



DRAFT Meeting Agenda

MEETING TITLE: Project Sponsors Council
DATE: Friday, January 22, 2010
TIME: 10 a.m. – 12:30 p.m.
LOCATION: Washington State Department of Transportation, SW Region
11018 NE 51st Circle, Vancouver, Washington 98662

TIME	AGENDA TOPIC
10:00 a.m.	Welcome Approve Dec. 4, 2009 Meeting Summary
10:05 a.m.	Conceptual Finance Plan Overview and Discussion
10:25 a.m.	Tolling Study Committee Findings
10:55 a.m.	Break
11:10 a.m.	Performance Measures Advisory Group Report
11:40 a.m.	Performance Measures Application Example
11:55 p.m.	Hayden Island Update
12:30 p.m.	Adjourn

TRANSIT DIRECTIONS from PORTLAND:

From Downtown Portland, take C-TRAN Express Bus #164 to the Fisher's Landing Transit Center. Transfer to Bus #80 (Van Mall/Fisher's) eastbound to 49th and 112th Avenue. WSDOT SW Region Headquarters is 2 blocks north of this bus stop.

TRANSIT DIRECTIONS from VANCOUVER:

From Downtown Vancouver take C-TRAN Bus #4 (Fourth Plain) eastbound to the Vancouver Mall Transit Center. Other buses to Vancouver Mall are #32, 72, 44 and 78. From the Mall Transit Center, transfer to Bus #80 (Van Mall/Fisher's) eastbound to 49th and 112th Avenue. WSDOT SW Regional Headquarters is 2 blocks north of this bus stop.

For detailed trip planning, please contact the two transit agencies: C-TRAN, www.c-tran.com, 360-695-0123, or TriMet, www.trimet.org, 503-238-RIDE

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) one week before the meeting or calling Washington State's TTY telephone number, 1-800-833-6388.

MEETING: Columbia River Crossing (CRC) Project Sponsors Council

DATE: December 4, 2009, 10:00 am – 12:00 pm

LOCATION: Port of Portland, 121 NW Everett Street, Portland, OR

ATTENDEES:

Adams, Sam	Mayor, City of Portland
Bragdon, David	Council President, Metro
Garrett, Matthew	Director, Oregon Department of Transportation
Hansen, Fred	General manager, TriMet
Hewitt, Henry (Co-chair)	Past chair, Oregon Transportation Commission
Leavitt, Tim	Chair of the Board of Directors, C-TRAN
Pollard, Royce	Mayor, City of Vancouver
Stuart, Steve	Chair, SW Washington Regional Transportation Council

STAFF:

Brandman, Richard	ODOT CRC project director
Wagner, Don	Regional Administrator, Washington State Dept. of Transportation

Note: Meeting materials and handouts referred to in this summary can be accessed online at: <http://www.columbiarivercrossing.org/ProjectPartners/PSCMeetingMaterials.aspx>

Welcome and public comment

Co-chair Henry Hewitt thanked attendees for coming and announced that PSC members co-chair Hal Dengerink and Secretary Paula Hammond could not be at today’s meeting. Due to the large number of sign-ups for public comment, testimony will be limited to one minute per person. The Council will accept written comments, as well.

Representative Tina Kotek, Oregon state legislator for House District 44 in north and northeast Portland: I support the project and have submitted written testimony from my comments at the state legislative hearings held Nov. 19 in Salem. If the project has additional questions to resolve, please do it quickly and don’t delay the project at the risk of missing federal funding. I want to thank the residents from Hayden Island and ask CRC staff to listen to them and help solve some of the livability challenges on the island posed by the proposed design refinements.

Ed Garren, citizen co-chair of the Hayden Island Plan: I was always in favor of the bridge as it was proposed. It was a state of the art bridge, like a beautiful Lexis Hybrid. These refinements turn it into a 20-year old Oldsmobile that needs a ring job. It’s going to be dirty, with pumps running 24/7 for a hundred years, and will destroy the livability of the Hayden Island community. You’re not following appropriate processes. It’s different from what we were sold by the CRC for two years. People are upset about the lack of input and this bait and switch. The impacts to Hayden Island are spread throughout the draft environmental impact statement, ambiguous, and difficult to find. Hayden Island is not well-served by this proposal.

Shannon Palermo, StopTheCRC.org: My main concern is this continues to ignore environmental and social justice issues. The Coalition for a Livable Future and Bicycle Transportation Alliance recommendations have been completely ignored. There have been no recommendations for environmental justice. We can do this better in Portland. We need to make policy that accounts for peak oil and climate change. I would like a supplemental EIS that accounts for environmental and social justice issues and includes asthma rates in north and northeast Portland where I live.

Donna Murphy, Hayden Island resident: I just moved to the island in June. We deal with a lot of noise from trains, planes, and autos, but we love living along the river. Mayor Adams, please imagine living there. We're senior citizens. I'm going to do all I can to get our voices heard. We need a Safeway, a pharmacy, and our gas station.

Roger Staver, chair of Hayden Island Neighborhood Network (HINooN): My group sent the project a letter regarding impacts of the refinement package on Hayden Island. As you consider suggestions in our letter, please remember that Hayden Island is the most impacted area in the project. It's an island isolated by the channel and the river. The recently approved Hayden Island Plan had as a goal the ability of residents to stay on the island to meet their basic needs. The project refinements force us off the island. We cannot go to a neighborhood somewhere else; we have to stay on the island.

Peg Johnson, Hayden Island resident: I have been very involved in CRC planning since 2005. We continue to support this project for the most part, but the refinement package makes things worse than they were in the first place. I'm asking you to keep Hayden Island and livability in mind, which means sustainability. If you go forward with refinements, please dedicate yourselves to making the most that you can of the situation on Hayden Island. Our letter reflects our specific points.

Rex Burkholder, Metro Councilor for district 5, former member of the CRC Task Force: I urge the project to keep working on this. We need to continue problem solving and my letter contains further comments. I give you my support for your work.

Kathryn Williams, business and rail manager for the Port of Portland: We have been supportive of the bi-state effort to improve I-5 and the related interchanges. We're especially interested in how the refinements affect the Marine Drive interchange. We support the refinements in the package and urge you to move forward.

Ginger Metcalf, Identity Clark County, Greater Vancouver Chamber of Commerce, and Columbia River Crossing Coalition: The private sector continues to invest in infrastructure that allows job creation, but a corresponding public investment in transportation has been slower in coming. If we want to compete in the global economy, we must invest in our freight infrastructure. To build a culture of sustainable success, we need to make the economic connection between jobs and how the states spend money. The business community is behind you.

John Mohlis, Columbia Pacific Building Trades Council: The project has been scaled down appropriately. We want to move this project forward, so if there are refinements that need to be made, please do that. The construction industry is in a depression, not a recession. Every month that this project is delayed, more people will lose their homes, their health insurance, their homes, and will cash in their 401k accounts to send their kids to college. Please work together and move this forward.

Walter Valenta, Portland resident: I have been working on this project for a long time. This is an important milestone, but it's one of many. This is the belt-tightening part. What's important is that as we tighten it, we don't sell out the core values of our community. We must make the land use and transportation system on Hayden Island work together. We can't quit caring about design. We can't assume that by making it cheaper we're going to make it ugly. This bridge can represent the values of Portland.

Marion Haynes, Oregon Business Association: Businesses around the state depend on this bridge. The need for it has been clearly articulated for a decade. We appreciate the staff responsiveness to scaling back the project size. There are more details to work out, but businesses around the state are counting on you to move this forward.

Ed Lynch, former member of the CRC Task Force: Our forbears paid tolls on the ferry and bridges in the past. Tolls for bridge users ought to be paramount in addition to any other funds. Secondly, if we're going to build the bridge, let's build it right. Think of the Sydney, Australia bridge and the Golden Gate Bridge and Transbay Bridge, all built in the 1930s. They're still in use today because they were done right. Let's build to the full width and do it right the first time.

Anonymous: I'm against any further spending on the CRC bridge. Why wasn't the \$3.6 billion cost part of the original proposal if it will accomplish the same thing as the earlier proposal? You seem unwilling to tell the public what it's truly going to cost. If this is a regional transportation necessity, a regional gas tax is in

order. If you're going to toll the new bridge to reduce traffic, then tolling the current bridge for that reason should work too. Why not toll the current bridge? Least-cost options should be used first, not last. On I-5 there are approximately 300 cars for every truck. This is not a jobs program. We have lots of community needs that will create long-term sustainable jobs. We shouldn't borrow more money from Asia. Burdening me with debt does not stimulate jobs.

Elson Strahan, president of Fort Vancouver National Trust: I also provided written testimony. I was pleased to support our final recommendation as a member of the CRC Task Force despite knowing of the impacts to our site and that it would require mitigation. Because of these impacts, mitigation is an absolute federal requirement as part of the National Highway Act and National Historic Preservation Act. We and the City of Vancouver have approved the design concept for the Community Connector. We look forward to it being integrated into the project.

Paul Jeffery, Portland resident: I moved to Portland 10 years ago for its reputation as a place that does things differently. The proposed Mt. Hood expressway was blocked by citizens and that made me feel great about moving here. The CRC wants to turn Portland into another failed city. I don't want that to happen. This is not a project for the 21st century; it's rooted in a mid-20th century approach to problems.

David Rowe, resident of Battle Ground, Wash., and former member of the Clark County High Capacity Transit Task Force, speaking as a private citizen: In my letter to Gov. Gregoire, I asked her to imagine a morning commute to downtown Portland in a lounge chair with coffee and a view of Mt. Hood. You arrive at Portland Union Station. This is possible if the existing Columbia River rail bridge is modernized. This would be much cheaper than the current proposal. This kind of service is already in place with the Westside Express Service commuter rail in Washington County.

Chris Rall, citizen of Portland: I am concerned about the resiliency of our transportation infrastructure. We don't have a system that will handle increases in gas prices very well. This project is going in the wrong direction and is going to double the width of the freeway. As a taxpayer, I'm concerned about that kind of investment. I'd like to see least-cost options, phasing, and smaller projects that could meet the needs in that area.

Todd Coleman, deputy executive director of the Port of Vancouver: The Port supports the refinements package. In Washington, one in three jobs is related to trade. While we prefer a six-lane option, we understand the need for compromise with a five-lane option for now. We're also a member of the 75-member Vancouver Freight Alliance, which supports the refinements proposal, as well. In the end, both sides of the river will have to compromise, but this option provides 90 percent of the benefits at 75 percent of the cost, so we recommend you move forward with these refinements.

Jim Howell, an opponent of the Mt. Hood Freeway: It's time to stop this one million dollars per month madness. The myth of 15 hours per day of congestion is a disingenuous scare tactic by the Oregon and Washington highway departments. It is based on the ridiculous assumption that nothing can be done to stem freeway traffic. Non-freeway solutions were never seriously considered. It's time to go back to the drawing board.

Chris Smith, citizen transportation activist: It's important to get the Purpose and Need Statement right. It leads with congestion and doesn't mention either global warming or peak oil. State and local governments have adopted strong policy statement regarding these. I urge you to amend the Purpose and Need and then do a supplemental draft EIS.

Joe Rowe, Portland resident: I live two blocks from I-5 and Rosa Parks Way. I can see cars bumper to bumper during rush hour at Albina Street because drivers know that getting off the freeway is faster than staying on I-5. I hear politicians lie and say they're environmentalists and say we need this project for the jobs. The cost does not include the cost of the bonds to buy this bridge on credit. It will become a \$10 billion bridge because the cost of this bridge will double just like the tram.

Richard Bullington, Clark County resident: How is light rail to Clark County a good use of public money? For 12 trains an hour, you move maybe 2,400 people per hour in the peak direction. To spend \$750 million to serve that number of people seems a bit ideological. I rode the MAX to get here, so I'm a train guy, but please think about this.

Brian Gard, co-executive director of the Columbia River Crossing Coalition: I urge you to approve the refined package. Please see my letter for more detail. Please consider the breadth of support for this project as reflected in our list of members. We ask that you keep this project moving forward. The work done to date is good work. The work to be done by 27,000 workers who will build the crossing will be good work, as well.

Carl Larson, Portland resident: The bridge we have today is inadequate. As a bicyclist, I hate to ride across it. The way I get stuff via freight is stuck in single-occupancy vehicle congestion. But the \$4.2 billion plan to fix it still prioritizes single-occupancy vehicle travel. The cheap knock-off being proposed today does a worse job. We should go back to the drawing board and put our money where our mouth is.

Chelsea Wright: I'm opposed to this bridge because there are better options that haven't been considered. I'm a big fan of public transportation. If you have all this technology and the money available, why wouldn't you consider other options? It's obvious that a car-oriented culture is a destructive way of life. Please consider the effects to future generations.

Mara Gross, policy director with Coalition for a Livable Future: We have long supported a solution to I-5 that supports reliable transit, transportation, supports good land use planning and addresses global warming. Your proposal is a non-solution. You still have 12-lanes capacity and no plan for how to manage demand. Thank you to Mayor Adams and Council President Bragdon for their comments, and to Mayor-elect Leavitt for his comments about low-income communities and communities of color. The refinement plan makes a decision with hundreds of millions in public dollars to avoid environmental review. We need a new plan that puts the values of this community first.

Pam Naugle: I'm a 16-year resident on Hayden Island in the mobile home park. Sixty percent of us are disabled and seniors. Our Safeway store is our only source of fresh food and pharmaceuticals. You need to think before you tear down a store that is so vital to our living. For those of us who don't own a vehicle and can't afford lift services, please think this over seriously.

Michelle Poyourow, advocate for the Bicycle Transportation Alliance: Our two primary interests in this project are that it include a great walking and biking route and that it foster healthy, bikable neighborhoods on both sides of the river. The CRC plan considered earlier and also today fails on both counts. It was only after two years that the BTA became an opponent of the project. It will take more than refinements of a plan based on flawed assumptions and weakly defined outcomes. Please start with a new vision for success that is a truly green project we can support.

Jonathan Irwin: Those of you who are elected will be accountable for your decisions. Please rethink and redraft this plan with true public involvement and local control. Please keep the departments of transportation at the back burner since they're just road builders. You need to more carefully consider climate, equity, public transit, walking and biking options. For everyone here today opposed to the bridge in its current form, there are 100 more who have to be at work or didn't know this was happening.

Ed Barnes, Vancouver resident, former member of the Washington State Transportation Commission and former co-chair of the I-5 Transportation and Trade Partnership: For the last 15 years, I've talked to hundreds of people on both sides of the river about this project. It may have some flaws, but overall it covers all the elements for bicyclists and pedestrians, freight, transit and commuters. You need to do something. Something is better than nothing. This project will also create jobs for the unemployed.

Marcela Alcantar: I'm a small business woman. I'm concerned that there aren't many people of color in this room today and in the past. I'm concerned about the lack of leadership on that. I believe in this project and that it will create jobs and sustainability. I've been asking for opportunities for firms like mine and I haven't seen it happen. Please consider professional services like mine on this project.

Ron Swaren: The problem with the CRC proposal is that it's not realistic. Our metro area is slated to grow and having one or two crossings is not enough for this region. Our group has advocated a third bridge, which would be cost effective and incorporate solutions.

Andrew Plambeck, Portland resident: I'm concerned about our tax dollars going to this project. Mayor Adams and Councilor Bragdon have released a very thoughtful statement. Redesign this project from the group up to reduce emissions and prioritize alternative transportation. Our city and region depend on it.

Tom Buchele, Pacific Environmental Advocacy Center at Lewis and Clark Law School: We represent groups like the Coalition for a Livable Future and others concerned with the NEPA process. The draft EIS was deeply flawed. There needs to be a supplemental draft EIS. Regulation 40cfr1502.9c requires a SDEIS if there are substantial changes or new information, and we think \$650 million is a substantial change. There is new information expected from the tolling study, so this shouldn't all be dumped in the FEIS, as that would be a travesty of the NEPA process.

David Thompson, Portland resident and retired physician: I encourage people to get their colonoscopies and cholesterol checked. We're not going to meet our environmental goals with the way this project is designed. I read *The Oregonian* today saying we're looking at the next hundred years with this project and I don't believe it. When I jogged over here I was almost run over by a 16-year old in his brand new car talking on his cell phone. We have too many cars in this city, state and world. This is a good opportunity to figure out an alternative.

Erick Reddekopp, co-chair of Hayden Island Livability Project, a grassroots group: You're receiving over 600 petition signatures against the refinement package due to the impacts including the Safeway store and other restaurants and businesses on the island. It's disturbing to hear that money and funding seems to be the biggest reason to do this refinement package now. I'm unemployed so I understand the need for jobs. But this is our chance to be a progressive city again. The refinement package has so many problems with it.

Sharon Nasset: Thank you for not limiting public comment to 30 minutes. The PSC has not had a representative of the community and neighborhoods. You need an environmental justice representative to sit there from each side of the river. You haven't followed the NEPA process with a full range of alternatives. There must be a supplemental draft EIS with the amount of changes proposed. For those who want to get more involved on a third bridge proposal or to stop this process, 5003 N. Lombard has a huge space and we're glad to have people come work on this process.

Herman Kachold: I'm involved with the Hayden Island Livability Project, a new grassroots group. We need more crossings, a bridge to the west of the rail bridge and one at 33rd Avenue. Spread the traffic out more. That would be a better approach.

Tom Dana, co-chair of the Hayden Island Livability Project and former steering committee member for the Hayden Island Plan: It's clear the comments here are 10 or 20 to 1 opposed to this proposal. This bridge is for 100 years. Let's not cave in to immediate pressure just to get it done. Let's go back and look at what really needs to be done.

Kaitlin Hale, StopTheCRC Coalition, resident of SE Portland: I urge you to reconsider the revised plan you might be voting on today. We need transportation options for people, not more single occupancy vehicles. I urge you to solve traffic congestion, climate change, and the lack of employment in our region, and social and environmental justice by not rushing through with this plan and going back to the drawing board. Transportation infrastructure doesn't just happen but exists in our cities and region and needs a bigger picture viewpoint.

Dan McFarling, Portland resident: When this project was first initiated, the focus was on how to accommodate more motor vehicles. That's a major flaw. Instead, how can we meet our community and transportation needs? If you would read the proposals in the Smarter Bridge brochure, you'd see that it provides better options for a phased, affordable project and a stronger economy.

Pam Ferguson, resident of Hayden Island manufactured home community and member of the Hayden Island Livability Project: Thank you for allowing more time for public comment. I represent a group with over 1,700 residents, 60 percent of whom are seniors. They don't drive off the island, which is a good thing. Please give Safeway or a grocery retailer special dispensation.

Co-chair Hewitt thanked the commenters.

Draft refinement recommendation

Mayor Adams inquired whether PSC will be asked to vote on a recommendation at today's meeting. Co-chair Hewitt said he doesn't foresee a vote and cannot anticipate outcomes of the meeting. Discussion may require more time and another meeting. Hewitt introduced the CRC presenters.

Staff presentation

Richard Brandman, CRC project co-director, said the project has been working hard for the last six months to refine the project design, reduce costs, and address issues raised previously and again this morning in public comments. The project wants to achieve nearly the same benefits as the previous proposal, and still meet the purpose and need goals, but at a lower cost.

The refined design has been reviewed with the CRC's senior staff advisory group, the CRC Performance Measures Advisory Group, the freight community, and others. There is a lot of technical documentation behind the proposals and staff can share those with PSC if desired. Staff has analyzed the five-mile project area from one end to the other using the purpose and need goals -- such as transit, freight and safety -- as well as standard value engineering techniques and a consideration of what elements can be deferred or reused. The revised cost estimate range is \$2.6 to \$3.6 billion, with a likely cost of \$3.2 billion.

Kris Strickler, deputy project director, gave an overview of the proposed design refinements, starting from the Marine Drive interchange at the south and going north. Marine Drive is the largest freight access interchange. The staff recommendation still includes a single-point urban interchange with one traffic signal. Moving north, the North Portland Harbor bridge would be reused and the highway mainline profile would be lowered on Hayden Island.

For the river crossing, Strickler said, some of the cost savings came from having more information about soil conditions and liquefaction characteristics. Other savings come from a proposed 10-lane bridge with standard shoulders, rather than a 12-lane bridge. It's smaller than the original proposal by 16 feet total (eight feet per bridge).

In Vancouver, two areas would be refined: The northbound lane from SR 14 to SR 500 would be reduced and the SR 500 north ramps would be eliminated. In the future, SR 500 has several intersections that would be converted to full interchanges. There are elements that staff proposes not be included in the project's initial capital investment; a discussion about that would happen for future prioritization.

Patricia McCaig, CRC communications, said staff has presented information on the design refinements to many audiences over the last several weeks. A key theme staff heard was the desire, especially from Hayden Island residents, for an opportunity to provide comments directly to the PSC, which is why an extended public comment session was included in today's meeting.

For the freight community, the proposals for the Victory Blvd. braid and Marine Drive interchange were cause for concern; they were afraid it would impede traffic performance for freight. But, she said, they ultimately understood that the refinements meet the initial needs and urged the project to move forward.

Mayor Adams, she added, has been very clear about the importance of Marine Drive and Hayden Island. The intent of the Hayden Island Plan and the CRC's involvement has been to improve the livability, safety, and access on the island. The refinement was hard for many people to hear because they had spent so much time working on the Hayden Island Plan. But there is a growing appreciation for the benefits of the refinement coupled with real concerns about the potential for losing the Safeway grocery store and effects to access on and off the island. Today, connectivity on the island is very difficult. Staff believes that the refinement proposal improves this by including the new east/west Tomahawk Island Drive connection. There is support for this new road but concern that the refinement proposes recessing it below grade in a way that might discourage that connectivity. There is also concern about potential detrimental effects to commercial and retail space on the island. Hayden Island residents also want to see improved bike and pedestrian connectivity.

McCaig directed members to their packet of materials, which contains about 20 letters and emails with a mix of views, from those who support the refinements to those who don't, and those in the freight community who accept the refinements but believe that moving from 12 to 10 lanes is shortsighted.

There is widespread understanding, she concluded, of the fundamental need to reduce the project cost and still protect its function and benefits.

Discussion

The discussion below touched on the project schedule in relation to federal funding deadlines, as well as each PSC member's views of the proposed design refinements. In addition, a guiding policy statement proposed by Mayor Adams and Council President Bragdon on Dec. 3 (see appendix) informed the discussion.

Co-chair Hewitt said some PSC members are ready to adopt the refinement and others are not. He suggested scheduling a meeting in January for a fuller discussion not only of the refinement but also of the performance measures, effects to Hayden Island, and more. He added that the right partner agency staff should be co-located at the CRC project office and integrated with CRC staff to work on issues that need to be addressed. But, he said, we should applaud the work completed to date.

Mayor Adams said that is a very useful suggestion. The issues PSC needs to discuss merit more frequent meetings for a period of time.

Mayor Pollard said he would like to remind everyone of the constraints from federal funding deadlines. Richard Brandman clarified that the project is on course to complete the final environmental impact statement in summer 2010 and have a record of decision by the end of 2010, which would allow final design in 2011, followed by transit funding, and the start of construction as early as 2012.

Mayor Adams said the Obama administration has pushed back by 18 months the federal transportation funding reauthorization. For the public's benefit, he said, there isn't a firm deadline that would block the funding application. He asked for clarification whether there is any agency deadline. The urgency is real, he said, but we do have more time than today or next month to address these issues.

Director Garrett responded by saying it's a very fluid conversation and we can't rely on that 18-month time frame. We need to continue communicating with the federal delegation. While there's not a specific calendar, he said he would be very nervous to say we have 18 months. The project needs to move forward. The federal government is going to move forward, we just don't know when.

Mayor Adams said he is not suggesting a delay of 18 months, but he does not think a decision about refinements is needed in January.

Director Garrett said there is time to engage this issue. He highlighted the importance of articulating what outstanding questions still need to be answered. There are jobs, he said, not only through the laborers but also the design work.

Mayor Adams said there are opportunities for more jobs in the short run with professional service firms.

Metro Council President Bragdon said that when the project does move forward, there needs to be broad support. Let's look at a budget, he said, in terms of fiscal capacity, not just a specific price tag. What's a realistic assessment of the funding prospects in the two state legislatures? We should start with what's our foreseeable revenue, he said.

Co-chair Hewitt: We'll include financial information on the next agenda.

Mayor Adams said he provided half a dozen questions via email to CRC staff regarding design refinements and still needs some follow up. Mayor Adams provided PSC members with copies of the project's initial written responses to these questions and an internal memo written by the city attorney's office (see appendix).

Mayor Pollard said sometimes staff doesn't know what PSC members want and that members need to make it clearer to staff. Regarding decision making, he said PSC wants staff to keep doing analysis that moves the project forward. For the proposed design refinements, he can accept the ones in Vancouver, but hopes some accommodations can be made for Hayden Island.

He said he has been working on this bridge for more than 10 years. The Vancouver City Council voted unanimously over a year ago for a 12-lane bridge. Anything other than that is unacceptable for the City of

Vancouver. There is a letter dated Jan. 27, 2009 from the Federal Highway Administration (FHWA), outlining the agency's support for a 12-lane bridge.

The bridge isn't being built for single-occupancy vehicles from Vancouver. It's for the economy of the entire region and the West Coast. Please look beyond the short term. Everyone in this room has an agenda, but our positions should be based on the future needs of the region. Through all these meetings, he said, we agreed on certain things: Portland wants light rail and tolls, Vancouver wants highway lanes. What does Vancouver get out of this deal? A 10-lane bridge that doesn't meet the needs of the future. I understand it could be striped for 12 lanes in 10 or 15 years. But who is going to give that exception? Probably FHWA. How do we know they'll look favorably upon it? That exception is needed now for the future. If it can't be provided, the Vancouver City Council probably won't support it. Who in this room is looking out for those people not born yet? We talked about making the most environmentally correct bridge. We can do that.

General manager Fred Hansen said there are obviously going to be studies forthcoming regarding performance measures. TriMet has embedded staff at the project office. The Hayden Island Plan is very important. TriMet staff has been working very hard to preserve and enhance the island's livability. The refinements make that a challenge; we must wrestle with that. How can we use transit-oriented development funding tools to create the vision for a whole range of services on the island, including grocery stores and pharmacies? Station area development around the light rail station is a catalyst to achieve that. We all recognize that any large project like this is difficult to move forward without consensus and I trust that we'll get there, he said.

Director Garrett thanked Mayor Pollard for his leadership and long-time participation in the project. He said there is staff embedded at the office but it's incumbent upon PSC members to be specific with their concerns because their questions have a cost. He said he has told Council President Bragdon that he is struggling with concerns about the pathway for funding because the project is walking down the same pathway as any other project. Director Garrett said he appreciates the passion and concerns of the Hayden Island residents; none of that is lost on ODOT or the CRC project. He said the CRC project can help to grow a community with transit-oriented development on Hayden Island, which will happen only because of the project. He said he wants something to bloom there and that the catalyst is the CRC project.

Councilmember Leavitt said that from the C-TRAN perspective, they're trying to meet the needs of the 21st century. He doesn't see lanes getting widened south of the project area. But he's very optimistic about the project. Over a year ago, the C-TRAN board of directors agreed that public transit is a vital part of the project. C-TRAN is committed to improving transit access, including with express buses. The project needs to achieve social, environmental, and fiscal equity. We want to be ready to jump when federal funding is ready, he said. Today is another step forward in a dynamic and evolving process and he is looking forward to staff working closely together.

Commissioner Stuart said there is a reason why he's wearing his University of Oregon shirt today. He has lived in both states and cities of this project. He said we talk about a vision for the future, but a lot of times it's a different vision. We're trying to bridge not just two states but two visions. With the proposed design refinements, there is a path to success. It involves a lot of what Council President Bragdon and Mayor Adams have put forward with the use of performance measures to guide the process. If we can show that it's from a sense of priority and the parts of the vision we share, he said, it's going to require us agreeing on key performance measures. We let the experts do their work to run the data. If we can get to that, he said, he sees a good chance of moving forward in a way that is right for both sides of the river. He said he sees the path forward; it's just going to take a lot of work to get there.

Co-chair Hewitt said he has letters from Co-chair Hal Dengerink and Secretary Paula Hammond, endorsing the design refinements and asking the project to move forward.

Council President Bragdon said he thinks the group agrees on some common goals, but the flaws in the design refinements are the same flaws he sees in the original proposal. The common goals have not been applied in the refinements. In the case of Hayden Island, the project is supposed to make it a better place, but that objective has not been met. We have to be very sophisticated and look to new methodology, not that which was state of the art 20 years ago. Going forward, he said, let's link hands on the broader values we agree on. He said he respects the discipline of traffic engineering as much as he

does physicians or accountants, but we need to bring more to bear on it. He said he cannot vote for any more blank checks on this project. He has asked for information and independent audits. We need to work much more closely together. If we do that, we'll have something we can be proud of.

Co-chair Hewitt disagreed with Council President Bragdon about abandoning the goals and said the refinements are consistent with them. But, he said, we'll have to discuss this more in forthcoming meetings.

Mayor Adams said he wants to lay out why now is the right time to pursue what he and Council President Bragdon have put on the table in the form of their guiding policy statement (see appendix). Since March, Adams said, he has been part of a climate action planning process and has become smarter about what it means to plan for climate action. As a result, some of the questions have become more compelling in the last 7-8 months. He looks forward to working with Mayor-elect Leavitt, but the question of tolls is on the table and it's a fundamental part of the project's purpose and need. Mayor Adams said he is accountable to bringing the right project to his city council, and if future trips gridlock in the City of Portland, we're in big trouble. Because of his work on the Sellwood Bridge, he also fears that CRC could consume future available funding for other projects. He said CRC will have to be the most actively managed transportation system in the U.S.; it's the least-cost approach. Lastly, Hayden Island is a feisty, wonderful group of Portlanders who have worked with the City on the Hayden Island Plan. There will be no net loss of local services on the island, he said, and whatever we move forward with must have a solution.

Co-chair Hewitt clarified some of the PSC's next steps: To reconvene in January and possibly more frequently; to continue integrating staff in the project office so there is a transparent relationship; to continue working on details of the design refinements and performance measures and how they connect; to have a more specific understanding about how refinements fit into a realistic budget; and to talk about Hayden Island, the environment, and livability issues; and to continue the discussion in a collegial and positive way.

He said Councilmember Leavitt will be attending the next PSC meeting as the Mayor of Vancouver. Co-chair Hewitt thanked Mayor Pollard who, he said, is a man of great character. He has always been constructive and has held the best interest of the community in mind.

Tolling study update

This agenda item was not covered and will be discussed at a future meeting.

Performance measures update

This agenda item was not covered and will be discussed at a future meeting.

Next meeting

Friday, January 22, 2010 | 10:00 a.m. – 12:30 p.m.

Washington State Department of Transportation (WSDOT)
11018 NE 51st Circle, Vancouver, WA

Appendices

- Appendix A** Columbia River Crossing: Road to Construction, December 2, 2009
Policy Statement from Council President Bragdon and Mayor Adams
- Appendix B** Email correspondence between Catherine Ciarlo of Mayor Adams' office
and Richard Brandman, CRC project director, November 30, 2009
- Appendix C** Memorandum from Terence Thatcher, Deputy City Attorney,
to Catherine Ciarlo, Office of Mayor Sam Adams, December 4, 2009

Columbia River Crossing: Road to Construction

Policy Statement for Council President Bragdon and Mayor Adams

December 2, 2009

I. Guiding Policy Statement

A change in direction is needed for the Columbia River Crossing Project to be successfully accomplished. The current proposal is mired in financial challenges, and the region risks missing critical federal deadlines unless we change course. The project refinement recommendation before the PSC would defer or remove certain elements of the proposed project and result in a cost reduction of \$515 - \$650 million, or roughly 15% of project capital costs. We believe that this is a step in the right direction, but more fundamental change is required to:

- match the scope and scale of the project to realistic federal, state and local revenues (including tolls), essentially designing the project to budget
- design the project to achieve specific performance measures
- make essential, urgent project decisions in collaboration with members of the Project Sponsors Council and their staffs
- daylight the project's internal decision making to ensure an unrestricted flow of information to make all of the above possible

In addition, it is important to underscore that we reject calls from project opponents to cancel or “restart” the project, as too much solid work has already been done.

II. Refinement Action Requested at December 4th PSC Meeting

We believe that an informed endorsement of any project changes by the PSC is critical to advance the project. However, the materials provided for the December 4th meeting do not include adequate analysis of “refinement” impacts to support a decision. The PSC has previously requested that the project team use the performance measures being developed by the Performance Measures Advisory Group to guide the project refinement process and assess the effect on key interests and stakeholders, such as the freight industry and the ports. We have not yet seen analysis of potential refinements according to those specific measures.

While we understand the need to move the project forward, the likely 18-month delay in federal transportation bill reauthorization gives us a window to make sure we get the project right.

We believe the current proposal contains incomplete and potentially flawed assumptions underlying the original proposal, particularly assumptions about demand forecasts, tax and toll revenues available for the project, and what those revenues can buy. In addition, we need to see performance-based criteria used to guide reconfiguration of the project, as the PSC has requested. The Project Sponsor Council needs to see clearly how the project – and proposed refinements – stack up against those criteria, including cost.

We are proposing that PSC agency staff work directly with CRC project staff in a short, defined window to continue the current refinement work to create a realistic road to construction that includes:

1. A reliable budget based on realistic revenue projections;
2. A realistic assessment of the relationship between tolls, updated demand forecasts, desired land use patterns and size of the CRC facilities
3. Project elements that are firmly based in performance outcomes
4. Recognition that the interstate system must function in concert with local systems

In short, we believe the Project Sponsors Council needs to make decisions about the many attributes of the project based on how different options perform, for the goals we all agree on. We need to have that information before us so we can realistically evaluate options and buy the best product which available resources can buy.

Ciarlo, Catherine

From: Brandman, Richard [BrandmanR@columbiarivercrossing.com]

Sent: Monday, November 30, 2009 6:36 PM

To: Ciarlo, Catherine

Subject: Response to questions

Hi Catherine:

Below is a response to your questions from an earlier e-mail. We can discuss further if need be at our meeting tomorrow, but wanted you to get this in advance.

1. What is the value of the investments that have been made approaching the bridge in Oregon (specifically the I-5 Delta Park-Lombard widening and extension of light rail to Expo Center)? Have those expenditures been considered in decisions about how to apportion the proposed cuts?

Response: No, the past investments in the corridor were not considered in decisions about how to apportion the proposed cuts.

The yellow line extension cost was \$ 350 million and the Delta Park – Lombard project cost is estimated at \$ 81 million.

2. Can you raise the I-5 facility on Hayden Island and still achieve cost savings by building a higher berm rather than a structure, keeping the Tomahawk Drive elevation at or close to what is proposed in the LPA?

Response: No. If we keep the existing bridges, the profile needs to match the existing bridge alignment. The current alignment matches into the NPH bridge profile which holds the highway alignment down. Any raising of the highway alignment across Hayden Island would require a replacement of the NPH bridge.

3. Assuming a total highway/interchange project cost of \$ 2.55 billion, what is the finance plan? How much is projected to come from a)tolls, b)the federal government; and c)state government.

Response: First we need a decision on the project design and cost to finalize the finance plan. We hope to achieve that at the PSC Friday. The next step will be to determine a specific finance plan to submit as part of the FEIS in 2010. Generally we've assumed roughly 2/3 from our federal and state partners and 1/3 from tolls for the total project, highway and transit. The Tolling Study Committee and the PSC will participate in the development of the finance plan.

4. What is the breakdown of the \$ 30 million cost for the cap on the Washington side?

Response: The cap (community connection) is mitigation for right-of-way takings and other impacts the project will have on the Fort Vancouver National Historic Site. The project will pay the mitigated value of the property it acquires.

Other partners will be responsible for developing the connection on top of the platform that the CRC provides.

5. What would be the cost savings of going to an 8-lane bridge capable of accommodating 10 lanes? A 6-lane

bridge that could accommodate 8 lanes?

Response: An 8-lane facility was analyzed in the alternatives analysis phase and rejected by the Task Force and then by the PSC. Neither a six nor eight lane facility meets the project's purpose and need.

6. Can you add non-structural cables to the base bridge design for the CD - simulating a cable stayed bridge? At what cost?

Response: Yes, however the concept did not receive support from UDAG. The cost is estimated at an additional \$17-\$20 million per bridge, or a total of \$34 to \$40 million.

I'll see you tomorrow.

Richard Brandman
Sent from my BlackBerry



CITY OF
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 OFFICE OF CITY ATTORNEY

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December 4, 2009

INTEROFFICE MEMORANDUM

TO: Catherine Ciarlo
 Office of Mayor Adams

FROM: Terence Thatcher
 Deputy City Attorney

SUBJECT: Columbia River Crossings' Purpose and Need and NEPA Alternative Analysis

You asked me some questions about the interrelationship between a federal project's "purpose and need" and the required (or permitted) alternatives analysis under the National Environmental Policy Act. In this memorandum, I will lay out the basics of the applicable law.

Factual Background

The proposed Columbia River Crossing (CRC), a new I-5 bridge, will be funded, at least in part, by the federal government. Thus, federal law applies to the decision-making process. That includes the standards set out in what is known as SAFETEA,¹ P.L. 109-59, the omnibus transportation act passed in 2005, and the National Environmental Policy Act (NEPA). 42 USC §§ 4321 *et seq.* As required by those laws, Oregon and Washington and the federal government have prepared a Draft Environmental Impact Statement (DEIS). It reviews several Columbia River Crossing alternatives, including a "no build" option.

All the "build" alternatives propose adding 10 to 12 through and auxiliary lanes to I-5 in the area of the bridge and its approaches. As I understand it, the Mayor has suggested that the States should analyze (and, if appropriate, include in the Final EIS) alternatives that would build fewer lanes of traffic. Although the Mayor has not yet explicitly requested it, an analysis of "smaller bridge" alternatives could also consider additional ways to reduce traffic demand and

¹ The Safe, Accountable, Flexible, Efficient Transportation Equity Act. SAFETEA altered some procedural aspects of NEPA, but not in a way that significantly affects the legal analysis I present.



Catherine Ciarlo
 December 4, 2009
 Page 2

increase traffic mobility. In response, CRC staff has told you that the "fewer lanes" options will not be considered because they would not achieve the project's "purpose and need."

The General Law Governing NEPA Alternatives Analysis

Under NEPA, among other things, an EIS must identify the "purpose and need" for a proposed project and assess the environmental impacts of the proposal, including its "reasonable alternatives." Over the years courts have interpreted these obligations and explained what agencies must do to fulfill them. In general, federal agencies have substantial discretion in identifying the purpose of a project and scoping out alternatives. The agency choices are subject to examination under the NEPA "reasonableness" test. "On the one hand, an agency may not define the purpose of and need for the action in unreasonably narrow terms. On the other hand, it need not craft a statement so broad that it requires consideration of alternatives that are inconsistent with the overarching purpose of the proposal." Mandelker, *NEPA Law and Litigation*, 2d, §9.23.

As you would expect, a NEPA alternatives analysis is tied to the project "purpose" designation. That is courts have held that agencies must review a reasonable range of alternatives that *accomplish* the project purposes. An agency need not assess the environmental impacts of alternatives that will not meet project purposes. Over time, as agencies and courts have become experienced with NEPA (and the make-up of the federal bench has changed), judicial review of the alternatives studied may well have become more deferential. Compare *Natural Resources Defense Council v. Morton*, 458 F 2d 827 (DC Cir. 1972) (agency must consider alternatives outside its statutory authority) with *City of Alexandria, Virginia v. Slater*, 198 F3d 862 (DC Cir 1999) (agency need not consider reduced highway alternative that will not meet traffic purposes of project). *But see Davis v. Mineta*, 302 F 3d 1104 (10th Cir. 2002)(halting freeway construction for, among other things, failure to consider alternatives).

One should distinguish, however, between what NEPA *requires* an agency to do and what NEPA or general administrative law *allows* an agency to do. Given the extent of judicial enforcement of the law, we all tend to forget that NEPA not only *requires* certain actions, it also very broadly and eloquently *authorizes* wide-ranging analysis and environmentally sensitive decision-making.²

² Among other things, NEPA announced a national policy to "encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources . . ." 42 USC §4321.

Catherine Ciarlo
December 4, 2009
Page 3

Federal agencies (and states that engage cooperatively with federal agencies in implementing NEPA) must meet certain minimum obligations under NEPA. Those obligations are enforceable in federal court. On the other hand, nothing in NEPA forbids an agency from doing more than the minimum and the broad purposes of the Act certainly encourage agencies to do just that. See NEPA §101, 42 USC §4331. Further, most federal environmental decision-making occurs under and is reviewed pursuant to the standards of the Administrative Procedure Act, 5 USC §§551 *et seq.* That law grants agencies significant analytic and decision-making flexibility, as long as they do not act “arbitrarily or capriciously.” Thus, for instance, an agency could decide to study more or different NEPA alternatives than those it *must* assess. No court would invalidate an agency decision, for instance, to study an alternative that did not meet a project “purpose” if there were reasonable grounds to believe that the final decision-making process would be advanced or improved by such analysis.

Application of General Principles To CRC Decision-Making

The CRC DEIS declares that the purpose of the proposed project “is to improve Interstate 5 corridor mobility by addressing present and future travel demand and mobility needs in to the Columbia River Crossing Bridge Influence Area (BIA).” DEIS at 1-3. The project, when compared to the “no-build” alternative, is “intended to achieve . . . improve|ments| in travel safety and traffic operations. . . ; connectivity, reliability, travel times and operations of public transportation. . . ; highway freight mobility. . . ; and the river crossing’s structural integrity.” *id.* This statement of purpose is broad enough to encompass many approaches and many alternatives—a reasonable subset of which must be studied. In addition, of course, the responsible agencies have the discretion to study more than what “must” be assessed.

As I understand it, CRC staff responded to the Mayor’s request to study six lane and eight lane bridge alternatives by declaring that “neither a six lane nor an eight lane facility meets the projects’ purpose and need.” I have insufficient information to judge that statement. On the face of it, however, any facility that would “improve” things from the current operation would seem to meet the project’s stated purpose. That improvement in travel times, safety, and mobility can, according to the DEIS, be achieved either by addressing (decreasing) “travel demand” or addressing (increasing) “mobility,” or both. Whether any projected level of improvement is “good enough” to justify proceeding with the project is a policy choice. In addition, of course, even a determination that a proposed alternative does not meet (or does not meet completely) a project’s purposes does not mean that the responsible agencies are foreclosed from studying the alternative. It merely means that a court of law would not *require* the analysis.

Call if you have questions.

The conceptual finance plan below shows a range of CRC Project cost estimates based on the proposed project refinement recommendations and the latest results of the Cost Estimate Validation Process (CEVP). Costs and revenues are shown in year-of-expenditure dollars. The finance plan is preliminary; refinements are in process based on the recent results from the toll sensitivity, CEVP, and other analyses. The finance plan may be adjusted based on legislative, DOT, FHWA/FTA, public, and PSC reviews.

**Preliminary Finance Plan Scenarios
In Billions of Year-of-Expenditure Dollars**

	60% Probability	90% Probability
Cost		
Highway	\$2.40	\$2.65
Transit	\$0.79	\$0.89
Total	\$3.19	\$3.54
Revenues		
Tolls	\$1.15-\$1.29	\$1.25-\$1.49
ODOT and WSDOT	\$0.75-\$0.85	\$0.90-\$1.00
Federal	\$1.15-\$1.19	\$1.15-\$1.39
<i>Highway</i>	<i>\$0.40</i>	<i>\$0.40</i>
<i>Transit (New Starts)</i>	<i>\$0.75-\$0.79</i>	<i>\$0.75-\$0.89</i>
Total	\$3.19	\$3.54

The plan calls for securing \$400 million in Projects of National and Regional Significance funding from the upcoming federal transportation reauthorization act. While the toll rate structure for the CRC Project will not be established until after tolling is authorized by the Washington legislature, the range of financial capacity from tolls that are shown above are based on the Tolling Study Committee analysis, which found a variety of rate structures capable of providing the amounts shown; no specific toll rate structure is assumed in the finance plan. The amount shown for the DOTs is subject to an intergovernmental agreement between the DOTs allocating cost responsibility and legislative approvals of the required funding, and could vary depending on final disposition of other elements of the finance plan. The New Starts funding presumes the recent statutory language secured by Senator Murray, and requires FTA approval of a Full Funding Grant Agreement based on the New Start rating regulations.

Appendix C – CRC Tolling Study Committee Report Travel Demand Forecasting, Revenue Projections, Determination of Net Revenues, and Financial Capacity Analysis

Travel Demand Forecasting

Regional travel demand models are used to forecast how people may choose to travel in the future given projected growth patterns for population and employment as well as future transportation facilities. The Portland-Vancouver area regional travel demand model used for the Columbia River Crossing (CRC) project was developed jointly by the Portland-area Metro Regional Government (Metro) and the Southwest Washington Regional Transportation Council (RTC). The model, run by Metro and peer-reviewed by a national panel of experts in October 2008, applies a four-step process in estimating future travel demands:

Step 1: Person-trips are estimated from adopted regional growth projections and adopted regional transportation plans. Growth projections include population and employment forecasts throughout the metropolitan region. Transportation plans include future transportation facilities, including roadways, transitways, and bicycle and pedestrian facilities.

Step 2: Predicted person-trips are then distributed to zones across the metropolitan region. Over 25,000 network routes, or “links,” are used in the model, as well as over 2,000 transportation analysis “zones.” The model predicts how many people will want to travel from one zone to another via different links.

Step 3: Person-trips between each of the zones are broken down by mode of travel (drive alone, carpool, transit, bicycle, walking) based on each option’s attractiveness when considering travel time and cost, as well as each traveler’s socioeconomic characteristics. Travel costs include parking fees, transit fares, tolls, and automobile operating costs.

Step 4: The model assigns each trip to a specific routing in the model’s network. For the CRC’s tolling analysis work, the model predicts how many people are projected to cross the Columbia River on I-5 and I-205 via automobile and transit. The model is used to predict weekday peak period vehicle volumes across each bridge, which are later used to develop daily traffic demands.

The regional travel demand model is appropriate for comparing the relative weekday effects of travel across the Columbia River for different tolling scenarios. The model used for tolling analysis purposes allows relative generalizations to be made about I-5 and I-205, including vehicle and transit trips, and the duration of vehicular congestion experienced along each river crossing.

Daily and hourly traffic volumes in 2030 would vary for the I-5 bridge and the I-205 bridge with different tolling levels. Based on information included in the model regarding how much people value their time for different types of trips, lowering or raising toll rates affects how many people choose to pay the specific toll, divert to the alternative bridge, travel during another time of the day, take transit, or travel to a different destination altogether. The scenario analysis found:

- For most of the I-5 only toll scenarios, the majority of drivers would not change their travel patterns. Some would choose a new destination or a non-tolled route. Diversion to transit is minimal due to the already increased ridership associated with project improvements.
- Route diversion tends to increase as toll rates increase; however, the percentage of diversion tends to be lower during peak periods when travelers' willingness to pay tolls may be higher and/or alternative routes are congested, and thus, time consuming.
- For scenarios that toll both the I-5 and I-205 bridges, traffic levels would be higher on I-5 and lower on I-205 compared to tolling only the I-5 bridge. However, compared to the No Toll project scenario, total cross-river traffic demand would be less on both the I-5 and I-205 bridges as many trips would divert to transit or not be made across the Columbia River.

See the attached spreadsheet titled *Traffic Effects for Tolling Scenarios* for more detailed information about traffic diversion, average daily traffic volumes and hours of congestion predicted for each of the tolling scenarios.

Additional work refining one or two likely scenarios will be undertaken to inform financial planning and final rate setting prior to issuing toll revenue bonds. That analysis would independently review and refine many key assumptions, including land use projections, and also examine parts of the network beyond the I-5 and I-205 river crossings, such as key interchanges with these highways, and critical roadways and intersections. An updated and detailed toll traffic and revenue report is warranted before issuing debt, and would be required by the credit rating agencies if any of the bonds were to be backed solely by toll revenues.

Revenue Projections

The annual traffic and revenue projections produced for the CRC project are derived from outputs of the Metro regional travel demand model. The Metro model employs inputs for users' values of time as a surrogate for the relationship of time and cost reflecting the potential toll on the I-5 bridge crossing. The regional model was further supplemented by the development of a corridor level traffic model (VISSIM) which provided traffic operation capabilities to estimate the effect of future congestion in the corridor. This became the basis for "post-processing" the model results to refine traffic demand projections. The traffic and revenue projections show both the annualization of the direct Metro model results and the refined post-processed results, the latter of which bracket the mid-range of anticipated traffic and revenue impacts.

Ten toll scenarios that vary toll rates and toll locations (I-5 only or both I-5 and I-205 bridges) were developed by the CRC team for analysis, in conjunction with the Oregon and Washington departments of transportation. Toll rates were assumed to vary by time of day according to a fixed schedule that applies higher toll rates in peak periods and lower rates during off-peak times when demand is less. Toll rates were originally specified in constant year 2006 dollars in the project's Draft Environmental Impact Statement (EIS); however the actual tolls paid are assumed to increase with expected inflation, projected at 2.5 percent per year. See Exhibit 1 for information about each scenario.

It is expected that the toll collection will be all-electronic, which allows tolls to be collected without toll booths causing drivers to slow down to pay tolls. Thus, drivers would either have a transponder, paying the rates noted in Exhibit 1, or the vehicle would be identified via the license plate, in which case a \$1.00 “pay-by-plate” processing fee would be added to each transaction. For example, a vehicle traveling during the peak period (6 am to 10 am) without a transponder would be charged \$2.00 plus the \$1.00 processing fee, or \$3.00 for their trip in one direction.

Exhibit 1. Tolling Scenarios Evaluated

	Scenarios Analyzed	Min/Max Toll Rate (2006\$)	Min/Max Toll Rate (2018\$)	Tolls Collected	Toll Schedule Type	Tolling Start Date
Tolling I-5 Only	Scenario 1A <i>DEIS Toll Rate</i>	\$1.00 / \$2.00	\$1.34 / \$2.69	Each Way	Symmetric Variable Toll Schedule	July 1, 2018 (FY 2019)
	Scenario 1B <i>Lower than DEIS Toll Rate</i>	\$1.00 / \$1.50	\$1.34 / \$2.02			
	Scenario 1C <i>Flat Toll Rate</i>	\$1.65	\$2.22		Symmetric Fixed Toll Schedule	
	Scenario 1D <i>Additional Price Points</i>	\$1.00 / \$2.50	\$1.34 / \$3.36		Symmetric Variable Toll Schedule	
	Scenario 1E <i>1.5x DEIS Toll Rate</i>	\$1.50 / \$3.00	\$2.02 / \$4.03			
	Scenario 1F <i>2x DEIS Toll Rate</i>	\$2.00 / \$4.00	\$2.69 / \$5.38			
	Scenario 1G <i>3x DEIS Toll Rate</i>	\$3.00 / \$6.00	\$4.03 / \$8.07			
	Pre-Completion Tolling¹ <i>DEIS Toll Rate</i>	\$1.00 / \$2.00	\$1.34 / \$2.69	Each Way		
Tolling I-5 and I-205	Scenario 2A <i>DEIS Toll Rate</i>	\$2.00 / \$4.00	\$2.69 / \$5.38	Southbound Only ²	Symmetric Variable Toll Schedule	July 1, 2018 (FY 2019)
	Scenario 2B <i>Lower than DEIS Toll Rate</i>	\$2.00 / \$3.00	\$2.69 / \$4.03			
	Scenario 2C <i>Lower I-205 Toll</i>	I-5: \$2.00 / \$4.00 I-205: \$2.00 / \$3.00	I-5: \$2.69 / \$5.38 I-205: \$2.69 / \$4.03			

¹ Pre-Completion Tolling to be added to any other scenario

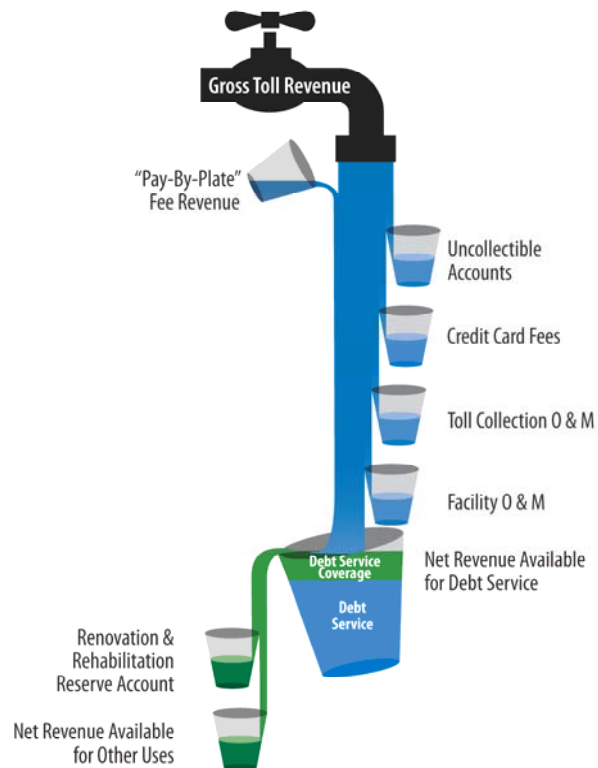
² A round-trip toll is collected on scenarios tolling Southbound only

The rates for commercial vehicles are assumed to be proportionately greater than passenger cars, roughly as a function of the number of axles for a commercial vehicle. For the purposes of this analysis, it is assumed that commercial vehicles will pay on an N minus one basis based upon axles, that is, a five-axle truck would pay four times the passenger car rate (five minus one times the passenger rate). Model volumes were provided for medium (three-axle) and large (five-axle) trucks. The exact commercial toll schedule will be a function of the future development of the electronic toll collection system. Toll schedules assumed for each scenario are shown on the attached spreadsheets, *Toll Rate Schedules for I-5 Scenarios* and *Toll Rate Schedules for I-5 and I-205 Scenarios*.

Determination of Net Revenues

To arrive at the portion of revenues available to support financing via the repayment of debt, several deductions must be made from gross toll revenues and fees. Key among these deductions is the obligation to pay for toll collection and facility operation and maintenance (O&M) costs for the bridge and roadway. The deductions from gross revenues include the following:

- Potential toll revenue lost due to uncollectable accounts
- Credit card and banking fees associated with toll payment and accounts
- Toll collection operations and maintenance costs, including maintenance, periodic replacement of equipment, back office costs and bridge insurance
- Routine operations and maintenance of the bridge and roadway facilities



Facility O&M costs include routine maintenance of the bridge and all roadways within the project area as well as incident response for the project area. After gross revenues have paid all of the above deductions, including toll collection and facility O&M costs, the remaining net revenue is available for debt repayment.

The net revenue stream represents the cash flow that can be used directly for financing to repay bonds, or to directly pay for construction if pre-completion tolling is implemented. In addition to bond repayment, there will be a periodic need for renovation and rehabilitation activities for the project. These costs are assumed to be funded out of excess net revenues after annual debt repayments that result from the debt service coverage requirement placed on net revenues. A reserve account may be created that would be funded from these excess net toll revenues.

Financial Capacity Analysis

Tolling the I-5 bridge does not have the financial capacity to yield a funding contribution equal to the \$2.38 billion cost in year of expenditure dollars for the highway portion of the project. Rather, a number of funding sources will likely be needed to build the project, including federal and state (Oregon and Washington) funding sources combined with funding from tolls.

For the purposes of this analysis, the bridge is assumed to be substantially completed by the end of fiscal year 2018, with revenue operations beginning on July 1, 2018 (state fiscal year 2019). Toll bond proceeds are assumed to be received in the middle and latter years of construction to maximize their funding contribution, and other funding

sources are assumed to cover construction costs in the initial years. Other project improvements to the highway and interchanges would continue into 2019, and the last bonds needed to fund these completion activities are assumed to be issued after tolling has commenced.

The CRC toll bonds were assumed to be backed by other revenue sources, and the full faith and credit of one or both states to provide the bonds with a credit rating and interest costs equivalent to that of general obligation debt of either state.

The use of toll bonds will increase the total costs paid during and after construction due to the added interest and issuance costs. However, these financing costs are treated separately from the project capital cost during construction. Increased use of toll bonds will increase the total costs paid due to added interest and issuance. The construction cost does not increase as a result; rather it adds a financing cost both during and after construction.

State-backed bonds are limited by Washington State Constitution to a 30 year repayment period. Accordingly, debt with the maturity of up to 30 years was assumed to maximize the total proceeds that can be generated by the forecasted net toll revenue stream.

A minimum debt service coverage factor of 1.25 was assumed for state-backed debt whereby net toll revenues were maintained at 1.25 times the projected annual debt service. The intent of this is to provide some protection against draws on the revenue sources pledged to backup toll revenues, such as motor vehicle fuel tax revenues, in the event of lower-than-projected toll revenue performance.

Interest rates on state-backed bonds are assumed to be 6.00 percent for current interest bonds (“CIBs”) and 6.50 percent for capital appreciation bonds (“CABs”), based on the current double-A credit ratings in both states. Issuance costs are assumed to be 0.2 percent of the total par amount of bonds issues for state-backed bonds. Additional costs would include 0.5 percent of the par amount for current interest bonds for underwriting (underwriter’s discount) and 1.0 percent of the par amount for capital appreciation bonds.

Interest is assumed to be capitalized through the year before the project completion date, or up to two years after full toll collection commences. Earnings on invested funds (construction fund and capitalized interest fund) are assumed to be at an annual rate of 2.50 percent. While this might be higher than current yields on short-term investments, it is substantially less than the assumed future interest cost of borrowing, (between 6.0 and 6.5 percent for state-backed bonds), and thus represents approximately the same level of negative arbitrage currently being experienced by issuers of tax-exempt bonds.

Funding Range

Based on the analysis done for this report, several preliminary conclusions can be reached:

1. Tolling can contribute a significant amount of funding to the project.
2. Tolling cannot be the only funding source for the project. Several funding sources, including state (Oregon and Washington) and federal, will be needed to supplement tolling funds.

3. Toll rates on I-5 can only be raised so high before total revenue and funding decrease. The limit is approximately two times the toll rate studied in the project's Draft EIS.
4. State backing of the debt is necessary to maximize the toll funding contribution. By essentially making the debt equivalent to general obligation bonds, state-backing affords the debt a high credit rating and relatively low interest rates. Non-recourse debt that is backed solely by toll revenues is anticipated to carry a lower or minimum investment-grade credit rating, which would entail higher interest rates, increased capitalized interest costs, and higher debt service coverage requirements.

Further study is warranted as the project design and cost of the project are refined, or as more information is available about other funding sources.

Traffic Effects for Tolling Scenarios

Scenarios	Average Daily Traffic Volumes			Diversion to I-205 Compared to No Toll Scenario	Average SB I-5 Duration of Congestion	Average NB I-5 Duration of Congestion	Total Average I-5 Duration of Congestion
	I-5 Bridge Total	I-205 Bridge Total	Total River Crossings				
Existing Conditions (2005)	134,000	146,400	280,400	-	2.0 hrs	4.0 hrs	6.0 hrs
No Build	184,000	210,000	394,000	-	7.25 hrs	7.75 hrs	15.0 hrs
No Toll Scenario	220,000	203,000	423,000	-	5.5 hrs	1.5 hrs	7.0 hrs
Scenario 1A	181,000	216,000	397,000	13,000	3.5 hrs	1.0 hrs	4.5 hrs
Scenario 1B	190,000	211,000	401,000	8,000	4.0 hrs	1.0 hrs	5.0 hrs
Scenario 1C	175,000	215,000	390,000	12,000	3.75 hrs	1.0 hrs	4.75 hrs
Scenario 1D	173,000	218,000	391,000	15,000	3.25 hrs	1.0 hrs	4.25 hrs
Scenario 1E	154,000	224,000	378,000	21,000	2.75 hrs	0.75 hrs	3.5 hrs
Scenario 1F	133,000	231,000	364,000	28,000	2.0 hrs	0.5 hrs	2.5 hrs
Scenario 1G	89,000	240,000	329,000	37,000	1.0 hrs	0.0 hrs	1.0 hrs
Scenario 2A	198,000	177,000	375,000	-26,000	4.25 hrs	1.25 hrs	5.5 hrs
Scenario 2B	201,000	181,000	382,000	-22,000	4.5 hrs	1.25 hrs	5.75 hrs
Scenario 2C	192,000	185,000	377,000	-18,000	4.0 hrs	1.0 hrs	5.0 hrs

SB = southbound | NB = northbound

Notes

1. Year 2030 results shown, except for Existing Conditions (2005).
2. Average duration of daily congestion levels shown.
3. All results are approximate.
4. The no toll scenario is included for comparison purposes. Tolling is needed to fund the project.

Toll Rate Schedules for I-5 Toll Scenarios

		No Tolls	Tolling I-5						
		Studied for comparison purposes Raises ~\$0	Scenario 1A	Scenario 1B	Scenario 1C	Scenario 1D	Scenario 1E	Scenario 1F	Scenario 1G
			Draft EIS Variable Toll: Toll structure from the Draft EIS Raises ~\$1.1 - \$1.4 billion	Lower than Draft EIS Toll: Peak period tolls are lower than DEIS Raises ~\$0.9 - \$1.2 billion	Fixed Rate Toll: Same toll all day; rate based on weighted average of Draft EIS variable toll Raises ~\$1.1 - \$1.4 billion	Additional Price Points: Variable toll schedule; rates change more throughout day Raises ~\$1.2 - \$1.5 billion	1.5X Draft EIS Variable Toll: All tolls are 1.5 times the Draft EIS rates Raises ~\$1.4 - \$1.8 billion	2x Draft EIS Variable Toll: All tolls are twice the Draft EIS rates Raises ~\$1.6 - \$2.1 billion	3x Draft EIS Variable Toll: All tolls are triple the Draft EIS rates Raises ~\$1.2 - 2.0 billion
			One-Way Tolls	One-Way Tolls	One-Way Tolls	One-Way Tolls	One-Way Tolls	One-Way Tolls	One-Way Tolls
Time Period		Collected Both Directions	Collected Both Directions	Collected Both Directions	Collected Both Directions	Collected Both Directions	Collected Both Directions	Collected Both Directions	Collected Both Directions
2006 Dollars	Midnight to 5 AM		\$1.00	\$1.00	\$1.65	\$1.00	\$1.50	\$2.00	\$3.00
	5 AM to 6 AM		\$1.50	\$1.25		\$1.50	\$2.25	\$3.00	\$4.50
	6 AM to 7 AM					\$2.00	\$3.00	\$4.00	\$6.00
	7 AM to 9 AM		\$2.00	\$1.50		\$2.50			
	9 AM to 10 AM					\$2.00	\$2.25	\$3.00	\$4.50
	10 AM to 3 PM		\$1.50	\$1.25		\$1.75			
	3 PM to 4 PM					\$2.00	\$3.00	\$4.00	\$6.00
	4 PM to 6 PM		\$2.00	\$1.50		\$2.50			
	6 PM to 7 PM					\$2.00	\$2.25	\$3.00	\$4.50
	7 PM to 8 PM		\$1.50	\$1.25		\$1.50			
8 PM to midnight		\$1.00	\$1.00	\$1.00	\$1.50	\$2.00	\$3.00		
2018 Dollars	Midnight to 5 AM		\$1.34	\$1.34	\$2.21	\$1.34	\$2.02	\$2.69	\$4.04
	5 AM to 6 AM		\$2.02	\$1.68		\$2.02	\$3.02	\$4.04	\$6.05
	6 AM to 7 AM					\$2.69	\$4.04	\$5.38	\$8.07
	7 AM to 9 AM		\$2.69	\$2.02		\$3.36			
	9 AM to 10 AM					\$2.69	\$3.07	\$4.04	\$6.05
	10 AM to 3 PM		\$2.02	\$1.68		\$3.36			
	3 PM to 4 PM					\$2.69	\$4.04	\$5.38	\$8.07
	4 PM to 6 PM		\$2.69	\$2.02		\$3.36			
	6 PM to 7 PM					\$2.69	\$3.02	\$4.04	\$6.05
	7 PM to 8 PM		\$2.02	\$1.68		\$2.02			
8 PM to midnight		\$1.34	\$1.34	\$1.34	\$2.02	\$2.69	\$4.04		

- Notes**
1. These are toll rate schedules analyzed for planning and testing purposes. Actual toll rates will depend on a final finance plan and will be determined by the Oregon and Washington state transportation commissions to meet legislative funding direction.
 2. Toll funding contribution ranges assume 30-year state-backed debt.
 3. No Toll scenario included for comparison purposes. Tolling is needed to fund the project.
 4. Assumes medium trucks pay 2x and large trucks pay 4x the auto toll rate using a transponder; administrative fee would be added to process payments not involving a transponder.
 5. Tolls are assumed to escalate at 2.5% per year to match the expected rate of inflation.
 6. Tolling during construction could be added to any scenario. Rates assumed to match Scenario 1A, except there would be no toll from midnight to 5am. Tolling early could provide about \$330 million in additional funds for construction.

Toll Rate Schedules for I-5 & I-205 Toll Scenarios

		No Tolls	Tolling I-5 and I-205					
		Studied for comparison purposes Raises ~\$0	Scenario 2A		Scenario 2B		Scenario 2C	
			Draft EIS Variable Toll on Both Bridges: Draft EIS tolls on both bridges Raises ~\$2.8 - \$3.4 billion		Lower than Draft EIS Toll on Both Bridges: Peak period toll is lower than Draft EIS rate Raises ~\$2.1 - \$2.5 billion		Lower Toll on I-205: Peak period toll is lower on I-205 than I-5; variable rate toll on both bridges Raises ~\$2.4 - \$3.0 billion	
			Roundtrip Tolls		Roundtrip Tolls		Roundtrip Tolls	
		Northbound	Southbound	Northbound	Southbound	Northbound	Southbound I-5	Southbound I-205
2006 Dollars	Time Period							
	Midnight to 5 AM	No Toll Collected	\$2.00	No Toll Collected	\$2.00	No Toll Collected	\$2.00	\$2.00
	5 AM to 6 AM		\$3.00		\$2.50		\$3.00	\$2.50
	6 AM to 10 AM		\$4.00		\$3.00		\$4.00	\$3.00
	10 AM to 3 PM		\$3.00		\$2.50		\$3.00	\$2.50
	3 PM to 7 PM		\$4.00		\$3.00		\$4.00	\$3.00
	7 PM to 8 PM		\$3.00		\$2.50		\$3.00	\$2.50
	8 PM to midnight		\$2.00		\$2.00		\$2.00	\$2.00
2018 Dollars	Midnight to 5 AM		No Toll Collected		\$2.69		No Toll Collected	\$2.69
	5 AM to 6 AM	\$4.04		\$3.36	\$4.04	\$3.36		
	6 AM to 10 AM	\$5.38		\$4.04	\$5.38	\$4.04		
	10 AM to 3 PM	\$4.04		\$3.36	\$4.04	\$3.36		
	3 PM to 7 PM	\$5.38		\$4.04	\$5.38	\$4.04		
	7 PM to 8 PM	\$4.04		\$3.36	\$4.04	\$3.36		
	8 PM to midnight	\$2.69		\$2.69	\$2.69	\$2.69		

Notes

1. These are toll rate schedules analyzed for planning and testing purposes. Actual toll rates will depend on a final finance plan and will be determined by the Oregon and Washington state transportation commissions to meet legislative funding direction.
2. Toll funding contribution ranges assume 30-year state-backed debt.
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6. Tolling during construction could be added to any scenario. Rates assumed to match Scenario 1A, except there would be no toll from midnight to 5am. Tolling early could provide about \$330 million in additional funds for construction.

Tolling Study Committee Findings

Jennifer Ziegler, WSDOT Tolling Office

Project Sponsors Council
January 22, 2010



Agenda

- Scenarios being studied
- What we've heard
- Next steps

Tolling scenarios



Tolling scenario evaluation

- Six preliminary tolling scenarios discussed with public (summer, fall 2009)
 - Four scenarios for tolling I-5; two for tolling I-5 and I-205
- Updates and additional analysis (fall 2009)
 - 2 scenarios dropped from consideration
 - Preliminary scenarios updated
 - 6 new scenarios modeled

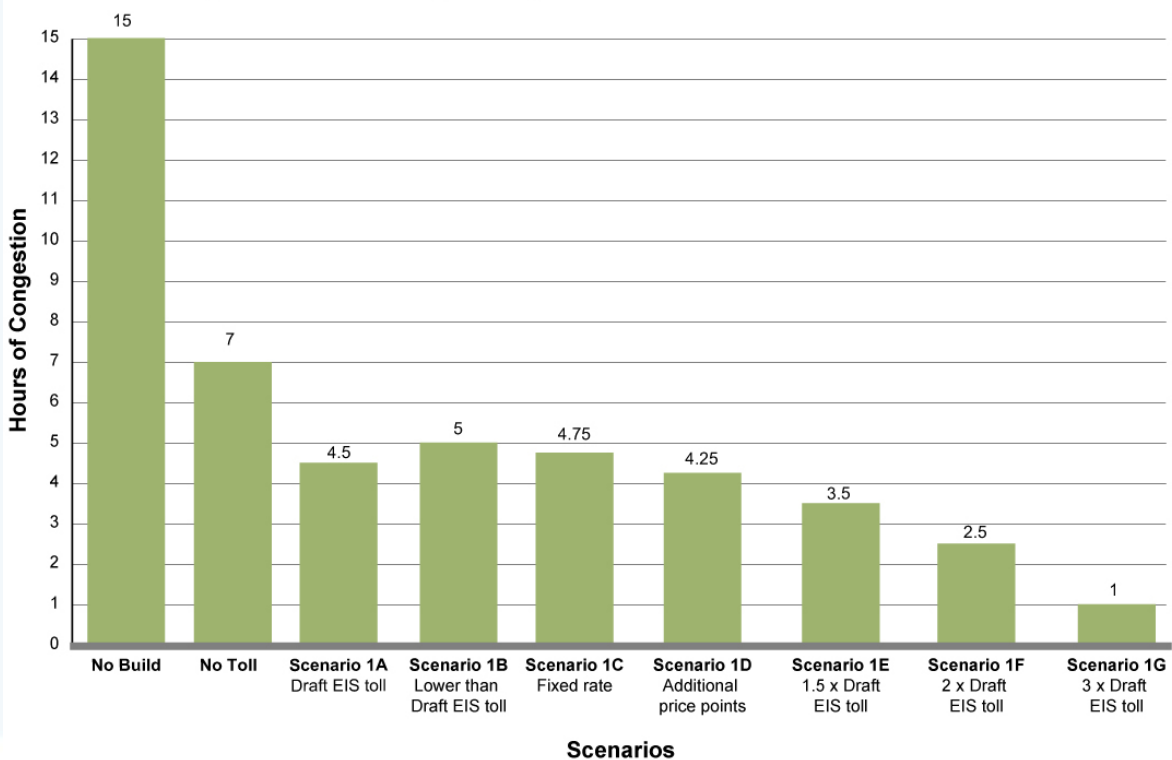
Notes:

- Tolling during construction (beginning 2012): option could be added to any scenario to raise additional funds and manage congestion
- No toll scenario evaluated for comparison purposes; project could not be funded without tolls

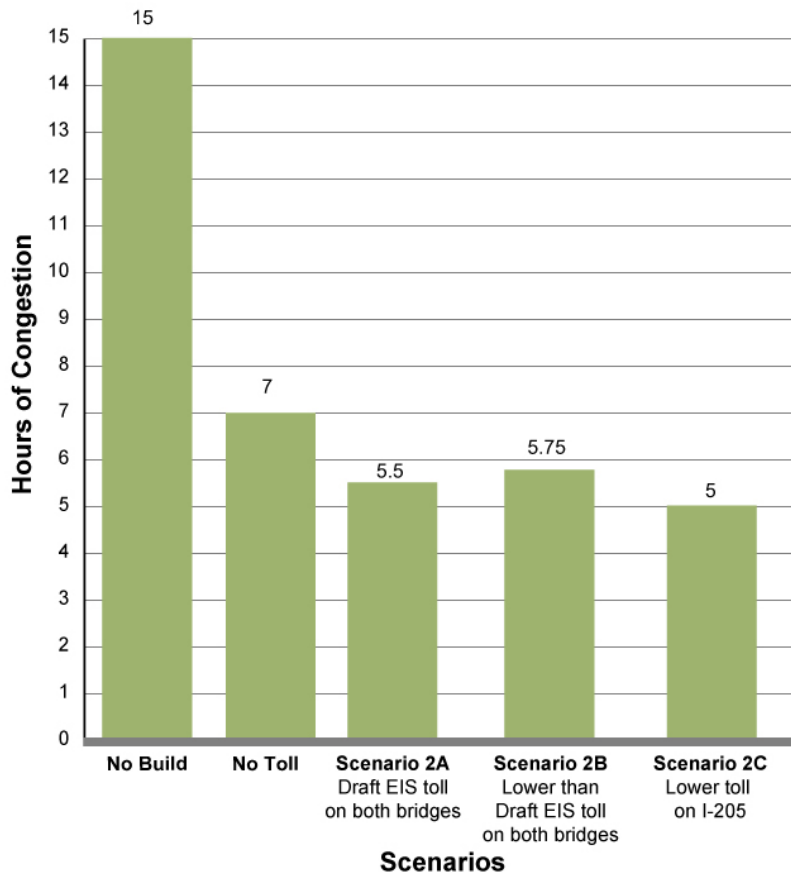
Tolling scenarios

- Tolling I-5 only
 - 1A: Draft EIS toll
 - 1B: Lower than Draft EIS
 - 1C: Fixed rate toll
 - 1D: Additional price points
 - 1E: 1.5X Draft EIS
 - 1F: 2X Draft EIS
 - 1G: 3X Draft EIS
- Tolling I-5 and I-205
 - 2A: Draft EIS toll, both bridges
 - 2B: Lower than Draft EIS toll, both bridges
 - 2C: Lower I-205 toll, Draft EIS toll on I-5

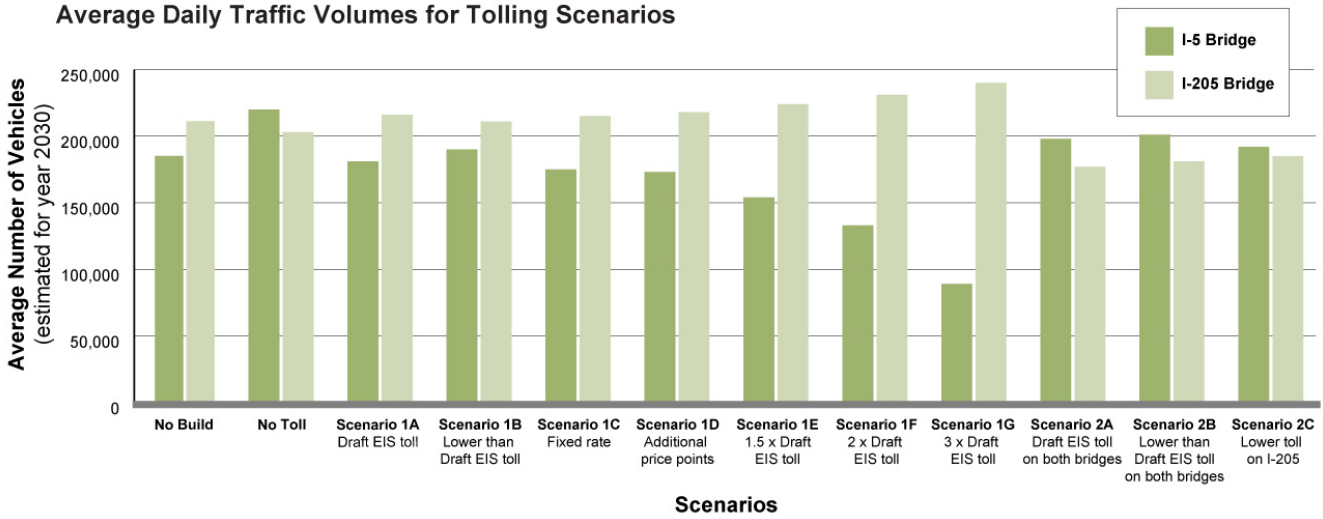
Hours of Congestion for I-5 Only Tolling Scenarios



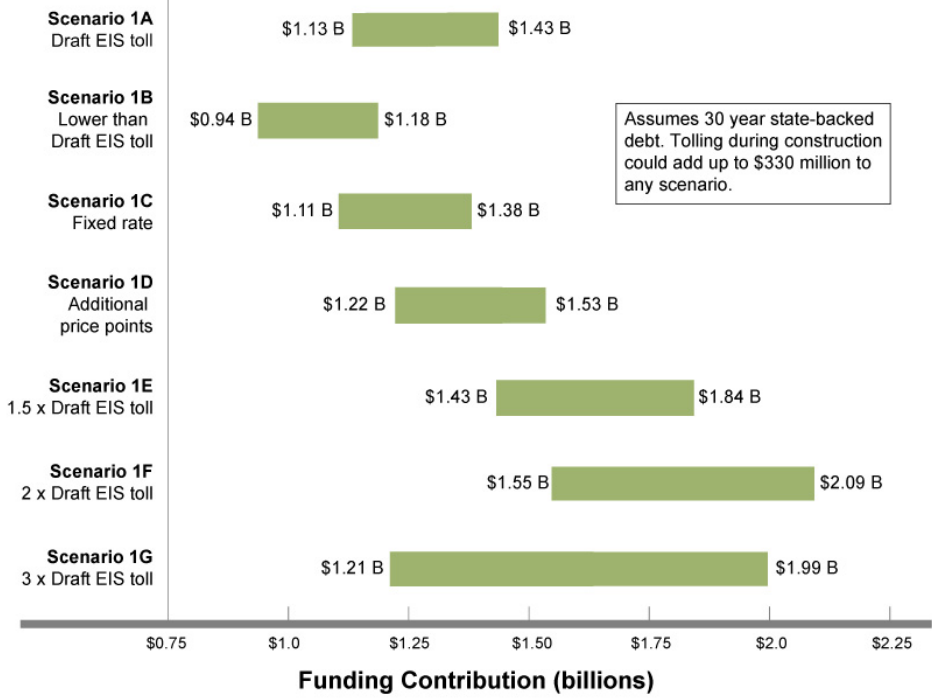
Hours of Congestion for I-5 and I-205 Tolling Scenarios



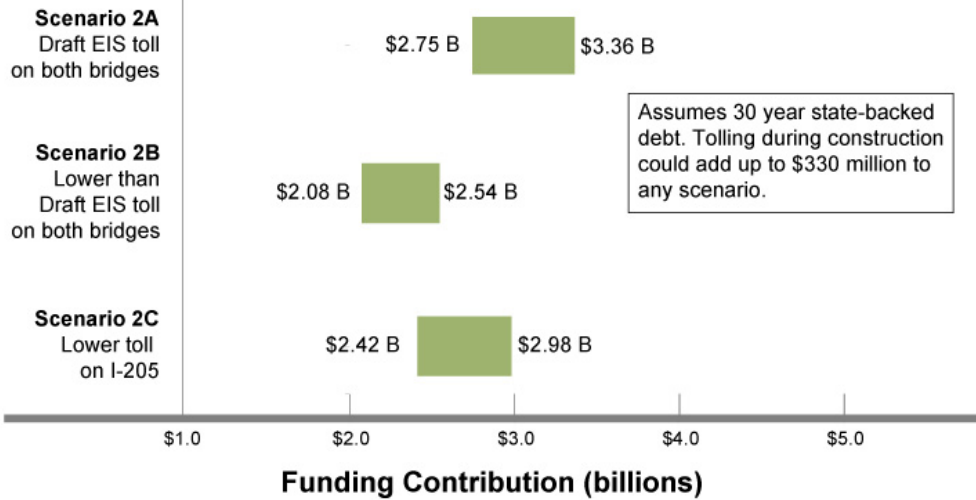
Average Daily Traffic Volumes for Tolling Scenarios



Funding Contribution from Tolls – I-5 Toll Scenarios



Funding Contribution from Tolls – I-5 & I-205 Toll Scenarios



What we've heard



Input sought by legislation

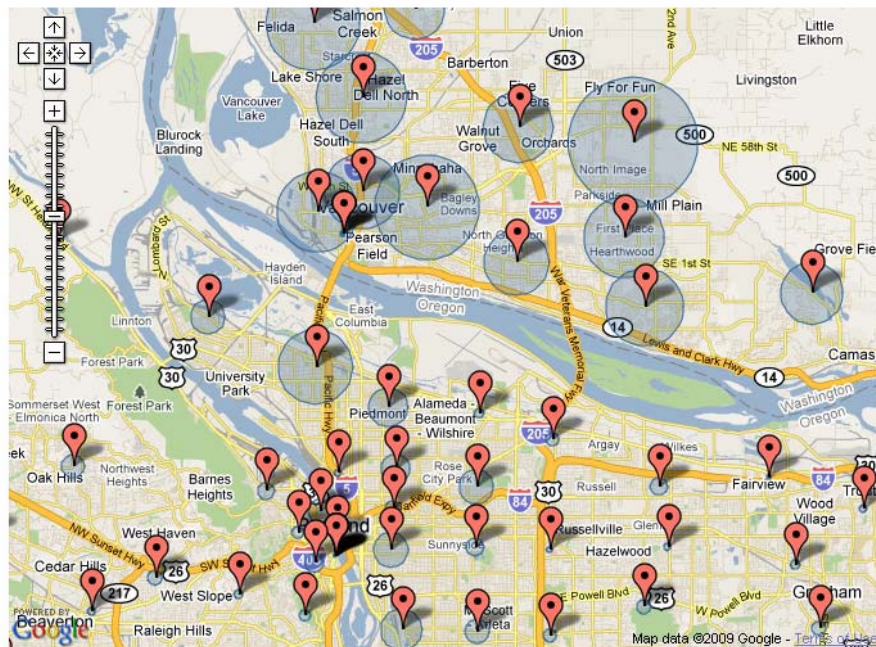
- Funding a portion of the CRC project with tolls
- Implementing variable tolling as a way to reduce congestion on the facility
- Tolling I-205 separately as a management tool for the broader state and regional transportation system

Tolling outreach activities, June - December

- 2 open houses
- 2 freight forums
- 20 fairs and festivals
- 3 listening sessions/Tolling Study Committee meetings
- 19 presentations to business/freight groups
- 30 presentations to community groups
- 51 agencies/organizations have posted or distributed information
- Tolling Web site: <http://tolling.columbiarivercrossing.org>
- 4,248 participated in the CRC tolling Web survey

These activities are part of the project's 700 events to date, reaching over 21,000 people.

Online survey – project area zip codes



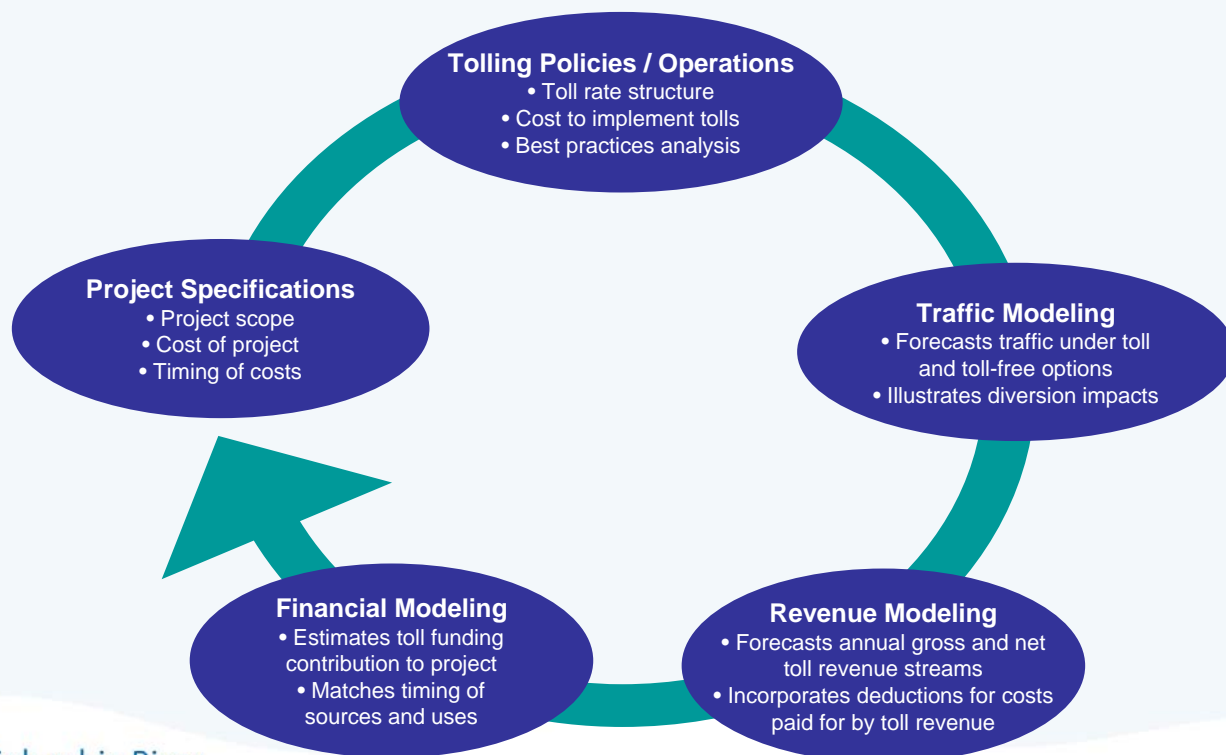
Map by Google Maps

Online survey

- Over 4,200 participated in the survey
- About half travel across I-5 Bridge multiple times a week; I-205 was used less frequently
- More than half of the trips on I-5 were by single occupants in a personal vehicle; work was the most frequent reason for the trip
- Slight majority would support early tolling to lower tolls and financing costs
- Learning more about variable tolling did not change attitudes
- After learning benefits associated with tolling both bridges, a majority of respondents did not support tolling I-205



Moving forward



Project schedule

- January 2010: Tolling report submitted to legislatures
- Fall 2010: Final Environmental Impact Statement (includes financial chapter)
- Winter 2010: Federal Record of Decision
- 2012: Earliest construction could start
- 2017: New bridge opens

PERFORMANCE MEASURES ADVISORY GROUP INTERIM REPORT AND RECOMMENDATION

Final Report — January 14, 2010

January 2010



Title VI

The Columbia River Crossing project team ensures full compliance with Title VI of the Civil Rights Act of 1964 by prohibiting discrimination against any person on the basis of race, color, national origin or sex in the provision of benefits and services resulting from its federally assisted programs and activities.

Americans with Disabilities Act (ADA) Information

If you would like copies of this document in an alternative format, please call the Columbia River Crossing project office at (360) 737-2726 or (503) 256-2726. Persons who are deaf or hard of hearing may contact CRC using Telecommunications Relay Service by dialing 7-1-1.

¿Habla usted español? La información en esta publicación se puede traducir para usted. Para solicitar los servicios de traducción favor de llamar al (503) 731-3490.

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Appendices

Appendix A. Columbia Crossing Mobility Council Concept

Appendix B. Performance Measurement Technical Working Group

Appendix C. Draft Performance Measures and Targets

ACRONYMS

ACS	American Community Survey
ADA	Americans with Disabilities Act
BIA	Bridge Influence Area
CRC	Columbia River Crossing
CTR	Commute Trip Reduction
DEIS	Draft Environmental Impact Statement
ECO	Employee Commute Options
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GPS	Global Positioning System
GTEC	Growth and Transportation Efficiency Center
HOV	High-Occupancy Vehicle
HOT	High-Occupancy Vehicle or Toll
I-5	Interstate 5
LOS	Level of Service
LPA	Locally Preferred Alternative
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
ODOT	Oregon Department of Transportation
PBAC	Pedestrian and Bicycle Advisory Committee
PMAG	Performance Measures Advisory Group
PSC	Project Sponsors Council
RTC	Regional Transportation Council

RTP	Regional Transportation Plan
SOV	Single-Occupancy Vehicle
TDM	Transportation Demand Management
TMA	Transportation Management Association
TSM	Transportation System Management
UGB	Urban Growth Boundary
VMT	Vehicle Miles Travelled
WSDOT	Washington Department of Transportation

1. Executive Summary

This report is an interim product of the Performance Measures Advisory Group (PMAG). PMAG was established by the Columbia River Crossing’s (CRC) Project Sponsors Council (PSC). PSC intended for PMAG to provide technical advice to be used by a bi-state, multi-agency Mobility Council, the concept of which was also initiated by the PSC.

PMAG was charged with developing performance measures to help assure that the objectives of the CRC project would be realized and negative consequences would be avoided. The CRC project is a multi-modal project in a 5-mile corridor that seeks to implement highway improvements, high-capacity public transit, and improvements for bicyclists and pedestrians.

With its primary focus on how the facility should be operated and managed over time, PMAG developed goals, objectives and performance measures that could be used by the Mobility Council to monitor and actively manage this multi-modal facility.

PMAG developed goals and goal statements in six areas:

- **System Access, Mobility, and Reliability** – Maximize access through efficient and reliable movement of people and goods through the corridor.
- **Financial Responsibility and Asset Management** – Ensure sufficient revenue to maintain financial solvency; maintain assets at their lowest life-cycle costs; support re-investment in programs and infrastructure; and fund operations and transportation options that extend the operational life of the facilities.
- **Climate, Energy Security, and Health** - Reduce project-related energy consumption, GHG emissions, air pollution, and other environmental impacts.
- **Safety and Security** - Minimize the occurrence of crashes, especially those involving fatalities and serious injuries, and maximize the safety and security of project-related system users and surrounding communities.
- **Economic Vitality** - Enhance economic vitality of the region by facilitating efficient freight / goods movement and improving multimodal access between businesses, labor markets, and job centers.
- **Land Use** - Support prevailing state and local land use goals and policies and multimodal access to jobs, services and residences.

Twenty two objectives were identified in support of the goals. The titles of the objectives are listed below. The full language of each can be found in Section 4 of this report.

- | | |
|--|---|
| <ul style="list-style-type: none"> • Reliability • Mobility • Mode Choice • Demand Management • System Impacts • System Equity • Solvency | <ul style="list-style-type: none"> • Operations, Maintenance, and Asset Management • Air Pollutants • Greenhouse Gases • Fuel Consumption • Public Health Equity • Security • Safety |
|--|---|

- Cost of Goods Movement
- Access to Freight Facilities
- Access to Jobs and Markets
- Interchange Capacity
- Balanced Lane Use and Transportation
- Smart Growth
- Industrial Lands

In a subsequent phase, the goals and objectives would be further supplemented by performance measures and targets. Performance measures and targets are intended to help monitor and assess whether the project is operating according to expectations and avoiding significant negative consequences. In addition, the performance measures are intended to provide a basis upon which corrective action can be based.

Given the ambitious schedule of reporting to the Project Sponsors Council by January 2010, PMAG did not have sufficient time to define performance measures or numeric targets to support many of Goals and Objectives. In some cases this is due to a lack of baseline data; in others cases, policy direction or at least confirmation of policies is required. Draft Performance measures and targets discussed by PMAG are included in an appendix and can serve as a starting point for future efforts.

PMAG's report includes the identification of data sources that may be used and some additional data needs. It also identifies some of the tools that may be used to influence the operation of the facilities in the corridor and others that could be affected by those actions.

PMAG recommends and requests acceptance or modification by PSC of the Goals and Objectives. In addition, PMAG seeks additional policy guidance to be used to advance the work toward final Performance Measures and Targets. To help achieve this, PMAG identifies some Future Steps in Section 7 of this report. Among these steps, PMAG suggests additional policy direction to define the relationship among the parties, clarifying and extending the role of PMAG to advance the technical work, and further clarification of implementation responsibilities.

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2. Introduction

The Columbia River Crossing (CRC) project is intended to provide multimodal transportation benefits in the Interstate 5 (I-5) corridor. During the process of selecting, refining, and advancing the CRC project, concerns have been raised whether benefits from the proposed improvements will be offset by negative impacts that may result from major transportation investments.

Some stakeholders believe that the project will produce fundamental changes to the transportation activity in the corridor by the introduction of new features, such as high-capacity public transit, partly along dedicated rights-of-way, and new, modern facilities for use by bicyclists and pedestrians. In addition, the project is planned as a toll facility that could use peak period tolls, active transportation demand management, and transportation system management to help achieve performance objectives over time as traffic growth occurs. Matched with high densities in key areas including Hayden Island and downtown Vancouver, these stakeholders believe that the corridor will provide multimodal options that represent a significant change from the current reality where automobile traffic is the overwhelming choice for travel and where few other options are currently available.

At the same time, other stakeholders believe the project being advanced represents a continuation of past trends with continued reliance on the automobile with all of its related problems such as increased urban sprawl, air and climate pollution, degraded quality of life for those living along the corridor and delays for freight traffic resulting from additional commuter traffic. These stakeholders point to provisions of the project that increase the vehicular capacity of the highway and contend that these will induce more and longer-distance automobile travel and additional traffic demand that cannot be accommodated on the central Portland street and freeway system.

Few disagree with the need for significant improvements in the corridor to correct significant safety problems, reduce seismic vulnerability of the existing bridges, and eliminate the existing lift-span bridges that must be raised to accommodate marine traffic on the Columbia River. Finally, there is general agreement that improvements are needed in the corridor to accommodate planned growth of the region and especially in accommodating freight movements that are an important component of the regional economy. There are, however, disagreements on whether certain elements of the project intended to solve one problem will have negative consequences for the region and conflict with state, regional, or local goals.

2.1 Establishment of a Mobility Council

In recognition of the existence of these divergent views and those that fall between them, the CRC's Project Sponsors Council (PSC) endorsed the concept of a Mobility Council to oversee management of the corridor. The idea behind the Mobility Council is to assure that the project operates consistently with the expectations and with the assumptions, such as population and employment forecasts and the adopted land use and transportation plans for the region.

The Mobility Council would have representation from the Washington and Oregon Departments of Transportation, the Cities of Portland and Vancouver, TriMet, C-TRAN, Metro and the Regional Transportation Council (RTC), the Port of Vancouver and the Port of Portland. Inclusion of these agencies in the Mobility Council is intended to assure a multimodal approach to management of the corridor. The PSC's Columbia Crossing Mobility Council Concept adopted by the PSC on March 6, 2009 is included as Appendix A.

According to PSC's concept, "The purpose of this Mobility Council is to provide recommendations to the DOTs and transit agencies on ways to actively manage mobility for all modes of transportation on the Columbia River crossings and their adjoining city streets and highways." According to the PSC's concept, "the Mobility Council's annual recommendations may include, but are not limited to, tools such as toll rate structures, travel and auxiliary lane uses and accesses, applicable transit policies, and transportation demand management (TDM) strategies."

This multimodal emphasis would help coordinate the activities of the service providers and recommend joint strategies that affect all transportation services in the corridor through the Mobility Council's recommendation of a "Columbia Crossing Mobility Operations Plan." Depending on how its role develops, the Mobility Council could also monitor and potentially comment on other regional issues such as land use, employment, and residential development. Through monitoring and active management, the Mobility Council could help to assure that the desired outcomes are realized.

2.2 Establishment of PMAG

To assist the Mobility Council on technical issues, the PSC also created the Performance Measures Advisory Group (PMAG) at its May 4, 2009 meeting. According to the minutes of that meeting a formal vote was not taken, but "PSC members generally concurred with the process, as outlined in the handout, for the creation of the working group." The "Performance Measurement Technical Working Group" handout discussed at the PSC meeting and dated 5/1/09, is included as Appendix B.

Performance measures, which have been used in the management of transportation systems for more than a decade, have become increasingly important. According to one of the Resource Papers presented at a Transportation Research Board Performance Measures Conference, "Performance measurement is being applied widely in many transportation agencies and often extends well beyond the performance of the transportation system itself."¹

Establishing performance measures in advance of the implementation of the CRC project and developing them for management of this bi-state, multimodal corridor shows that the project partners are committed to both the implementation of the CRC project and will establish and perpetuate the management of the corridor to meet regional, multi-modal performance objectives.

¹ Steven Pickrell and Lance Neuman, "Use of Performance Measures in Transportation Decision Making" Resource Paper, included in Conference Proceedings 26 – Performance Measures to Improve Transportation Systems and Agency Operations by Transportation Research Board

The following is quoted from the “Background” section of the Performance Measurement Technical Working Group materials discussed by PSC on May 4, 2009:

“Issues of importance to the Project Sponsors Council that prompted their request for transportation performance measures include:

- Protect investments in the corridor;
- Maximize system capacity and efficiency of I-5 in the Portland/Vancouver area;
- Reduce transportation-related greenhouse gas emissions; and
- Minimize induced demand and growth.”

The following is quoted from the “Purpose” section of the same materials discussed by PSC on May 4, 2009:

“The Performance Measures Technical Working Group will be responsible for:

- Developing reasonable and measureable transportation performance measures to ensure optimal long-term performance and management of the Columbia River crossing, including:
 - Safety in the corridor;
 - Effective management of Interstate 5 and related arterials and highways; and
 - Predictable and reliable trips for the multimodal transportation system.”

2.3 Composition of PMAG

The members of PMAG approved by the PSC consisted of agency representatives, national experts on performance measures and a facilitator. PMAG members and their affiliations approved by PSC were:

- Scott Chalkley, Performance Management Program Manager, Oregon Department of Transportation (ODOT)
- Rob Fellows, Toll Planning and Policy Manager, Washington State Department of Transportation (WSDOT)
- Andy Cotugno, Planning Director, Metropolitan Service District (Metro)
- Dean Lookingbill, Transportation Director, Southwest Washington Regional Transportation Council (RTC)
- Peter Hurley, Transportation Options Project Manager, Office of Transportation, City of Portland
- Phil Wuest, Transportation Services, City of Vancouver
- Eric Hesse, Strategic Planning, TriMet
- Scott Patterson, Director of Development and Public Affairs, C-TRAN

- Suzie Lahsene, Senior Manager, Transportation and Land Use Policy, Port of Portland
- Katy Brooks, Community Planning and Outreach Manager, Port of Vancouver
- Ginger Goodin, Senior Research Engineer, Texas Transportation Institute (Expert on managed lanes, HOT lanes, HOV lanes, and tolling)
- Thomas Brennan, Principal at Nelson\Nygaard Consulting Associates (Expert on transit and multi-modal systems and performance)
- Angus Duncan, Chair, President, & CEO, Oregon Global Warming Commission, and President of the Bonneville Environmental Foundation (Expert on global warming and environmental issues)
- Daniela Bremmer, Director, Strategic Assessment Office, Washington Department of Transportation and Chair of Transportation Research Board Performance Measurement Committee (Expert on system performance measurement)
- Steve Pickrell, Cambridge Systematics (Facilitator)

2.4 Overview of the Columbia River Crossing Project

The CRC project is a multimodal corridor improvement project in Portland, Oregon, and Vancouver, Washington. It focuses on improvements along a 5-mile segment of I-5. Approximately 2.8 miles are in Washington and about 2.0 in Oregon.

The CRC project is a multimodal project designed to:

1. Provide fixed-route, high-capacity transit;
2. Increase the capacity and improve safety for motor vehicle traffic, including freight traffic in the I-5 corridor;
3. Correct safety and structural deficiencies associated with the existing bridges;
4. Avoid interference between river traffic and highway traffic; and
5. Improve facilities for non-motorized traffic.

The planned highway element of the CRC project is to increase the through capacity across the river and to provide for three southbound and three northbound through lanes through the study area. The modification of interchanges is needed to:

1. Accommodate three lanes in each direction intended to serve through traffic;
2. Solve or, to the greatest extent possible, improve the geometric and safety elements of the existing interstate facility; and
3. Increase the functionality and capacity of the existing interchanges to avoid or minimize as much as possible, the potential for the existing interchanges to interfere with operations and safety in the interstate corridor.

The need for capacity improvements in the corridor has long been recognized and is documented in a variety of adopted transportation plans and studies. Studies undertaken to identify issues and needs in the corridor include the *Portland/Vancouver I-5 Trade Corridor Freight Feasibility and Needs Assessment*, completed in January 2000. The *Portland/Vancouver I-5 Transportation and Trade Partnership Final Strategic Plan*, completed in June 2002, recommended fixing three bottlenecks, including the I-5 crossing of the Columbia River. The CRC project is specifically identified as a project in the locally adopted, long-range transportation plans, including Metro's Regional Transportation Plan (RTP), adopted in June 2004, and RTC's Metropolitan Transportation Plan (MTP), adopted in 2007 and amended in 2008. Metro and RTC are the designated Metropolitan Planning Organizations (MPO) for the Portland, Oregon, and Vancouver, Washington, areas, respectively.

A Draft Environmental Impact Statement (DEIS) has been prepared for improvements along a 5-mile corridor. The DEIS for the CRC project was released in May 2008, and describes the potential effects of five alternatives on community, natural, and historic resources. It is worth noting that travel demand projections, including traffic volumes, transit use, and bicycle use are based on the adopted land use and transportation plans of the partner agencies. The regional transportation model was used as the basis for forecasting future travel.

The project has six local project partners (the Cities of Portland and Vancouver, TriMet, C-TRAN, RTC, and Metro) and two federal co-leads (Federal Highway Administration (FHWA) and Federal Transit Administration (FTA)). The project partners considered the DEIS, public comment, and the CRC Task Force (a 39-member group established to advise WSDOT and ODOT on project issues) recommendation to select a Locally Preferred Alternative (LPA) in July 2008. The partner agencies endorsed a replacement bridge with light rail extending to Clark College in Vancouver.

Additional public input, project design, and analysis will be reflected in a Final Environmental Impact Statement (FEIS), expected in mid 2010. The FEIS will describe the additional analysis on potential community and environmental effects of the project and will include responses to comments received during the DEIS public comment period.

2.5 Purpose of this Report

This report provides background on the work conducted by PMAG and presents its interim recommendations. It was acknowledged by PMAG that this group, with a limited period in which to conduct its work and present a recommendation, is a starting point. Follow-on work, including specifying needed data, baseline data collection efforts, identification of more specific targets, and the application of appropriate tools will need to come later.

Additional data collection will help set an accurate baseline against which to track future conditions. Good baseline data will also allow a better assessment of the effect of project decisions and a comparison to future expected conditions.

PMAG identified the need for appropriate bodies to provide policy guidance or resolve potential conflicts among the goals, objectives, and targets. For the most part, PMAG focused on providing the "road map" by recommending performance measures so that data could be

acquired, monitoring performed, analyses conducted, and finally, if needed, actions taken by the Mobility Council or by appropriate agencies.

It is also worth noting that the PMAG's recommendations on performance measures focus on the multimodal aspects of corridor operations. Since service providers, such as the transit operators and the state departments of transportation, already use performance measures extensively, PMAG's performance measures are not all inclusive. They supplement rather than replace those used by individual providers. Additional discussion is provided in the body of this report.

An additional purpose for which performance measures may be utilized is to inform the design process. As an extraordinarily large project that includes improvements for several modes of transportation, the selection and refinement of the design is lengthy and complex. This is due, in part, to the project being multimodal with both highway and transit elements. Further complications result from topographic and physical constraints and from the fact that the project seeks to implement solutions to an existing interstate highway in an intensively developed urban corridor. Due to time constraints related to the preparation of the Final EIS and advancement toward the preliminary engineering phase of the project, the effort undertaken by PMAG coincides with a major effort to refine the design of key project elements. These simultaneous efforts allow for consideration of PMAG's performance measure recommendations to inform the design process and in the future, support decisions to make design modifications or implement phasing options.

2.6 Future Activities Related to Performance Measures

As noted above, some additional guidance may be needed on policy issues. Further technical work will be needed to refine the targets associated with performance measures. Additional data collection and protocols will be needed.

The Mobility Council's responsibilities and relationship with other bodies, such as the Washington Transportation Commission and Oregon Transportation Commission, may need to be clarified. A means of providing technical guidance, such as a permanent technical committee, may be needed.

After performance measures and targets are selected, adopted, and tracked, it is likely that certain actions will be needed in response. The Mobility Council may need to make recommendations to several agencies. Some actions will lie within the authority of the DOTs; some will be within the authority of partner transportation agencies including the transit providers and cities; others could be within the authority of land use and environmental permitting agencies. The manner in which such actions are implemented could vary.

Finally, as it seeks to employ an active management strategy, the Mobility Council will need to continuously monitor and assess the results of the management actions it undertakes or recommends to the implementing agencies.

To accomplish these activities, PMAG identified several tasks that are further described in Section 7 of this report. PMAG recommends action in two broad areas:

- PSC acceptance, with modification as necessary, of PMAG's Goals and Objectives; and
- Providing policy guidance, and establishing the structure and formal relationships by which work on Performance Measures can be advanced, adopted and implemented.

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3. Relationship to the Overall CRC Project

As explained in the Introduction, the concept of a Mobility Council and the use of performance measures are intended to monitor and optimize transportation systems performance in the corridor and in the region. These uses should be considered in the context of the overall project that is being developed through the National Environmental Policy Act (NEPA) process that includes multiple steps and products.

3.1 CRC Purpose and Need

As introduced in the previous section, the CRC project is designed to address several complex and interrelated issues. This is most fully explained in the project's Purpose and Need statement.

A summary of the explanation from the CRC project's *Purpose and Need Statement*, adopted in 2006, is presented below.

- **Growing Travel Demand and Congestion:** Existing travel demand exceeds capacity in the I-5 Columbia River crossing and associated interchanges. This corridor experiences heavy congestion and delay lasting 2 to 5 hours during both the morning and afternoon peak travel periods and when traffic accidents, vehicle breakdowns, or bridge lifts occur. Daily traffic demand over the I-5 crossing is projected to increase by 40 percent during the next 20 years, with stop-and-go conditions increasing to at least 10 to 12 hours each day if no improvements are made.
- **Impaired Freight Movement:** I-5 is part of the National Truck Network, and the most important freight freeway on the West Coast. In the center of the project area, I-5 intersects with the Columbia River's deep water shipping and barging as well as two river-level, transcontinental rail lines. Vehicle-hours of delay on truck routes in the Portland-Vancouver area are projected to increase by more than 90 percent over the next 20 years. Growing demand and congestion will result in increasing delay, costs, and uncertainty for all businesses that rely on this corridor for freight movement.
- **Limited Public Transportation Operation, Connectivity, and Reliability:** Due to limited public transportation options, a number of transportation markets are not well served. Current congestion in the corridor adversely impacts public transportation service reliability and travel speed. Travel times for public transit using general purpose lanes on I-5 in the bridge influence area are expected to increase substantially by 2030.
- **Safety and Vulnerability to Incidents:** The I-5 river crossing and its approach-sections experience crash rates nearly 2.5 times higher than statewide averages for comparable facilities. Incident evaluations generally attribute these crashes to traffic congestion and weaving movements associated with closely spaced interchanges. Without breakdown lanes or shoulders, even minor traffic accidents or stalls cause severe delay or more serious accidents.

- **Substandard Bicycle and Pedestrian Facilities:** The bike/pedestrian lanes on the I-5 Columbia River bridges are 3 to 4 feet wide, narrower than the 10-foot standard, and are located extremely close to traffic lanes thus impacting safety for pedestrians and bicyclists. Direct pedestrian and bicycle connectivity are poor in the bridge influence area (BIA).
- **Seismic Vulnerability:** The existing I-5 bridges are located in a seismically active zone. They do not meet current seismic standards and are vulnerable to failure in an earthquake.

3.2 Relationship of Performance Measures and Key CRC Elements

The CRC project is a multimodal project that will implement improvements to the highway system, the public transit system, and make improvements specifically for bicyclists and pedestrians.

Highway improvements included in the project will improve safety, provide reliability, and increase capacity consistent with the regional growth and development assumptions. From the beginning, the corridor has been intended to provide three through lanes in each direction with appropriate auxiliary lanes to accommodate the weaving and merging movements between the closely-spaced interchanges. Tolling of the facility has also been assumed from the beginning, primarily to help generate revenue to pay off bonds needed to fund the project and, in part, to moderate demand for driving in the corridor. Various tolling scenarios have been developed with different rates and with rates that vary by time of day. Discussions of tolling are ongoing and no recommendations have been developed at this time. Ramp metering, which is already in use at several ramps in the study area, is considered a key to management of the corridor. Ramp metering is assumed to be carried forward in the design to assure adequate traffic operations of the I-5 mainline.

Improvements to the highway network were also specifically tailored to meet the needs related to movement of freight. Critical factors for freight include freight travel time, reliability, and access to major generators. The project seeks to serve the high-volume freight movements, minimize opportunities for delays, and accommodate the physical needs of large, over-the-road trucks that have different operating characteristics, especially as it relates to turns and grades. These factors influenced the design of ramps, intersections, and interchanges.

Major improvements will be made to the public transit operations in the corridor. Currently, transit buses, which provide the only public transportation in the corridor, are limited in number and, for the most part, suffer from the congestion and delays encountered by general traffic. The project will include high-capacity, fixed-route public transit – an extension of TriMet’s MAX light rail system from its current terminus at the Expo Center to Hayden Island, downtown Vancouver, with a termination at Vancouver’s Clark College. Park-and-ride facilities are identified at key locations in Vancouver. This new high-capacity service, separated from motor vehicles for key portions of the line, will offer real options for people desiring an alternative to the automobile for their trips in the corridor.

The project is also being designed to provide superior facilities for bicyclists and pedestrians – a huge contrast to the existing, substandard facilities. Replacing the very narrow, exposed, and uncomfortable facilities with a modern facility is expected to produce dramatic results. The project also seeks to replace some of the circuitous routing leading to the current bridge with better, more direct connections. Like the provision of new transit service, the physical improvements for bicyclists and pedestrians are expected to provide new options for those seeking alternatives to the automobile for their trips.

The performance measures developed and recommended by PMAG are intended to help manage the system and realize the potential offered by the extended transit system and the improved facilities for the bicyclists and pedestrians. The performance measures are also intended to help prevent single-occupant automobiles from using up the highway capacity improvements intended to accommodate freight traffic that is critical to the region's economy.

In general, the performance measures are designed to help the corridor achieve the desirable outcomes and reduce negative consequences.

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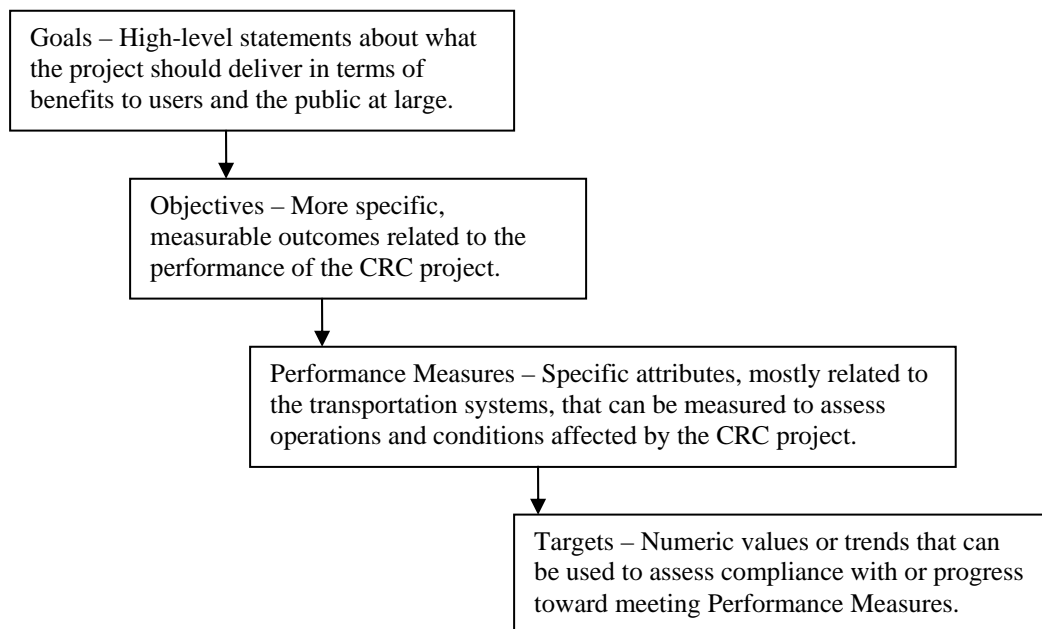
4. PMAG Goals, Objectives, and Performance Measures

This section presents a framework developed by the PMAG that will ultimately lead to a comprehensive and systematic approach for measuring and evaluating performance of the CRC project. Due to the complexity of the project, its multi-modal focus, and its regional importance, PMAG elected to focus its efforts on the development of a framework to guide future efforts. This framework, with Goals and Objectives, is an interim product that can be built upon and refined in subsequent efforts that will produce more specific performance measures and targets.

In establishing this framework, PMAG achieved consensus on Goals and Objectives. These will ultimately be supplemented by Performance Measures and Targets that can be used to directly measure and evaluate the performance of the facilities.

The relationship and hierarchy of these are depicted in Figure 4.1 and are explained in additional detail below.

Figure 4.1. Relationship of Goals, Objectives, Performance Measures and Targets



The goals and supporting objectives developed by PMAG tend to focus on how the facilities would operate with a lesser emphasis on how the CRC project would be designed. PMAG's Goals and Objectives, for example, emphasize ways of ensuring high utilization of public transit use and alternative modes of travel with management actions that take advantage of the new and upgraded facilities for these modes.

Design-related issues are primarily dealt with through the National Environmental Policy Act (NEPA) process and the preparation of a draft Environmental Impact Statement (DEIS) and final Environmental Impact Statement (FEIS). As a result, some design issues, such as seismic vulnerability, one of the key reasons for undertaking the CRC project as presented in the project's adopted Purpose and Need Statement are not addressed in PMAG's Goals and Objectives.

Overall, PMAG's Goals and Objectives are intended to supplement and be consistent with state, regional, and local policy direction as well as the project's broader goals and objectives. PMAG's Goals and Objectives emphasize the operational aspects while recognizing some overlap between the design and operation of the facilities.

Given the ambitious schedule of reporting to the Project Sponsors Council by January 2010, PMAG did not have sufficient time to finalize performance measures or numeric targets, but concentrated on the Goals and Objectives that make up the performance evaluation framework. PMAG's interim product emphasizing Goals and Objectives can be carried forward all the way through the development of performance measures and targets with additional time and additional policy direction related to certain topics.

A certain degree of inconsistency or conflict exists between some of the goals and objectives. Some examples of this are: higher highway operating speeds that help to minimize travel time result in a modest loss of fuel efficiency, higher emissions of some pollutants, and perhaps even a reduction in safety. Striking the proper balance between these objectives is a matter most appropriately conducted at a policy level. With additional policy direction, time and resources, PMAG or a successor group could use the established framework to expand beyond the Goals and Objectives and complete the recommendations for Performance Measures and Targets.

Ultimately, the intent would be to use the Performance Measures and Targets to measure and assess the operation of the transportation systems and to use tools and actions to affect changes such that the desired performance is achieved. As indicated in PSC's concept, explained in Section 2.1, the Mobility Council is expected to play an important role in assessing operations and in implementing or recommending various tools and actions to affect changes. As further developed in Section 6 of this report, the tools and actions are under different authorities including the state DOTs, the transit operators and others.

The accompanying matrix of Goals and Objectives is the primary product of PMAG.

In developing the Goals and Objectives, PMAG spent considerable time proposing and discussing both Performance Measures and Targets. Again, due to time constraints, PMAG was unable to finalize these. To make certain that these efforts were not lost and to provide a good starting point for subsequent efforts, the Draft Performance Measures and Candidate Targets are included in Appendix C. As noted above, some additional policy direction may be required to fully develop these.

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PMAG Goals and Objectives

Goal Area	System Access, Mobility, and Reliability	Financial Responsibility and Asset Management	Climate, Energy Security, and Health	Safety and Security	Economic Vitality	Land Use
Goal Statement	Maximize access through efficient and reliable movement of people and goods within and through the corridor.	Ensure sufficient revenue to maintain financial solvency; maintain assets at their lowest life-cycle costs; support re-investment in programs and infrastructure; and fund operations and transportation options that extend the operational life of the facilities.	Reduce project-related energy consumption, GHG emissions, air pollution, and other environmental impacts.	Minimize the occurrence of crashes, especially those involving fatalities and serious injuries, and maximize the safety and security of project-related system users and surrounding communities.	Enhance economic vitality of the region by facilitating efficient freight / goods movement and improving multimodal access between businesses, labor markets, and job centers.	Support prevailing state and local land use goals and policies and multimodal access to jobs, services and residences.
Objectives	<p>Reliability. Maintain travel time reliability of the CRC for all users (transit, auto, freight, ped/bike) with an emphasis on emergency vehicles, freight, high occupancy vehicles and transit.</p> <p>Mobility. Minimize travel delay for all users (transit, auto, freight, ped/bike) with an emphasis on emergency vehicles, freight, high occupancy vehicles and transit.</p> <p>Mode Choice. Continually increase the proportion of trips using alternatives to driving alone.</p> <p>Demand Management. Reduce per capita VMT consistent with state, regional and local VMT and GHG reduction goals.</p> <p>System Impacts. Prevent significant adverse impacts from the corridor on related transportation systems and the surrounding communities.</p> <p>System Equity. Improve affordable and convenient access to travel options, jobs, and housing for designated populations commensurate with improvement for the general population.</p>	<p>Solvency. Generate sufficient toll revenue and transit revenue to ensure financial solvency, including satisfying obligations to bondholders.</p> <p>Operations, Maintenance, and Asset Management. Ensure sufficient funds dedicated for operations and maintenance and long-term preservation for all modes and systems, while ensuring freight movement is not disproportionately affected.</p> <p>Transportation Options. Ensure sufficient funds dedicated to improving and expanding access for users of transportation options including modes of travel that can extend the operational life of the facilities.</p>	<p>Air Pollutants. Reduce emissions of project-related regional system air pollutants in the bridge influence area.</p> <p>Greenhouse Gases. Operate the facilities in ways that help reduce project-related regional system greenhouse gas emissions consistent with state, regional and local goals.</p> <p>Fuel Consumption. Operate the facilities in ways that contribute to project-related regional system reductions in petroleum consumption.</p> <p>Public Health Equity. Reduce detrimental project-related regional system impacts to the public health for all populations.</p>	<p>Security. Operate the corridor in ways that enhance the security and comfort of users of all modes, including transit riders, bicyclists, pedestrians, and motorists, as well as residents of the surrounding communities.</p> <p>Safety. Minimize crashes, especially those involving fatalities and serious injuries, across all modes.</p>	<p>Cost of Goods Movement. Minimize cost of goods movement by balancing travel time and reliability improvements with the cost of goods / freight movement in and through the corridor.</p> <p>Access to Freight Facilities: Improve truck access to freight facilities.</p> <p>Access to Jobs and Markets. Increase multimodal access and reduce travel time between: Labor force and job centers; Businesses and their markets.</p> <p>Interchange Capacity. Protect capacity of key freight access routes.</p>	<p>Balanced Land Use and Transportation: Achieve levels and locations of planned growth of jobs and housing consistent with project access and mobility objectives, without inducing unintended growth.</p> <p>Smart Growth. Increase the proportion of growth in designated centers to reduce VMT and improve access.</p> <p>Industrial Lands. Prevent encroachment of incompatible uses in existing and planned industrial areas.</p>

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5. Data Needs and Collection

Performance measures are widely used and considerable data is currently collected by transportation agencies to assess and improve their operations, to inform managers and policymakers to make better decisions, or simply as a condition of federal funding. The performance measures recommended by PMAG will primarily utilize data collected by other agencies. Some of these agencies' data may be processed differently and "repackaged" to specifically address the issues and concerns about this particular project. The data may be used for monitoring and for the formulation of corrective actions.

The geographic area of coverage, the frequency of data collection and analysis, and the level of detail about some data are among the issues that will require additional investigation and recommendations. Collection of some baseline data may suggest additional data collection needs. Monitoring of results over time may also suggest changes in the content, methods, and frequency of data collection efforts.

5.1 Data from Existing Sources

Examples of some of the data currently collected by agencies and which may be useful for assessing performance measures presented in the previous section are described below.

Highway Vehicle Use Data

Both ODOT and WSDOT routinely collect traffic counts on their highway systems including counts that differentiate between vehicle types (autos and trucks by number of axles, for example). On I-5 and I-205, both agencies employ automatic traffic counts that record vehicle use continuously. Vehicle use by classification and by lane is available for these sites. These data are used to track vehicle use, including the variation by time of day, by day of week, as well as seasonal use and annual trends. These data are aggregated and analyzed in many ways, including the calculation of speeds and congestion in the corridor.

Traffic volume data is also routinely collected by the state DOTs and cities for other streets and highways under their jurisdictions. Data collection methods and the exact composition of the data vary as does the schedule upon which it is collected. Counts for most major streets and the interchange ramps are routinely collected every few years. Traffic counts at signalized intersections are also taken regularly to help optimize the signal timing.

Basic truck volumes are typically collected as part of routine traffic data collection efforts. Given the importance of freight movements in this corridor and the possibility that freight movements are already inhibited by congestion, load limits on bridges, restricted clearances or other issues, some additional data collection may be needed to establish baseline conditions and monitor system performance related to truck movements.

In all, the collection of traffic count data is reasonably routine and complete. The available data provides a reasonably complete picture of traffic operations. Agencies are expected to continue

to collect and use these data. Some of the vehicle data could readily be used to help fulfill the data needs for the recommended performance measures.

Highway Safety Data

Though the reporting requirements vary somewhat between Washington and Oregon, crash data is collected in both states and is routinely summarized by location and type. Typically, the information is summarized annually by segment, but detailed information including the specific location and details of individual crashes can be obtained and analyzed. These more detailed data are typically accessed when segment-level problems are identified.

Transit Passenger Data

Transit agencies routinely collect vast amounts of data to fulfill the reporting requirements of the Federal Transit Administration and for their own use in planning and operating their systems. For example, transit agencies have considerable detail on ridership by route and by time of day. Schedules provide information on route and system capacity.

Other transit passenger-related data gathered or assembled from various sources include information on items such as park-and-ride utilization, load factors (passenger/capacity), and other key items needed to effectively operate and manage the system. Both C-TRAN and TriMet are expected to continue to comply with reporting requirements; assembling the data to use for corridor performance measures will probably not be too burdensome.

TriMet and C-TRAN conduct an annual survey to assess public attitudes and awareness of the public transit. Topical issues are undertaken periodically as the need arises.

Alternative Modes of Transportation

Data on use of alternative modes of transportation, especially vanpools, carpools, bicycling and walking, is less comprehensive and is assembled from a variety of sources. Some of the potentially more-useful data sources are discussed below.

The City of Portland continues to expand its bicycle count program. Typically conducted by volunteers during October, the program seeks to count bicyclists during a two-hour period during the late afternoon. The number of count locations has been expanded for several consecutive years. Most counts are in the higher-use areas, but the geographic area of coverage has been expanding. The data provides some good information for comparison purposes.

Commuter Trip Reduction (CTR) and Employee Commute Options (ECO) are programs of the states of Washington and Oregon, respectively. Both states require reporting on the commute trips made by employees of most large employers in the region, though certain employers are exempt and the reporting requirements of the two states are somewhat different. The data are not comprehensive since small employers are not included and it does not necessarily help determine use of alternative modes in any particular corridor or geographic area. The data is applicable only for employee commuting, not for all trip purposes.

Vanpooling information is compiled by C-TRAN's vanpool program and by Metro. Both programs actively support vanpool activity and closely monitor their participation and use. These

are potential useful data, but it currently represents a tiny segment of transportation use in the Portland-Vancouver region.

Freight-Specific Data

Freight is unique for several reasons including the fact that trucks on highways are not the only mode of transportation – rail, pipeline, air and water transport are all options for movement of some commodities and people. Intermodal transfers between modes are also accomplished at key locations near the CRC project. Another unique feature of truck freight movement in the corridor is the high proportion of traffic using the corridor that has neither an origin nor destination in the Portland-Vancouver region. Some of the more important sources of data and statistics on freight movement within the region and in the I-5 corridor include: Portland Freight Data Collection Phase II, Draft Report (2006), Oregon Transportation Plan's Freight Issues, Background Paper (2006), Washington Transportation Plan, Moving Freight, Executive Summary of Freight Report, (2005) and Strategic Freight Transportation Analysis (SFTA) Origin- Destination Freight Data (1993/1994 – 2002).

Regional Household Travel Behavior Survey

The region's MPOs undertake a household travel behavior survey every ten years. It is a comprehensive data set used to update models and is an integrated effort to calibrate all of the various travel conditions, including personal behavior tied to socio-economic characteristics, linked to traffic counts, transit counts, and bike counts. It has typically included over-sampling for LRT riders and bike riders to get more reliable behavioral information. Over-sampling of users of the I-5 and I-205 corridors could be used in a similar manner. The next regional household travel behavior survey is scheduled for 2011 which could make it especially valuable for establishing baseline conditions. Among other uses of the travel behavior survey is the calibration of the regional travel demand model from which a variety of information can be extracted, including the modeled origin-destination patterns. These model outputs can be useful for estimating trip lengths, traffic diversion, mode shift and other transportation attributes.

Non-Transportation Data

Some of the performance measures identified in this report are based on combining transportation data with data collected by and maintained by others. Air quality data, for example, are collected and monitored by Oregon's Department of Environmental Quality and Washington's Department of Ecology. Various land use data, including population and employment data, as well as the regional transportation models are assembled and maintained by the Southwest Washington RTC and by Metro. These sources will need to be tapped to calculate and analyze some of the performance measures.

The regional commodity flow data base is updated periodically but should be undertaken on a regular schedule. Regular updates would provide current commodity flow information to adjust both value and volume data for goods movement in the corridor. Timing of the updates could coincide with the release every five years of the USDOT Commodity Flow Survey of the United States. This survey is the most comprehensive freight data collection program in the country and the basis for most public and private freight data products and analyses. The next release date is January 2010. Specific freight data sources will be needed to calculate and analyze some of the performance measures for the corridor.

5.2 Data from New Sources

As described above, considerable data is routinely obtained by transportation agencies and others that can be used to help fulfill the needs related to performance measures. To analyze the I-5 corridor and the CRC project, it may be desirable to expand some of these data collection efforts and periodically undertake some special studies to gain additional data.

Toll/Revenue Data

The performance measures in the financial goal area will require certain data collected by the operating authority. Assuming tolls are collected, considerable financial information will be assembled and used by the tolling authority. Depending on whether the tolls are collected directly by a tolling authority or by contracting with a vendor, some of the data might be confidential. Tolling affords the opportunity to collect probe-based data on speeds and travel times if additional electronic “readers” are strategically placed on the facility. In addition to data on toll transactions and revenues, account data on home zip code and frequency of use (if legally available according to statute and toll account agreement) could be used to perform analysis on various factors related to travel behavior. Toll customers registered with the system offer an accessible database of respondents for user surveys.

Vehicle Occupancy Data

Data on carpool use is collected routinely on a regional basis through surveys such as the Bureau of the Census’ American Community Survey (ACS). These data are only collected for commuter to work purposes and are not specific to individual corridors. Other surveys, such as the annual survey conducted by Portland’s auditor’s office, collect similar information. Field studies have been collected in the I-5 corridor to directly observe and tabulate vehicle occupancy of autos using I-5. These studies have the advantage of being specific to the corridor and accounting for all trip types rather than only work trips. Such surveys can be expensive and may be difficult to conduct simply because of the difficulty of correctly identifying the number of occupants of a moving vehicle. If discounts for carpooling were part of the tolling strategy, such information might be more readily available from other methods. Collection of vehicle occupancy data would probably not be needed more frequently than on an annual basis.

Travel Distance Data

Reducing the VMT is a key goal at both the state and regional level. It is likely that efforts will be made by Oregon and Washington to obtain the necessary data to assess compliance with these goals. Assessing the travel distance by users of all modes using the CRC corridor is a related, but more complex, problem. The Bureau of Census’ ACS survey can provide some comparisons, but only on a regional basis. Another source of information on travel distances is the regional travel model that is calibrated from the regional household travel behavior surveys. Using the model, information can be extracted for trips that meet certain parameters, such as crossing the I-5 or I-205 bridges or that travel through the region. Certain information, such as the length of these trips, can be estimated from the model. Though not as accurate as directly obtained data, these estimates are easier to obtain and, over time, may be useful indicators of travel trends. However to use the regional model for truck travel distance information, some effort should be made to both update and refine the truck /freight element of the model and related data.

To obtain travel distances for users of all modes using the CRC project area will probably require surveys that could be moderately expensive and fairly difficult to conduct. Some efficiencies might be achieved by asking for travel distance information in connection with other surveys conducted in the region. Estimates of travel distances of vehicle trips crossing the river in the I-5 corridor multiplied by the number of vehicles counted on the bridge would at least produce a VMT estimate associated with the CRC project. The same methodology could be applied to the I-205 corridor. Travel distances by mode for the corridor probably need not be validated more frequently than every five years.

Regional Household Travel Behavior Survey

As described in Section 5.1, the region conducts a household travel behavior survey for a variety of purposes including calibration of the regional transportation model. The model can be used to estimate a variety of travel characteristics, such as travel distances, travel times, traffic diversion, and mode choice. The next survey is scheduled for 2011. Travel characteristics of the users of the I-5 and I-205 corridors may be derived from the planned survey. Over-sampling of those using these corridors might also be possible.

Special Purpose Surveys

Just as the City of Portland, TriMet and other agencies routinely use surveys to assess public awareness and satisfaction with their services, opportunities will exist for one of the state DOTs or the CRC's tolling authority to conduct surveys of the project. There are numerous methods by which statistically valid surveys can be conducted. Specialized surveys to assess awareness, attitudes and satisfaction could be undertaken individually or in connection with other surveys.

Travel Time Studies

Due to cost and manpower, travel time studies are typically conducted infrequently. As part of the data collection effort for the CRC project, travel time observations were conducted for mainline segments of I-5, I-205, and I-84. Data were used to help calibrate the traffic simulation models used to evaluate traffic operations. Some of the suggested performance measures involve origin-destination pairs that would include travel along the I-5 corridor and travel on connecting routes. Advances in travel time studies based on the use of global positioning systems (GPS) might make such studies more cost-effective and allow such studies to be undertaken on a periodic basis. In some regions, private data providers have been used to generate or extract travel time information using electronic means.

Freight Travel Time Studies

Since travel time and reliability for freight movements are important, monitoring of these attributes for trucks is important. A pilot project is currently underway in the Puget Sound region based on GPS technology. Refinements of these technologies and application of them in the Vancouver-Portland region are reasonable expectations. The method of data acquisition and reporting will evolve and the most effective truck data collection effort should be incorporated into the Mobility Council's work plan for this corridor.

Other Freight Studies

As described in Section 5.1, various studies have been conducted to gain specific information on freight issues, including things such as the type of commodity, timing, frequency, route of travel, origins and destinations, the value of the commodities and impact to business productivity. Updates of some of these prior studies, such as Commodity Flow, Freight Data Collection, Metro Truck Model Refinement and Cost of Congestion will be necessary to help to establish a more up-to-date baseline, establish targets, and track trends over time.

6. Actions and Tools That May Be Employed to Achieve Desired Results

6.1 Implementation Responsibility

There are a wide range of actions and tools that may be employed to affect the transportation use of the corridor. Some of these actions and tools are typically applied by individual agencies. The implementation responsibilities can be described in the following hierarchy:

Level 1 – These consist of the actions under the direct authority of the respective state transportation commissions or the state DOT for highway elements. Under state law, the Washington and Oregon Transportation Commissions have authority for tolls in their respective states. The state DOTs are responsible for operational items such as ramp meter rates, incident response practices, patrolling, maintenance and restriping, etc.

Level 2 – These consist of actions under the jurisdiction of other partner agencies such as the transit operator for operation of the light rail, buses, or park-and-ride facilities or the cities that control various arterial streets. The transit agencies have authority for fares, frequency of service, geographical coverage of routes, the operation of park-and-ride facilities, etc. Besides operating their local street systems, including signal timing, maintenance, on-street parking regulations, etc, local agencies are primarily responsible for transportation demand management programs and related issues.

Level 3 – Another set of actions and tools, especially those related to development, land use, and zoning, are under the jurisdiction of agencies with land use authority under state law, principally the cities and counties.

It is possible that the Mobility Council could have an ongoing role that would include annual recommendations relating to the operating agencies related to tolling, travel and auxiliary lane use, transit policies, and transportation demand management (TDM) strategies.

6.2 Categories of Tools

Tools and actions may have multiple uses and consequences. Many tools may be aimed at a certain aspect of corridor operations, such as peak hour, peak direction of travel on I-5. In applying a tool, such as increasing peak period tolls, to reduce that peak demand, it is important to consider the availability of alternatives, such as capacity of the light rail system, capacity for highway traffic during the off-peak hours, and available capacity of alternative routes, such as I-205. In addition, it may be important to match the primary tool, such as peak period tolls in this example, with ancillary tools, such as a marketing effort to inform the users of the available options. Rather than implementing a single tool aimed achieving a specific result, it may be appropriate to implement combinations of tools that are complementary.

Some tools are applied to maximize the operational efficiency of the highway system. These Transportation System Management (TSM) tools reduce delays, minimize variations in vehicle speed, increase reliability, and increase safety. TSM applies technology, such as real-time traffic monitoring, signals and communications equipment, and emergency response. These tools may be used to meet key performance measures in the System Access, Mobility, and Reliability Goal and the Safety and Security Goal.

Traffic is a key component in most of the performance measures discussed in Section 4. In general, growth in traffic volumes could result in failure to achieve the desired results in the System Access, Mobility, and Reliability Goal; the Environment Quality and Climate Goal; the Safety and Security Goal; and some of the performance measures in the Land Use and Economic Vitality goal areas. As a result, many of these tools are intended to affect the number of vehicles using the facility. In many cases, the tools are designed to allow people to satisfy their travel needs at different times or using different modes. The tools that may be employed to affect vehicle use mostly fall under categories of Transportation Demand Management (TDM), transit, and bicycle/pedestrian.

Because they can have such a huge impact on facility use, tolls and pricing strategies deserve special attention. Tolling is the financial tool, while variable pricing is a mechanism to achieve demand management objectives by time of day, by lane, or by user. The toll rate and overall pricing strategy can produce profound effects, including diversion to alternative routes, changes in mode choice, and changes to other times of the day. Tolls deserve special attention because their principal use is to repay the costs associated with constructing and maintaining the facility.

Land use tools are the final category. There is a definite relationship between land uses, the travel demand generated by the land uses and the resulting performance of the transportation system. Land use changes and the requirements associated with developments can have a long-lasting impact on transportation needs of the area. While access patterns provided by the transportation system can influence land use patterns, this occurs only within the context of land use regulations established and administered by local governments.

6.3 Transportation System Management (TSM) Actions and Tools

TSM is defined as the measures and actions used to increase the efficiency of operations of the transportation system, especially the street and highway network, including signals and signal systems. TSM measures are intended to increase efficiency of operation and to respond to the traffic, making use of the roads at the time. TSM measures help the transportation operations agencies respond to scheduled and unscheduled disruptions and demands.

TSM involves a certain amount of equipment, such as signals and communications equipment, and the technology to monitor traffic and make adjustments to their operations on a real-time basis. TSM also involves systems and equipment used to respond to roadway incidents, so as to minimize any unplanned loss of roadway capacity and traveler information systems that can help travelers make adjustments to their planned route.

TSM measures have a short-term orientation, as opposed to TDM, which seeks to affect a long-term change in traveler behavior patterns. TSM measures are designed to allow the transportation operations agencies to respond to observed conditions in real-time, thus allowing the system to

operate at near optimal capacity during as much of the day or hour as possible. TSM is almost exclusively in the domain of transportation agencies' operations personnel. Many TSM measures, such as adjustments in signal timing, may go unnoticed by travelers.

Common elements of TSM programs include the following:

- System monitoring and traveler information systems (e.g., web-based information systems, variable message signs, etc.),
- Facility management systems (e.g., optimized signal systems, ramp meters, signal priority for special users, such as transit, special purpose lanes such as those for HOVs or operated as HOT lanes), and
- Incident management systems (e.g., incident response and recovery teams).

Most of these common TSM programs are currently used in the I-5 corridor and are expected to be incorporated into the final design of the CRC project. Ramp metering and preferential lanes are worth some additional discussion because they could be used in connection with other tools and actions to affect use of I-5.

Ramp Meters – Ramp meters are used on the on-ramps to freeways and other limited access highways for two different purposes. First, ramp meters can discourage drivers from selecting the highway, rather than local roads, for shorter trips, thus preserving the capacity of the highway for longer, regional travel. This may not be relevant when considering I-205 and I-5 to cross the river, but may be a consideration when assessing whether motorists use I-5 or MLK Boulevard for trips within North Portland. Second, when traffic is heavy on both the mainline and the ramp, ramp metering can limit the amount of ramp traffic to the volume that can comfortably merge with traffic on the mainline. By adjusting the metering rate on the ramp, the combination of mainline and ramp volumes can be kept below the critical value at which a breakdown in traffic flow occurs. Its benefits can be reaped when the traffic flows are neither too light (in which case metering is not needed) nor too high (in which breakdown will happen anyway).

By metering the flow rate of traffic on the ramps, ramp meters increase travel times for traffic entering the highway, but keep travel speeds higher for longer distance, mainline traffic. In its simplest application, ramp meters set minimum intervals between vehicles entering the highway from the ramp with a fixed-time signal. More sophisticated ramp metering adjusts the rate of entering vehicles in response to the actual, real-time flow on the highway and the number of vehicles waiting to enter on the on-ramp.

Since ramp meters are used only on highway entry ramps, ramp meters are successful when deployed throughout the corridor system (over longer stretches of freeways). Ramp meters have a greater impact on the highway mainline and downstream interchanges than they have at the interchange at which they are installed. Ramp meters rely on sensors that are installed in the lanes of the highway to measure traffic volumes. The data used to program the ramp meters are also used to create real-time traveler information.

ODOT has installed ramp meters along each on-ramp to I-5 within the I-5 study area and WSDOT maintains one ramp meter at the SR 14 on-ramp to southbound I-5. Ramp meters are

used during peak hours and meter traffic in the peak direction only. During off-peak hours, ramp meters are turned off.

Theoretically, ramp meter timing could be adjusted specifically to impose a time penalty on those using the ramp and the highway, thus encouraging diversion to alternative routes, such as parallel facilities. In this case, ramp metering might appropriately be described as a TDM measure since it would shift trips to a different corridor, different time or different mode. The effectiveness of this strategy could depend upon the availability of alternative routes and their level of congestion. Reducing the number of vehicles using a ramp by adjusting timing could result in giving preference to longer-distance trips at the expense of shorter trips.

Management of Preferential Lanes – Once a decision has been made to provide lanes for preferential or exclusive use, an operating agency can set operating parameters related to the hours of operation and the allowable users. Common operating parameters include restricting the lane usage to transit vehicles, vanpools, and carpools with specific occupancy (both 2+ and 3+ occupant standards are used in different cities). In some cities, vehicles with a single occupant can also enter the lane by paying a toll. In other cases, carpools with three or more occupants are not charged a toll, but those with two occupants pay a toll, but single occupant vehicles are never allowed. Hybrid vehicles with a single occupant are also eligible to use carpool lanes in some areas.

In the Portland area, there is one example of a managed lane. ODOT utilizes a northbound managed lane for HOV users during the afternoon/evening peak period. Additionally, ODOT utilizes a preferential on-ramp lane at the Victory Boulevard on-ramp to northbound I-5 for exclusive use by buses. This lane allows buses to bypass other vehicles waiting at the on-ramp meter and provides a travel time savings and reliability for transit.

Managed lanes have been studied for the I-5 corridor including an assessment associated with the Delta Park project now underway for southbound I-5 in Oregon. A pilot project with an HOV lane was tested by WSDOT but removed after the test period. An analysis conducted of a managed lane in connection with the CRC project revealed several specific issues including operational problems beyond the project limits. One of the unique challenges is the high proportion of traffic crossing the Columbia River, but which travels less than five miles on I-5. Even if a managed lane were provided, traffic eligible to use it that entered near the bridge, such as from SR 14, might be unable to merge across the general purpose lanes to gain access to it. A managed lane along I-5 might still have potential if implemented as part of a regional program.

6.4 Transportation Demand Management (TDM) Actions and Tools

TDM is defined as an action or set of actions intended to influence the intensity, timing, and spatial distribution of transportation demand for the purpose of reducing the impact of traffic or enhancing mobility options.

TDM seeks to accomplish the following:

- Increase the use of commute alternatives, essentially using modes other than an SOV,
- Spread the timing of travel to less-congested periods,
- Reduce the need to travel, and

- Shift the routing of vehicles including trucks and single occupant vehicles to less-congested facilities or systems.

This definition addresses mode choice, time choice, location choice, and route choice.

This definition does not include facilities (e.g., transit buses or bike lanes), but rather the means by which commuters and other transportation system users are encouraged or induced to use them. Having viable alternative mode choices (which for transit, bicycling, and pedestrians requires facilities) is a prerequisite to having a useful TDM program. Facilities that allow choice by transportation system users are planned as part of the CRC project.

A variety of TDM programs and measures are currently in use in the Portland-Vancouver area. Current TDM programs in the Portland-Vancouver region can be categorized according to four basic strategies:

- Programs to improve public awareness of transportation choices.
- Programs to improve access to or availability of alternative transportation choices.
- Incentives and disincentives that cause changes in transportation choices by individuals.
- Institutional and organization approaches to promote TDM.

Public awareness of TDM and alternatives to driving are being achieved regionally by ODOT, Metro, TriMet, C-TRAN, City of Vancouver, and Clark County through two primary features:

- Broad public outreach via mainstream (newspaper, TV, radio, billboard, bus ads, etc.) and specialized advertising (events, etc.), and
- Individualized marketing campaigns aimed at informing segments of the public of mode choices, availability, and potential incentives to utilize non-auto travel.

Public awareness campaigns have been used in the region and have been proven to be quite effective in connection with the implementation of new services such as the inauguration of a new LRT route. These campaigns help teach potential users how to take advantage of the new service. This would be very suitably tied to the opening of a new CRC bridge/toll/LRT system.

Current public awareness efforts that could be expanded or supplemented include SmartTrips Portland, Clarkcommute.org, Smart Commuter Campaign, Southbound Solutions, and Drive Less Save More.

Programs to improve access to or availability of alternative transportation choices include transit, park-and-ride facilities, carpooling, and vanpooling. The transit improvements associated with the CRC project are well known – extension of the MAX line to Hayden Island, Downtown Vancouver, and Clark College. Three major park-and-ride facilities are planned in Vancouver as part of the CRC project. Vanpooling and carpooling could be actively promoted as part of a solution to reduce vehicle traffic along I-5.

TDM can also include incentives and disincentives that affect travel behavior by influencing, either positively or negatively, the cost of travel or the time associated with travel. Actions that decrease either the cost or time required for travel are incentives while those that increase the cost or travel time are disincentives. Seeking to shift travel to non-SOV modes can involve

incentives to increase their use and corresponding disincentives that make driving alone the less attractive. Several incentives and disincentives are found in the Portland-Vancouver region and affect transportation choices.

One incentive program example is subsidizing vanpool use by providing vehicles and a partial subsidy for operating expenses. Other incentives, such as offered through the Portland SmartTrips program and the Clark County Commuter program, include prizes or cash for those who utilize alternative travel modes.

Many incentives are employer-based. In response to or inspired by the Washington CTR law and Oregon ECO rules, employers throughout the region offer incentives to influence their employees' travel choices. Under both the Washington CTR and Oregon ECO programs, employers have considerable flexibility to tailor programs to their needs, their employees' needs, and the availability of alternative modes of travel. Typical employer-sponsored TDM features include:

- Flexible work schedules;
- Working from home (telecommuting);
- Subsidized, or even free, transit passes;
- Ride matching and preferential parking for carpools and vanpools;
- Guaranteed ride home;
- Parking cash out (giving those who do not occupy a parking space the equivalent in cash to use to subsidize their mode of choice);
- Incentives to walk and bike;
- Secured bicycle parking; and
- Changing rooms/showers.

Common features of the employer-based TDM programs are the use of incentives that seek to make non-SOV modes more competitive with the drive-alone mode for travel to and from the workplace.

Improved institutional and organizational approaches are also used to improve the effectiveness of TDM programs. Among them are the establishment of transportation management associations (TMAs), of which there are several in Portland, or Vancouver's Growth and Transportation Efficiency Center (GTEC). These organizations seek to promote TDM programs in specific areas often by working with employers and employees.

6.5 Bicycling and Walking

The CRC seeks to replace the current, substandard facilities with new, modern facilities that are fully compliant with the Americans with Disabilities Act (ADA). As part of the CRC project, connections to both the Vancouver and Portland systems will be improved. Some of the existing connections are circuitous and confusing.

Providing a superior facility can be expected to significantly increase the amount of use it receives, but promotional efforts can always help. Safety and security are well-known issues on bicycle/pedestrian facilities and some of the performance measures directly address this issue. A high level of maintenance and security provisions will be needed. Among the maintenance and security issues identified by the CRC's Pedestrian and Bicycle Advisory Committee (PBAC) were the commitment of adequate funding, opportunities for active programming of the space, visible and regular on-site monitoring by law enforcement or security staff, and provision of security cameras, call boxes, signing and lighting. PBAC also recommended comparison against measurable metrics and assessments of user satisfaction relating to maintenance and security.

6.6 Tolling and Pricing

As explained above, tolling is the financial tool, while variable pricing is a mechanism to achieve demand management objectives by time of day, by lane, or by user. If financial requirements must be met, then the two must be balanced. A tolling authority cannot simply raise the price to meet financial objectives without understanding and accounting for the behavioral aspects of the users' "willingness to pay" and the ramifications that pricing can create relative to other routes and modes. Balancing these is influenced by many project-specific factors. Peak period pricing is aimed at the periods when traffic volumes lead to congestion and delay with pricing set to incent use of other times, routes, modes and destinations.

Authority for tolling rests with the Washington Transportation Commission and the Oregon Transportation Commission. Washington law makes provisions for an advisory group that might be fulfilled by the Mobility Council.

The current assumption relative to tolling of the CRC project is that tolling would be performed electronically and that it would vary by time of day. Various tolling scenarios are being tested, but none has yet been recommended. The CRC's Tolling Study Committee's members are the Chair of the Washington Transportation Commission; the Chair of the Oregon Transportation Commission; the Secretary of the Washington Department of Transportation; and the Director of the Oregon Department of Transportation. The Tolling Study Committee is on a similar schedule to that of PMAG with a report expected early in 2010.

In general, it has been found that higher tolls decrease use of a facility and increase diversion to alternative routes and modes. Tolling authorities must be careful when setting toll rates to achieve sufficient revenues to meet their bond obligations and operational needs.

Pricing and discounts have potential application to change the behavior patterns and use of the facility and could affect demand in the corridor. The implications on the tolling authority's revenue must be considered in connection with pricing.

6.7 Land Use Actions

Tools related to land use are potentially the most powerful, but also may take a long time to realize results. The connection between land use and transportation are well known. The transportation impact of a particular development at a particular site can be fairly readily calculated. The geographic relationship between trip origins and destinations also has a profound effect on the likelihood of travel between them as well as the choice of mode used for the trips.

The Portland-Vancouver region has already embraced the smart growth concept in regional planning. Walkable communities, green streets, transit-oriented development are common themes in the region. The CRC project, including the elements related to roadway improvements, light rail and bus service expansion and active demand management through tolling and system management, is consistent and intended to reinforce the region's land use goals.

A number of the performance measures identified by PMAG seek to track the land use activities to monitor whether the desirable attributes are being implemented as planned and to determine if any unintended consequences begin to develop. The emphasis on higher densities in areas well served by transit as envisioned in plans needs to be realized. Depending upon progress made over the coming years, various adjustments may be needed or provisions strengthened. Most of these would fall under the category of land use actions that are likely within the jurisdiction of Metro and the cities and counties, but coordination with the respective regional planning agencies and states could be required.

Because of the importance of the land use and transportation relationship, monitoring development, housing, and employment trends and making adjustments could be critical to the region. Among the most important factors are:

- The rate of housing development in relation to jobs in Clark County,
- The capture rate of housing with the Metro urban growth boundary,
- The proportion of growth that occurs in mixed developments that help minimize travel needs,
- The amount of growth in areas well served by public transit, and
- The amount of growth that occurs near interchanges where capacity is needed for freight movements.

Careful coordination among the region's planning agencies, cities, and counties will be needed. Land use actions implemented in concert can help avoid impacts detrimental to the regions transportation system and the CRC project.

7. Future Steps in Development and Application of Performance Measures and Targets

As indicated previously in this report, this is an interim product on performance measures produced by PMAG. It is a framework with complete Goals and Objectives that can be used as a basis for refining specific Performance Measures and defining Targets. The Performance Measures and Targets can be used to assess and evaluate the performance of the project and its effect on the region's transportation system. Ultimately, the Performance Measures and Targets can be used to manage the CRC facilities and the broader system.

Some of the future actions that will be needed to fully implement the remainder of the project are discussed below. The tasks may not be all inclusive and may be conducted in a different order than discussed below. The tasks are grouped in some general categories, though there is overlap among them.

Immediate Need for Policy Direction

- Accepting, with modification as needed, PMAG's Goals and Objectives as presented in this Report.
- Providing clearer policy direction and guidance to PMAG.

Overall Policy Direction

- Better defining the Mobility Council schedule, duties, authority, responsibilities, membership, rules, charter, etc.
- Identifying whether the Mobility Council can serve as citizen advisory committee for toll facilities as defined by RCW 47.46.090, or, what the relationship should be between the Mobility Council and this citizen toll advisory committee.

Establishment of PMAG or a Successor Technical Body

- Providing guidance for PMAG or a successor body with clearer identification of responsibilities, authority, funding, schedule, expectations and reporting requirements.
- Finalizing the Performance Measures, including categorizing them by importance (e.g. critical, potentially valuable, important for managing the system, and dropped for reasons of complexity or difficulty of administration).
- Establishing methodologies and responsibilities for collecting new data needed to support the Performance Measures and Targets.
- Establishing appropriate baseline values for both existing and new Performance Measures.

- Establishing Targets for the selected Performance Measures, including details such as frequency of comparisons and allowable deviation from established values.

Policy Direction Related to Implementation and Use of Performance Measures

- Assigning responsibilities and authorities among the partner agencies for collecting and analyzing data and comparing them with Performance Measures and Targets.
- Establishing more formal relationships among the Mobility Council and partner agencies for evaluating and implementing tools and actions to manage the system.

APPENDIX A

Columbia Crossing Mobility Council - Concept – Project Sponsors Council – March 6, 2009

Background/Preamble:

The Columbia River Crossing Project is a long term, comprehensive, multi-modal transportation project that will bring significant economic and environmental benefits and improve the quality of life in the bi-state region. The I-5 corridor is nationally significant and the most important trade and commerce corridor on the entire West Coast. This project addresses one of the most significant chokepoints in this corridor.

The accomplishments achieved to date have been primarily due to the cooperation of all the project partners at the state, local and regional levels. That cooperation was founded in a Locally Preferred Alternative (LPA) in July 2008 that was unanimously supported by all partner agencies. The LPA achieved consensus on the following higher level outcomes:

- The project will build a replacement bridge.
- The project will incorporate light rail transit as the high capacity transit mode.
- The light rail transit extension will terminate at Clark College in Vancouver.
- The project will provide a range of options and significant improvements for those wishing to use alternate modes of travel within the corridor (light rail transit, bus, shared ride, bicycle and pedestrian).

Several other areas of agreement are apparent as we move forward through the final phase of the Environmental Impact Statement (EIS) and into design:

- The replacement bridge will be constructed with adequate width to accommodate six lanes in each direction to provide for safe operations between interchanges and efficient movement of people and goods.
- This project is consistent with the regional plans that call for three through lanes in each direction on I-5 within the metropolitan area.
- The finance plan will consist, in part, of tolling options to not only repay debt and ongoing operations and maintenance, but also to help as a tool to manage the travel performance of the Columbia River crossings.
- The Project Sponsors Council will begin evaluation of issues related to tolling at its June 2009 meeting and commence a process for public dialogue and discussion about tolling.
- The project will increase the safety in the corridor by improving the interchanges within the project area.
- The project will create predictable and reliable trip durations for freight and other high-priority trips moving through and within the corridor.
- The project will help to maintain regional trips on the facility, rather than spilling over to local collectors and arterials due to congestion.

- At its June 2009 meeting, the Project Sponsors Council will endorse membership of a technical group to draft performance measures.
- By January 2010, the afore-mentioned group will present recommendations to the Project Sponsors Council.

Columbia Crossing Mobility Council

The Project Sponsors Council supports creation of a local advisory Mobility Council to advise the state departments of transportation (DOTs) and transit districts on the optimal long-term performance of the Columbia River crossings. It is through such a partnership that the federal, state, regional and local needs will be achieved. The Project Sponsors Council supports practical and measurable performance standards to maintain long term system management.

This complex project has significant areas of agreement among the local agencies and stakeholders. The areas of agreement as noted above will serve as the starting point of a Council to advise the DOTs and transit agencies on ways to not only achieve the goals of the local communities, but also preserve the integrity and function of this yet to be constructed national asset.

Purpose:

The purpose of this Mobility Council is to provide recommendations to the DOTs and transit agencies on ways to actively manage mobility for all modes of transportation on the Columbia River crossings and their adjoining city streets and highways. This Mobility Council will help maximize the long-term benefits of the new multi-modal crossing for all users and affected stakeholders in an equitable manner by recommending the implementation of the agreed upon goals.

Partners:

Oregon Department of Transportation (ODOT), Washington Department of Transportation (WSDOT), City of Portland, Oregon, City of Vancouver, Washington, TriMet, C-TRAN, Metro, RTC, Port of Portland, Port of Vancouver

Council Structure:

Along with a Chair appointed jointly by the governors of the states of Oregon and Washington, each Partner appoints a non-elected citizen representative to serve a three-year term on the Columbia Crossing Mobility Council.

Process:

The DOTs will provide staff to the Mobility Council which will hold its first meeting at such time as the CRC Project Sponsors Council deems it necessary.

Each year the Mobility Council will recommend a Columbia Crossing Mobility Operations Plan for consideration by ODOT and WSDOT, and TriMet and C-TRAN, and others, as applicable.

The Mobility Council will consult with other local, state and federal agencies relevant to issues being considered.

The Mobility Council's annual recommendations may include, but are not limited to, tools such as:

- Toll rate structures, provided they are consistent with toll bond covenants and do not negatively impact the ability to pay bonds or meet other project related financial needs with toll revenues (including operations and maintenance)
- Travel and auxiliary lane uses and access
- Applicable transit policies
- Transportation demand management (TDM) strategies

The Plan will be forwarded from the Mobility Council to the DOTs and Transit Agencies. At that point, ODOT and WSDOT, and C-TRAN and TriMet, and others, as applicable, will either accept the Plan as is, or reject it with comments.

- a. The Oregon and Washington DOT commissions or CEOs, or transit agency boards or directors as applicable will consider the Plan before taking action.
- b. When accepted, the Plan will be implemented by the DOTs, Transit Agencies and others as applicable.
- c. If applicable sections of the Plan are rejected by either DOT or Transit Agency, the Plan will be sent back to the Mobility Council with comments and a request to amend the Plan. The Mobility Council will resubmit a revised Plan for approval by ODOT and WSDOT, or C-TRAN and TriMet, or others, as applicable.
- d. If agreement on a revised Plan cannot be reached within 90 days, the ODOT and WSDOT Transportation Commission Chairs, or their CEOs, or the Chairs of C-TRAN and TriMet, or their delegates, will convene with the Chair of the Mobility Council to resolve any differences and complete the annual Columbia Crossing Mobility Operations Plan.
- e. If agreement cannot be reached as outlined in (d) above, the DOTs and transit agencies and others, as applicable, may act without recommendation in accordance with their best judgment on how to achieve the agreed upon performance goals.
- f. When toll rate decisions need to be adjusted at a faster rate than this process identifies in order to satisfy bond needs (including operations and maintenance), the DOTs are entitled to act on those decisions while giving the greatest possible consideration to the performance goals of the project.
- g. The Columbia Crossing Mobility Council may recommend extending this process to pertinent operations of other Partners.

APPENDIX B

Performance Measurement Technical Working Group

Discussion Draft 5/1/09

Background

At their March 2009 meeting, the Project Sponsors Council (PSC) agreed that a Performance Measures Technical Working Group (PMTWG) will convene prior to the formation of the CRC Mobility Council. The PMTWG will meet between June 2009 and January 2010.

Issues of importance to the Project Sponsors Council that prompted their request for transportation performance measures include:

- Protect investments in the corridor
- Maximize system capacity and efficiency of I-5 in the Portland/Vancouver area
- Reduce transportation related greenhouse gas emissions
- Minimize induced demand and growth

Purpose

The Performance Measures Technical Working Group will be responsible for:

- Developing reasonable and measurable transportation performance measures to ensure optimal long-term performance and management of the Columbia River crossing, including;
 - Safety in the corridor
 - Effective management of Interstate 5 and related arterials and highways
 - Predictable and reliable trips for the multi-modal transportation system
- Draft recommendations will be provided by the PMTWG to the CRC Project Sponsors Council by November 2009. Final report will be provided to the PSC by January 2010

Members

The member list for this group will be approved by the Project Sponsors Council and will include technically proficient staff from the following agencies:

- | | |
|--------------------|------------------------|
| • ODOT | • City of Vancouver |
| • WSDOT | • TriMet |
| • CRC | • C-TRAN |
| • Metro | • Port of Portland |
| • RTC | • Port of Vancouver |
| • City of Portland | • And national experts |

The group will be facilitated by a consultant with knowledge of performance measures and experience facilitating technical conversations. The facilitator will not be considered a member of the group.

Meetings and Schedule

The Working Group will be formed in June 2009 and sunset in January 2010. Meetings will take place at the CRC project office or other agency locations. Frequent meetings are anticipated in order to meet the scheduled outlined above. Exact meeting dates will be determined by the PMTWG.

APPENDIX C

Draft Performance Measures and Targets

This appendix provides additional background about Performance Measures and Targets as discussed in PMAG meetings. As indicated elsewhere in this report, additional work is needed to identify and select appropriate Performance Measures and Targets. One of the key issues relates to the geographic areas or locations where they apply.

As a multi-modal project and because of its location, the CRC project will have impacts that vary by geography. Some impacts occur only on or adjacent to the corridor with almost no impact at more distant locations. Other impacts of the project could be regional in scope with relatively little variation by location. As a result, performance measures must be customized to the specific issue. Because of these variations, there is not a uniform geographic area for all performance measures. Two examples, one with a local focus and one with a wider geographic orientation, are discussed below.

Safety impacts of the project are probably among those with the least observable impact outside the project area. Key elements of the project include replacing the existing lift span bridge, adding lanes to reduce congestion, improving ramp geometry and adding safety shoulders wide enough for disabled vehicles to be removed from the travel lanes. Each of these elements is expected to improve safety in the corridor, a corridor in which the crash rate is far higher than similar facilities. There is some possibility that traffic spillover or diversion resulting from the project could result in safety-related issues in other locations, but the emphasis on safety issues can focus within the project limits – a relatively confined geographic area.

Vehicle miles of travel (VMT) is a performance measure that requires a wider geographic area of assessment. Both the states of Washington and Oregon have adopted goals of reducing per capita VMT. In addition, some diversion of traffic to alternative routes, such as I-205, is anticipated, especially if tolling is implemented in the I-5 corridor. In addition to reporting on VMT of trips crossing the bridge, it may also be important to report VMT for the regional highway system and the entire street network in the region.

The issue of location and geographic coverage will need to be considered in subsequent identification and selection of Performance Measures and Targets.

GOAL AREA: SYSTEM ACCESS, MOBILITY, AND RELIABILITY

The Performance Measures in this goal area need to include a wide variety of indicators focusing on users (people) and the vehicles (all modes). They include performance statistics, many of which are related to time. Finally, they include customer satisfaction statistics. Many of the performance measures will focus on the bridge and the I-5 corridor, but others will need to address a much wider geographic area because of the system-wide and regional impacts that may result from the construction of the project and the manner in which the facilities are operated.

Targets will have to be refined based on a more accurate determination of the baseline operations and on policy direction.

Draft Performance Measures:

- Corridor User Statistics
 - Person trips by mode, location, by time of day, and by season (mode split)
 - Trips eliminated or diverted to other routes
- Modal Operations Statistics (for all modes)
 - Vehicle miles traveled
 - Trip volume (by classification, including trucks) by time of day and by location
 - Vehicle travel time and speed by time of day and location (including variability)
 - Vehicle and person volume in other corridors, especially related to traffic diversion
- Observed System Performance Statistics (for all modes)
 - Duration of periods of congestion (highway and transit corridors)
 - Travel time reliability (buffer index, travel time index or other measures indicating variability in travel time)
 - Recurring delay (for all modes, including freight)
 - Non-Recurring, incident-induced delays (for all modes, including freight)
 - Transit schedule adherence, load factors, and related passenger measures
 - Transit vehicle and Park & Ride occupancy.
 - Interchange delay and length of queue during peak and non-peak periods
- Customer Satisfaction Statistics (for all modes)
 - Satisfaction with cost (toll, fares, etc) relative to system performance (reliability, convenience and frequency of transit service), level of maintenance (lighting, sweeping), safety and convenience (for users of all modes)
- Equity Measures
 - Cost, safety and travel time for all populations to access travel options, jobs residences, and services
 - Population within half mile walk of transit stop
 - The share of the region populations that live within 20 minutes of essential destinations by bicycle and public transit
 - Vehicle and transit travel times between residential areas and selected destinations (including employment, education and commercial areas).

Candidate Targets:

- Achieve average operating speeds on the I-5 mainline of approximately 45 mph at least 90 percent of the time during peak periods.
- Achieve average operating speeds on the I-5 mainline of approximately 45 mph at least 99 percent of the time during non-peak periods.
- Operate public transit systems and highway systems such that transit is competitive with auto travel when considering travel time, expenses, and impacts of each mode between key destinations.
- Maintain an upward trend in the percentage of non-SOVs used in the corridor.
- Achieve a corridor VMT trend (excluding freight) that rises more slowly (or falls more rapidly) than that of the region as a whole.
- Achieve traffic volume changes that are slower than regional population growth.
- Avoid diversions of traffic to alternative routes that increase traffic to levels that cause failure as defined by applicable mobility standards as defined by the responsible jurisdiction.
- Maintain trend toward 18,000 daily transit riders by year 2030.
- Maintain trend toward having at least 2,000 daily bicycle and pedestrian users by 2030.
- Freight movement reliability equal to that of the general traffic in the corridor.
- Achieving non-SOV mode share across the Columbia River that tracks consistent with mode share across the Willamette River.
- Cost, safety and travel time for vulnerable populations to access travel options, jobs residences, and services that are comparable to the population of the region as a whole
- Percent of vulnerable population within half mile walk of transit stop in BIA
- The share of the region's low-income, minority, senior and disabled populations that live within 20 minutes of essential destinations by bicycle and public transit
- Vehicle and transit travel times between representative low-income or minority areas and selected destinations (including employment, education and commercial areas) that are comparable with the region as a whole.

GOAL AREA: FINANCIAL RESPONSIBILITY AND ASSET MANAGEMENT

The Performance Measures in this goal area relate to the expected operation of the highway as a toll facility, the operation of the transit system, and the support for transportation options. Some of the Performance Measures and Targets will be under the authority of the agencies with tolling authority for the highway and some will be the responsibility of the transit operators.

Draft Performance Measures:

- Toll revenues by category and discounts, if applicable
- Debt coverage

- Expenditures for administration and collections
- Expenditures for maintenance
- All modal systems and elements maintained and/or operated at good or better conditions
- Cost of transit, compared with toll

Candidate Targets:

- Sufficient revenues to meet bond obligations; administrative and collection expenses; maintenance needs for all modes; and reserves.
- Sufficient revenues to allocate to programs that promote Transportation Options that help extend the operational life of the facility.
- Balance of revenues and expenditures in compliance with federal and state laws
- Meet applicable asset management, operations, maintenance, and related financial standards of owners and service providers

GOAL AREA: CLIMATE, ENERGY SECURITY AND HEALTH

This goal area covers interrelated issues related primarily to the use of vehicles with internal combustion engines. The issue arises from their release of pollutants, consumption of petroleum products, and the resulting public health concerns. These issues are being addressed on many fronts with goals and policies on local, region, state, national, and in some cases, international arenas.

Draft Performance Measures:

- Annual calculation of air quality emissions from measuring and monitoring in adjacent neighborhoods.
- Annual calculation of GHG-related emissions from traffic counts and modeling based on VMT, speed, speed variability, and fleet composition
- Annual calculation of fuel consumption from modeling based on vehicle counts, VMT, speed, delay, and fleet composition
- Environmental justice: specific measures to be determined

Candidate Targets:

- Maintain a downward trend in emissions of air pollutants resulting from traffic in the I-5 and I-205 corridors.
- Maintain an upward trend of bicycle and pedestrian use of the bridge.
- Maintain a downward trend of GHG emissions leading toward meeting the GHG targets established in state, local and regional goals.
- Maintain a trend of slower growth of petroleum consumption in the BIA than in the region as a whole.
- Meet applicable state and regional goals, standards, or laws as applicable.
- Aim for a downward trend for petroleum and GHG or at least better than the region as a whole or population growth.

GOAL AREA: SAFETY AND SECURITY

This goal area relates to both the related areas of safety and security for both users of the facility and those in the affected communities nearby.

Draft Performance Measures:

- Highway crash statistics by segment, type, location, and severity (number, rate, high-accident locations; truck-related crashes by type as a subset; the CRC corridor and key diversion routes)
- Number and severity of transit incidents
- Number and severity of bike/ped crime and crash incidents
- Number of accidents and accident rate for each mode
- Number of call box alarms on the bicycle/pedestrian level of the facility

Candidate Targets:

- Highway crash that are better than the average for urban freeways in the respective states.
- Transit incidents at better than system-wide averages.
- Better performance than system-wide averages for each provider and each individual mode

GOAL AREA: ECONOMIC VITALITY

This goal area focuses on various indicators related to key elements of the regions economy, including the industrial sector and the transportation sector, which is a particularly important sector in the Portland-Vancouver region. This goal area recognizes the relationship between economic vitality and the need to account for the transportation costs (monetary and time) associated with the movement of goods and people.

Draft Performance Measures:

- Freight travel time and reliability for through movements and those on-off within BIA
- The value and volume of freight moving across the bridge annually.
- The number of truck trip turns from Port terminals to I-5 (use Road link # of turns daily)
- Travel time on four indicator routes:
 - Marine Drive
 - Columbia Boulevard
 - Mill Plain
 - 4th Plain
- Travel time between key employment centers to outside of region and within the region between the following origin-destination pairs:
 - Wash Co. to PDX
 - Downtown PDX – north Portland
 - Wilsonville to Columbia Corridor
 - Clark County to Columbia Corridor
 - East Clark County to Port of Vancouver

Candidate Targets:

- To be developed after completion of baseline data

GOAL AREA: LAND USE

This goal area focuses on land use because of the interrelationship between land use and transportation. Many of the Draft Performance Measures are intended to help assess whether the land use plans and policies intended to reduce the use of the transportation system (particularly the regional highway system) are proving effective in achieving their goals. Because so many land uses are already well-established, the effect of changes will need to be monitored long-term.

Draft Performance Measures:

- Growth of jobs and housing in each urban county.
- Growth of jobs or output in Vancouver and Portland industrial areas.
- Growth in areas of each urban county and key cities targeted for increased density.
- Growth of non-freight uses around interchanges intended primarily for freight access to I-5.
- The jobs/housing ratio in each urban county.
- Metro's housing capture rate relative to that of each urban county.
- Acres of industrial land as a percentage of industrial designated in 2010
- Proportion of residential and job growth in transit-supported areas
 - On each side of the river
 - Across the BIA
- Jobs/housing ratio
 - On each side of the river
 - Across the BIA
 - Adherence to prevailing plans
 - Near freight-heavy interchanges (break down jobs by sector)
- Mode choice and trip distance trends
- Workforce access to key industrial and other job centers within the BIA

Candidate Targets:

- Values to be tracked relative to regional and local land use plans
- To be developed after completion of baseline data

Performance Measures Advisory Group

Project Sponsors Council
January 22, 2010



Agenda topics

- Update on PMAG committee process and results
- Describe the interim report and the performance evaluation framework that has been developed for the Mobility Council
- Describe potential use of the performance measures to inform design refinements
- Review possible “next steps” and major milestones through start of construction

Mandate and purpose of the PMAG

- Develop innovative, practical and measurable transportation performance measures and objectives to ensure optimal long-term performance of the CRC
- By January 2010, present final recommendations to PSC

PMAG members

- Scott Chalkley, ODOT
- Rob Fellows, WSDOT
- Susie Lahsene, Port of Portland
- Katy Brooks, Port of Vancouver
- Peter Hurley, City of Portland
- Phil Wuest, City of Vancouver
- Andy Cotugno, Portland Metro
- Dean Lookingbill, Southwest Washington RTC
- Eric Hesse, Tri-Met
- Scott Patterson, C-TRAN

Outside experts

- Daniela Bremmer
 - Director Strategic Assessment Office, WSDOT
 - Performance measurement and reporting
- Tom Brennan
 - Principal, Nelson\Nygaard Consulting Associates
 - Public transportation, performance measurement
- Angus Duncan
 - Chair, Oregon Global Warming Commission
 - Climate change, energy, performance measurement
- Ginger Goodin
 - Senior Research Engineer, Texas Transportation Institute
 - Toll facilities, managed lanes, HOV and HOT lanes, user fees

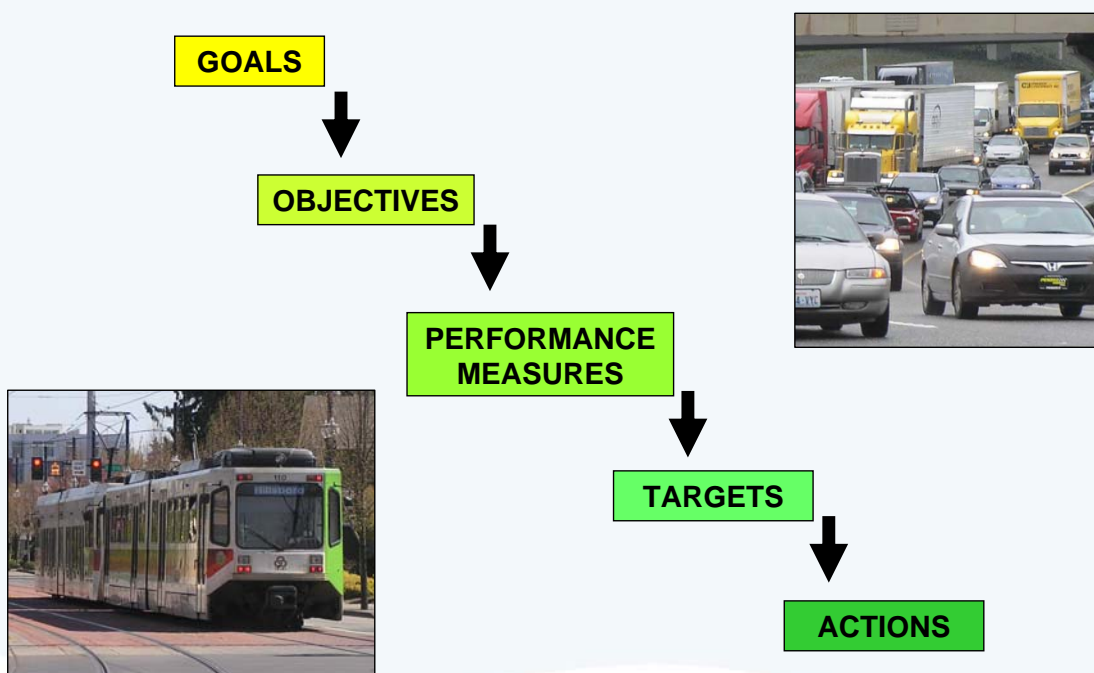
Unique aspects of the CRC proposal

- Innovative approach to providing “warranty” for project outcomes – a first for mega-projects nationwide
- Multi-agency, multi-jurisdictional, multi-modal undertaking
- Mix of real-time, short-term, and long-term time frames for detecting impact and making adjustments to operations
- Potentially competing objectives of facility performance management, impact mitigation, revenue generation, and support for broader regional and state goals
- Interest in applying operational performance management framework to design refinement process

Key elements of PMAG work plan

- Review project vision statement and sponsoring agencies' expectations for managing the corridor
- Develop framework for goals, objectives and performance measures
- Review draft framework with outside experts, agencies
- Identify performance targets where feasible
- Assess data needs for recommended measures
- Prepare technical paper summarizing process and recommendations
- 9 PMAG meetings to date, June 2009-January 2010

Framework for measuring performance



CRC Performance Goal Areas

- System Access, Mobility, and Reliability
- Financial Responsibility and Asset Management
- Climate, Energy Security, and Health
- Safety and Security
- Economic Vitality
- Land Use

Performance objective: System access, mobility and reliability

- Reliability
- Mobility
- Mode choice
- Demand management
- System impacts
- System equity

Performance objective: Financial responsibility and asset management

- Solvency
- Operations, maintenance and asset management
- Transportation options

Performance objective: Climate, energy security and health

- Air pollutants
- Greenhouse gases
- Fuel consumption
- Public health equity

Performance objective: Safety and security

- Safety, security and comfort of multimodal users and surrounding communities

Performance objective: Economic vitality

- Cost of goods movement
- Access to freight facilities
- Access to jobs and markets
- Interchange capacity

Performance objective: Land use

- Balanced land use
- Smart growth
- Industrial lands

Performance measure examples

- Traffic statistics: e.g. traffic volumes across the river for all modes, and diversion to I-205.
- Calculation of GHG-related emissions from traffic counts and modeling based on VMT, speed, speed variability, and fleet composition.
- Highway crash statistics by segment, type, location, and severity
- Freight travel time and reliability for on-off movements within the bridge influence area
- Proportion of residential and job growth in transit-supported areas

Potential target examples

- Achieve average operating speeds on the I-5 mainline of approximately 45 mph 90 percent of the time during peak hours.
- Maintain an upward trend in percentage of non-SOVs in the corridor.
- Maintain trend toward 18,000 daily transit riders across the bridge by year 2030.
- Avoid diversions of traffic to alternative routes that increase traffic to levels that cause significant adverse impact as defined by responsible jurisdictions.

Example of framework application

Situation:

Emerging trend as revealed by multiple performance measures indicates that peak hour auto travel is growing faster than predicted, transit ridership is lower than target, and the duration of peak hour congestion is growing.

Response:

The Mobility Council will review data and determine whether the trend falls within the accepted targets or ranges.

If not, MC will recommend appropriate possible actions, e.g., increasing toll rates, implementing more aggressive TDM strategies, reviewing reliability of, and customer satisfaction with, transportation options.

Work completed by PMAG

- Final scheduled PMAG meeting took place January 6, 2010
- Finalized performance evaluation framework containing goals and objectives
- Developed Interim Report describing process, goals and objectives, data considerations, and actions available to Mobility Council to manage future project performance
- Potential performance measures and targets included in appendix, no recommendations at this point
- Identified issues requiring clarification and future work tasks for PMAG, CRC staff or others to fulfill PSC mandate

Remaining work to be performed

- Near-Term Actions
 - Accept PMAG Interim Report with modification as needed
 - Provide policy direction and guidance for next steps
- Further Policy Direction
 - Refine schedule for implementation
 - Further define Mobility Council authority, charter, etc.
- Further Technical Work
 - Establish appropriate successor body to continue PM effort
 - Provide clear guidance to PMAG or successor body re: responsibilities, authority, funding, expectations
 - Finalize performance measures, targets, and methodology

DRAFT 1/13/10

Refinement Package: Eliminate Marine Drive EB to NB Flyover

Refinement Opportunity: CRC developed and proposed plan to reduce project costs while meeting the six goals of the project's Purpose and Need statement. Eliminating the Marine Drive eastbound to northbound flyover is one element of the draft refinement recommendation prepared by the CRC project in December 2009.

Potential Cost Savings: \$35 to \$50 million

Conclusion: Based on operational performance criteria and performance measurements, the proposed eastbound to northbound flyover ramp can be phased and constructed in the future. The traffic operations analysis compared the operation of Marine Drive Interchange with and without the flyover ramp in the year 2030. Without the flyover, additional traffic would go through the signalized ramp terminal that serves through traffic on Marine Drive and traffic entering and exiting I-5 at Marine Drive. Without the flyover ramp, overall level of service (LOS) would be acceptable in year 2030; indicating construction of the flyover ramp could be deferred until then.

Supporting Data: The opportunity to phase the eastbound to northbound flyover ramp at Marine Drive was based on an operational analysis of the signalized ramp terminal at the Marine Drive interchange. This intersection is the key element for determining the overall performance of the interchange with and without the flyover ramp. The analysis was conducted using the base year 2030 traffic data as well as the potential traffic generated by additional growth at Terminal 6 and Rivergate.

Performance Measure Advisory Group - Applied Analysis

Following is a summary of the analysis based on relevant goals, objectives, and preliminary performance measures developed by the Performance Measures Advisory Group (PMAG). Only objectives/performance measures are shown where there is an appreciable difference between the alternatives.

System Access, Mobility and Reliability

PMAG Goal: *"Maximize access through efficient and reliable movement of people and goods within and through the corridor."*

Objective/Performance Measure	Marine Drive with Flyover	Marine Drive without Flyover
<p>Reliability. Maintain travel time reliability of the CRC for all users (transit, auto, freight, ped/bike) with an emphasis on emergency vehicles, freight, high occupancy vehicles and transit.</p>	<p>With and without the flyover, Marine Drive reliability will be improved in 2030 compared to No Build.</p> <p>Freight and auto reliability will be slightly better with the flyover due to less intersection delay and somewhat greater capacity.</p> <p>Other modes will be the same for both alternatives.</p>	
<p>Mobility. Minimize travel delay for all users (transit, auto, freight, ped/bike) with an emphasis on emergency vehicles, freight, high occupancy vehicles and transit.</p> <ul style="list-style-type: none"> • Observed System Performance Statistics (for all modes) <ul style="list-style-type: none"> ○ Recurring delay (for all modes, including freight) ○ Interchange delay and length of queue during peak and non-peak periods 	<p>With and without the flyover, Marine Drive mobility will be improved in 2030 compared to No Build.</p> <p>With the flyover, delays will be minimized for all users due to the lower volume of traffic going through the interchange ramp terminal. Without the flyover, the greatest impact will be for vehicles from EB Marine Drive to NB I-5. This includes 135 trucks in the AM peak and 215 trucks in the PM peak.</p> <p>Average delay per vehicle: AM peak 13.3 sec PM peak 22.1 sec</p>	<p>Average delay per vehicle: AM peak 21.3 sec PM peak 28.6 sec</p> <p>Note: No Build delay per vehicle would be >100 seconds for AM and PM peak.</p>

Safety and Security

PMAG Goal: *"Minimize the occurrence of crashes, especially those involving fatalities and serious injuries, and maximize the safety and security of system users and surrounding communities."*

Objective/Performance Measure	Marine Drive with Flyover	Marine Drive without Flyover
<p>Safety. Minimize crashes, especially those involving fatalities and serious injuries, across all modes.</p>	<p>With and without the flyover, crashes in this location are expected to decrease in 2030 compared to No Build. Crashes would most likely be rear-end crashes; some could involve trucks.</p> <p>With the flyover, there would be slightly better safety performance and fewer crashes at the interchange ramp terminal due to lower volumes at the signalized ramp terminal.</p>	

<ul style="list-style-type: none"> Highway crash statistics by segment, type, location, and severity (number, rate, high-accident locations; truck-related crashes by type as a subset; the CRC corridor and key diversion routes) 	Based on entering volumes and a crash rate of 1 crash per million entering vehicles, 7 reportable crashes would occur annually at the signalized ramp terminal.	Based on entering volumes and a crash rate of 1 crash per million entering vehicles, 10 reportable crashes would occur annually at the signalized ramp terminal.
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Economic Vitality

PMAG Goal: *“Enhance economic vitality of the region by facilitating efficient freight movement, improving multimodal access between businesses, labor markets, and job centers.”*

Objective/Performance Measure	Marine Drive with Flyover	Marine Drive without Flyover
Cost of Goods Movement. Minimize cost of goods movement by balancing travel time and reliability improvements with the cost of goods / freight movement in and through the corridor.	On a regional basis the impact to economic vitality by phasing the flyover ramp would be insignificant. The flyover would offer a slight advantage in travel time for all truck movements going through the interchange ramp terminal including the through truck trips remaining on Marine Drive.	
Access to Freight Facilities: Improve truck access to freight facilities.	Trucks from eastbound Marine Drive to northbound I-5 due would be able to avoid a traffic signal with construction.	
Access to Jobs and Markets. Increase multimodal access and reduce travel time between: <ul style="list-style-type: none"> Labor force and job centers; Businesses and their markets. 	There would be a very slight advantage due to reduced intersection delay compared to Marine Drive without the flyover.	Slightly greater intersection delay at the interchange ramp terminal compared to Marine Drive with the flyover.
Interchange Capacity. Protect capacity of key freight access routes.	There would be a slight advantage due to the greater capacity of the interchange with the flyover.	This improvement could be implemented at a later date.

Financial Responsibility and Asset Management

PMAG Goal: *“Ensure sufficient revenue to maintain financial solvency; maintain assets at their lowest life-cycle costs; support re-investment in programs and infrastructure; and fund operations and transportation options that extend the operational life of the facilities.”*

There is a potential initial cost savings to the project of \$35 to \$50 million. Since this is a phasing recommendation and at some future date the eastbound to northbound flyover ramp would need to be constructed, costs for construction of this ramp will most likely be higher than if constructed now.

Climate, Energy Security and Health

PMAG Goal: *“Reduce project-related energy consumption, GHG emissions, air pollution, and other environmental impacts.”*

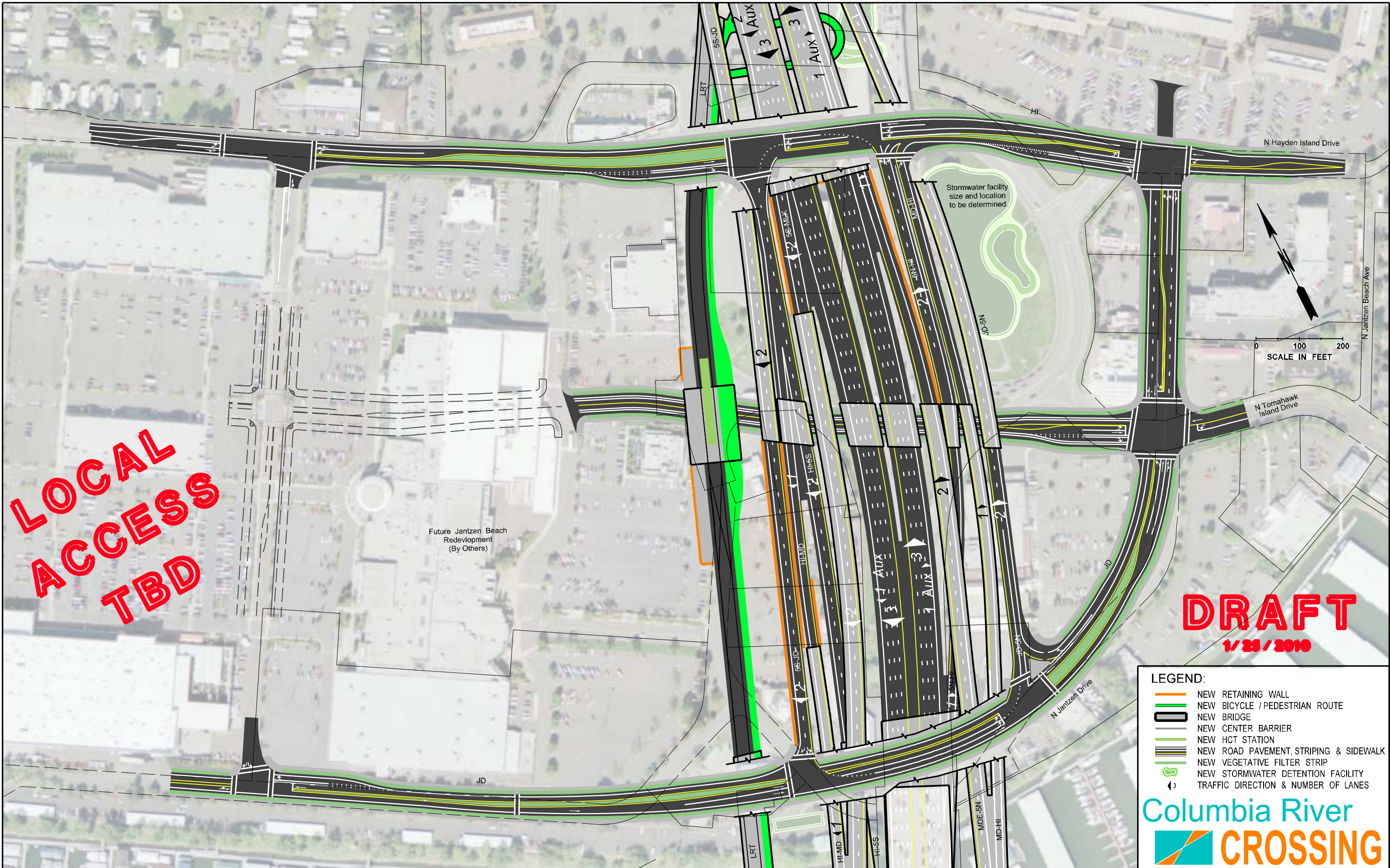
PMAG objectives for this goal relate to air pollutants, greenhouse gases, fuel consumption, and public health equity. Developing data at comparing the flyover with the non-flyover designs for this interchange was considered impractical for the refinement analysis. On a regional basis, the differences between the two options would be insignificant.

It is anticipated there would be a slight advantage for the alternative with the flyover for some localized pollution levels of some pollutants such as CO₂, for GHG emissions, and for fuel consumption due to decreased delays and less stop-and-go movement at the signalized ramp terminal.

Land Use

PMAG Goal: *“Support prevailing state and local land use goals and policies and multimodal access to jobs, services and residences.”*

Since the performance of the interchange ramp terminal at the Marine Drive interchange is predicted to be adequate for many years and because the eastbound to northbound flyover ramp could be constructed in a later phase, there would be no appreciable difference between alternatives with regard to regional land use, regional development patterns or rates of growth.



LOCAL ACCESS TBD

DRAFT
1/23/2019

- LEGEND:**
- NEW RETAINING WALL
 - NEW BICYCLE / PEDESTRIAN ROUTE
 - NEW BRIDGE
 - NEW CENTER BARRIER
 - NEW HCT STATION
 - NEW ROAD PAVEMENT, STRIPING & SIDEWALK
 - NEW VEGETATIVE FILTER STRIP
 - NEW STORMWATER DETENTION FACILITY
 - TRAFFIC DIRECTION & NUMBER OF LANES

Columbia River
CROSSING