-205 are tolled, total vehicle trips across the Columbia River would drop, but a significant portion of traffic would shift back to I-5, resulting in higher traffic levels on I-5 than achieved by tolling I-5 only at the rate assumed in the Draft EIS. Analyses conducted to date suggest tolling does not provide enough of a reduction in trips crossing I-5 to warrant elimination of an add/drop lane because they are primarily for the safe movement between the interchanges.

Many other transportation demand management (TDM) methods will be added to the project aimed at reducing project and regional travel demand. In addition, Oregon and Washington will be implementing strategies to reduce per-capita VMT. Materials and presentation will be made available on these subjects at the January 9 PSC meeting.

What is the effect of providing up to 3 add-drop lanes in selected locations in induced travel, change in land use, and greenhouse gas emissions?

At the December 5th PSC meeting, the presentation on the report from the Travel Demand Expert panel will touch on model assumptions and results relating to induced travel and impacts to land use. (See the Travel Demand Model Review Panel Report summary sent in the materials for the December 5th meeting.) A more detailed analysis of induced travel and land use relating to the number of lanes will be provided at the January 9th PSC meeting.

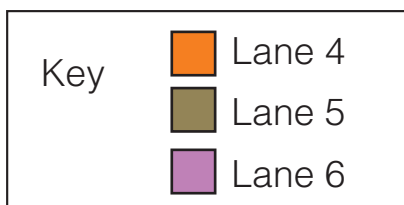
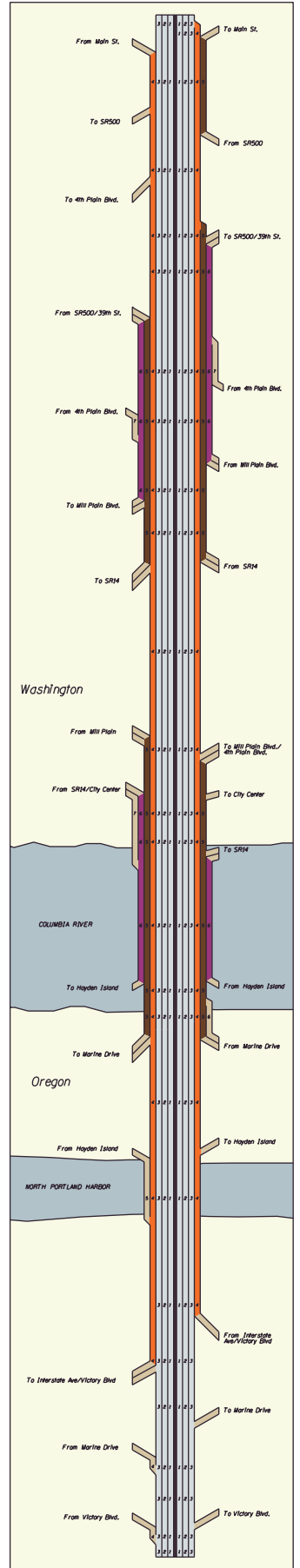
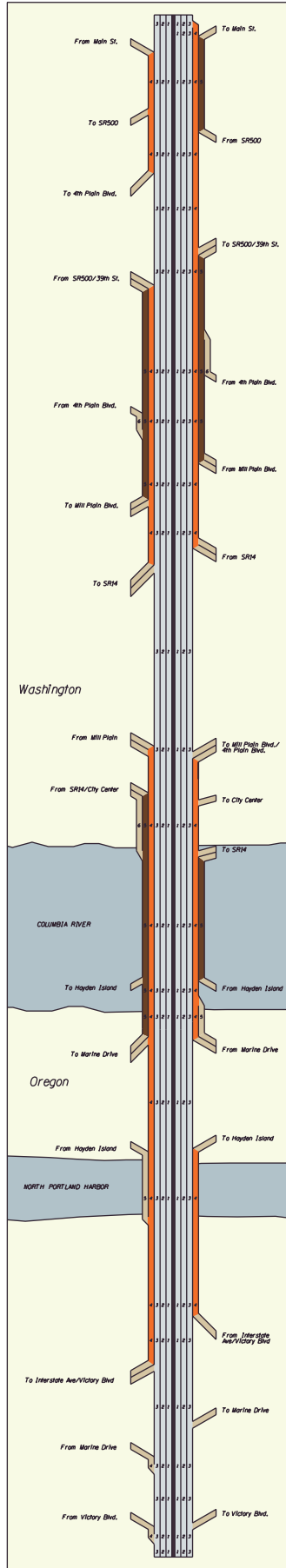
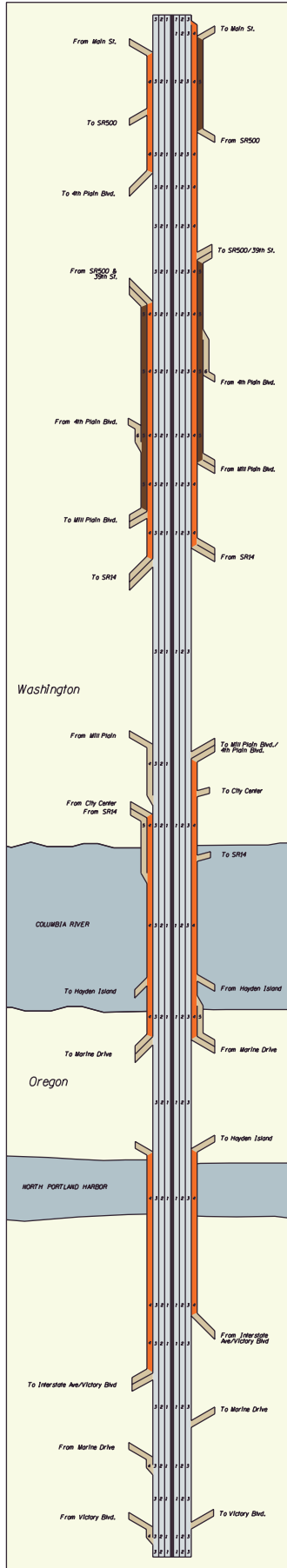
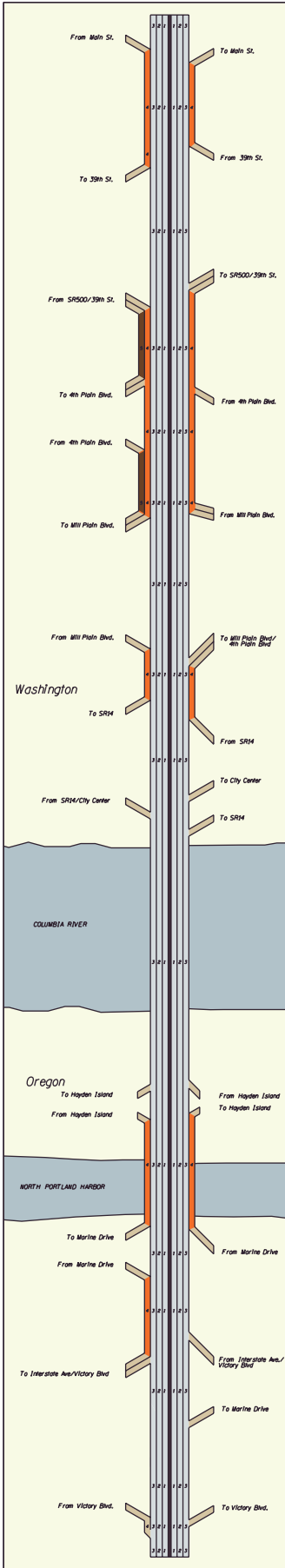
A Greenhouse Gas Expert Panel met November 20, 2008, to review model results and validity of findings included in the Draft EIS. The panel report will be included in materials for the January 9th PSC meeting, along with a presentation of findings. Initial findings support the information presented in the Draft EIS that the replacement bridge alternative would result in slightly lower CO₂ emissions (tons per day) than the No-Build alternative, and perform much better than the supplemental bridge alternatives designed for 8 lanes.

No Build

8 Lane

10 Lane

12 Lane



Traffic effects of 8, 10 and 12 lane options

	8 Lanes	10 Lanes	12 Lanes
I-5 Impacts	<p>Northbound I-5:</p> <ol style="list-style-type: none"> Hayden Island off-ramp to Marine Drive on-ramp Hayden Island on-ramp merge area SR 14 off-ramp diverge area Mill Plain/4th Plain off-ramp to SR 14 on-ramp <p>Southbound I-5:</p> <ol style="list-style-type: none"> 4th Plain off-ramp to SR 500 on-ramp SR 14 off-ramp to Mill Plain on-ramp Mill Plain on-ramp merge area North of Hayden Island off-ramp Marine Drive off-ramp to Hayden Island on-ramp 	<p>Northbound I-5:</p> <ol style="list-style-type: none"> Hayden Island off-ramp to Marine Drive on-ramp Mill Plain/4th Plain off-ramp to SR 14 on-ramp <p>Southbound I-5:</p> <ol style="list-style-type: none"> 4th Plain off-ramp to SR 500 on-ramp SR 14 off-ramp to Mill Plain on-ramp North of Hayden Island off-ramp 	None
Local Street Impacts	<p>Due to northbound I-5 impacts:</p> <ol style="list-style-type: none"> Marine Drive Hayden Island SR 14 Mill Plain <p>Due to southbound I-5 impacts:</p> <ol style="list-style-type: none"> SR 500 and Main Street 4th Plain Mill Plain SR 14 and City Center Hayden Island 	<p>Due to northbound I-5 impacts:</p> <ol style="list-style-type: none"> Marine Drive SR 14 <p>Due to southbound I-5 impacts:</p> <ol style="list-style-type: none"> SR 500 and Main Street 4th Plain Mill Plain 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

Year 2030 Peak Hour / Peak Direction Ramp Volumes





Schedule

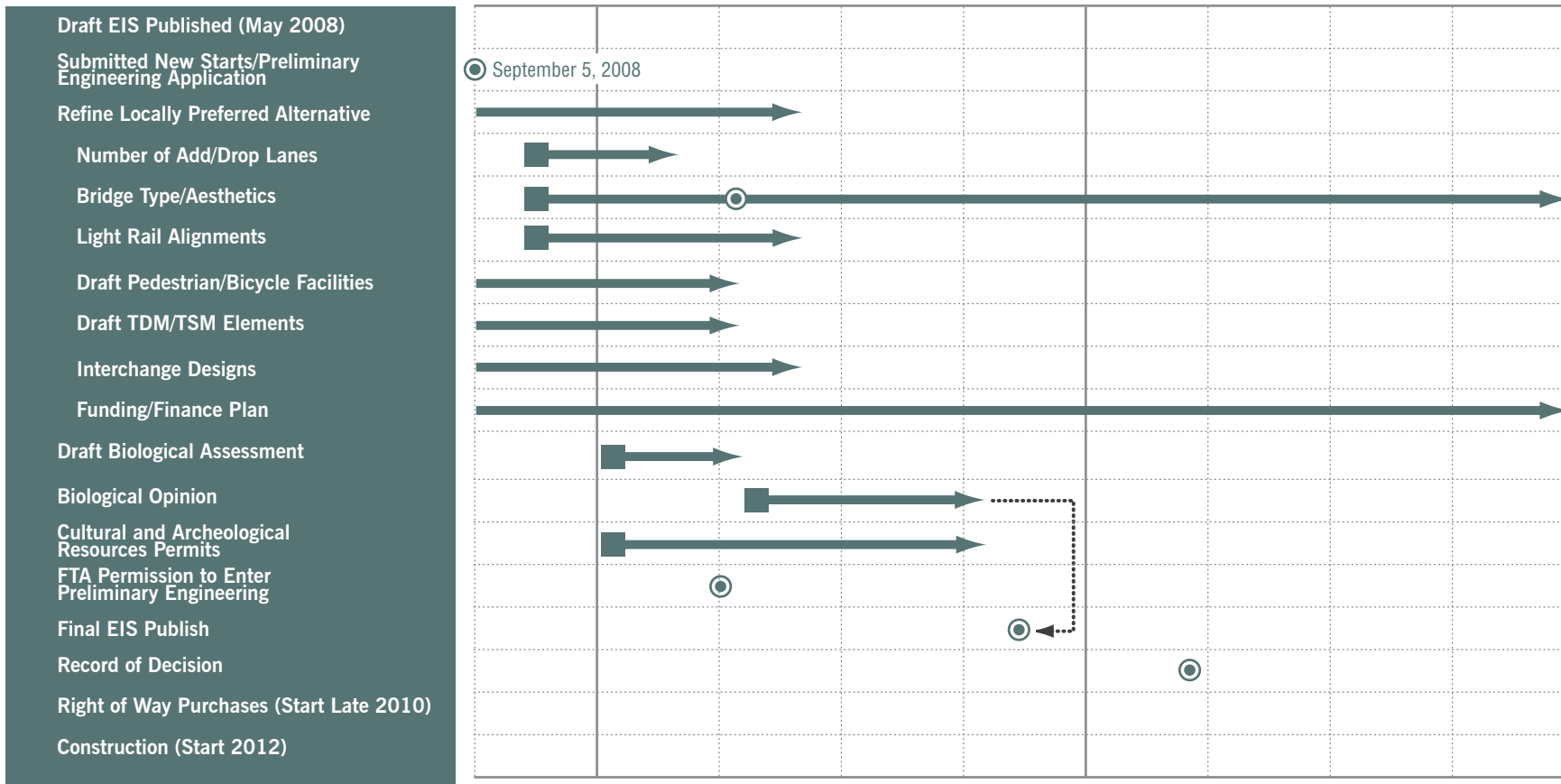


2008

2009

2010

KEY MILESTONES



PSC | Number of Lanes
December 5, 2008

- Travel Demand Expert Panel Findings
- Safety and Operations Analysis of 8, 10, and 12 Lanes
- Tolling/Travel Demand Relationship

PSC | Number of Lanes (continued)
January 9, 2009

- Greenhouse Gases Expert Panel Findings
- Travel Demand Management Plan Development
- Discussion on Number of Lanes Recommendation

PSC
February 6, 2009

PSC
March 2009